

Frontispiece.

[Photo, Elliott and Fry.

THE AUTHOR AT HOME.

MEMOIRS OF
TRAVEL, SPORT, AND NATURAL HISTORY

by the late

HENRY JOHN ELWES, F.R.S.

*Sometime President of the British Ornithological Union, the
Entomological Society and the Royal English Arboricultural
Society, and author (with Professor A. Henry) of "The Trees
of Great Britain and Ireland"*

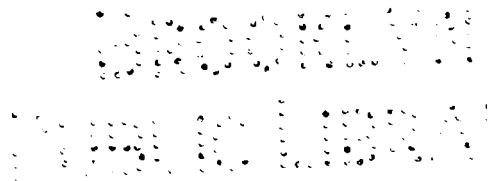
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With an Introduction by

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And a Chapter on Gardening by

E. A. Bowles



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INTRODUCTION

“When one preserves one’s senses and faculties and suffers no pain, old age would be no grievance, but for one—yet oh! that is a heavy calamity—the surviving one’s friends.”—HORACE WALPOLE TO HORACE MANN.

MOST of the schoolfellows whom I left at Eton sixty-eight years ago, numbering between eight and nine hundred, must have passed to their rest by this time—many of them having risen to distinction in science or literature, in arms or civil life, in politics or commerce. Among them was Henry John Elwes, whose life-work was at once so varied and so thorough as to win a distinction well-nigh peculiar to himself. Born in that section of society which its detractors denounce as “the idle rich,” from middle life onward an opulent landowner, he fulfilled Francis Bacon’s ideal of a life of “leisure without loitering,” travelling far, frequently and adventurously, never without a definite purpose.

My acquaintance with Elwes at Eton was slight. We were in the same school division, but were boarded in different houses. He figures in memory of those far-off days as a handsome, dark-eyed boy, holding somewhat aloof from his schoolfellows and showing no effective interest in games. I have learnt since that he spent much of his play hours rambling by the riverside and in country lanes watching birds. Ornithology was certainly his first love, the earliest of a long series of contributions to the literature of that branch of science being a paper in the *Ibis* in 1869 on the wildfowl of the Outer Hebrides. Elwes and I had each been entered for a commission in the Scots Fusilier Guards (now the Scots Guards), but whereas he passed the qualifying examination successfully, I failed ingloriously to do so, and many years passed before we met again. Five years’ service with the colours did nothing to abate or divert his keen interest in natural history, and in 1870, perusal of Hooker’s fascinating *Himalayan Journals* having fired him with a desire to visit India, Elwes carried it into effect with characteristic promptitude. Not only so, but having traversed Sikkim in Hooker’s footsteps to the frontier of forbidden Tibet, on being turned back from the Donkia Pass by the Tibetan frontier guard, he slipped aside to another pass, through which he penetrated as far as the Cholamo Lake, returning thence to Sikkim from the north by the same pass from which he had been turned back on attempting it from the south.

It was during this expedition that Elwes first took serious note of trees and herbs. To his early passion for birds he had already added the study and collection of Lepidoptera, and his fellow-traveller on this occasion was

W. T. Blanford, an accomplished naturalist, but hitherto he had given no more than casual attention to the vegetable kingdom. Howbeit it was not possible that one so susceptible of beauty in nature should remain indifferent to the marvels of the Sino-Himalayan flora; wherefore, little as Elwes may have been conscious of it at the time, the impressions received during this year of travel proved the source of his valuable services to botany and horticulture in years to come. Not until after his marriage in 1871, when he took up house at Miserden, some five miles from his father's mansion of Colesborne, did he give any attention to the cultivation of a garden. Even then he had not the means for employing a trained gardener; it was an old Quaker in his neighbourhood who by precept and example aroused his interest in the collection and care of plants.

Of Elwes's travels in many lands, collecting butterflies, and plants, shooting big game and paying close attention to other forms of life, especially birds, much information will be found in the following pages, and I will only refer to the last of these expeditions as affording a typical instance of his extraordinary vitality and energy. Having received in 1913 a special invitation to visit Nepal, a realm which had long been almost hermetically sealed against Europeans, he was preparing for a start when he became disabled by a painful disorder, rendering a serious operation necessary. After that was over, I visited him in a nursing home, and expressed a hope that all was going well. "Oh, well enough, well enough," quoth he; "but you see they had to cut through three or four inches of fat to get at the trouble, and that makes recovery slow."

Slow! That was in the second week of December, and he sailed for India in January. Those who listened to his lecture before the Royal Society of Arts in February, 1915, giving account of his experience in Nepal, well understood that he had not spared himself as a convalescent. Elwes was a ready linguist and had acquired enough fluency in Hindustani to converse with his bearers, who became devoted to him.

The enterprise and diligence of collectors during the last forty years have resulted in the introduction to this country of a greater number and variety of hardy exotics than in any similar space of time. In no genus have so many new species been discovered, described, and cultivated as in that of *Rhododendron*. Had Colesborne been situated on the greensand or in some sheltered dale of the west, one may imagine the enthusiasm with which Elwes would have undertaken their cultivation; but his lines were cast on a Cotswold upland, where a cold, cretaceous soil forbids success with that fascinating family of plants, and he knew better than to attempt it. Perhaps horticultural science lost nothing from the limitations imposed on the cultivator by oölitic rock, which caused him to concentrate attention on plants agreeing with an alkaline soil. The scope of his contributions

to botany and horticulture may be roughly gauged by the fact that no private garden has supplied so many subjects for plates and description in the *Botanical Magazine* as that of Colesborne. It gratified Elwes to learn, shortly before his death, that the number of species contributed by him for illustration in that venerable periodical amounted to one hundred.

It will be long before the presence of Elwes at the fortnightly meetings of the Council of the R.H.S. will cease to be remembered. There and in all similar gatherings he was ever conspicuous, both by reason of his massive frame and handsome, dark-bearded countenance, which ensured for him in any company

“ *Digito monstrari, et dicier hic est,*”

and by his deep, resounding voice which sometimes tended to dominate discussion. That voice gave occasion for an amusing incident when, several years ago, the English Arboricultural Society visited the woods of Perthshire under invitation from the Scottish Arboricultural Society. Elwes, as President of the English Society, was a prominent figure in the party, commenting vigorously upon what he saw. In course of the second day's peregrination, one Scottish forester, indicating Elwes to a companion, was overheard asking: “ I say, is that a man or a gramophone ?”

Elwes spoke from fullness of knowledge and ripe experience. If at times his eager emphasis betrayed impatience with opinions expressed by others, none was more grateful than he for sound information from persons qualified to give it—none readier to own up when he was in the wrong.

Nothing brings absent or departed friends more surely to mind than plants received as their gift. Many such gifts did I receive from Elwes, the latest of them being *Cupressus formosensis*, which is mentioned in Elwes and Henry's great work on trees in 1910 with the remark, “ No seeds of this remarkable species have as yet reached Europe ” (Vol. V., p. 1149).

Howbeit, seed having been received from Formosa shortly after that date, Elwes sent me a seedling which is now a shapely plant ten feet high. I never pass it without kindly remembrance of the donor.

We have parted with a warm-hearted, open-handed friend, and horticulture and silviculture have lost a foremost pioneer and ready craftsman in Henry John Elwes, of whom it may justly be said :

Strenuus vixit : fortis obiit.

HERBERT MAXWELL.

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CHAPTER I

EARLY LIFE: ETON AND THE SCOTS GUARDS

I SUPPOSE few men in looking back to the events of their life can fail to recall many happy days, and those who have been blessed as I have with good health, good friends, a good wife, and a fair fortune must be singularly unfortunate, unenterprising or unwise if they cannot recall some days whose memories may give pleasure, or be of use to others as well as themselves; but I do not think anyone who is not born as I was with a love of nature can fully realize the amount of pleasure which falls to the lot of a naturalist.

Though I have taken a fair share of interest in agriculture and sport, and in the duties, pleasures and occupations of a country gentleman, it is from nature that I have certainly derived the greatest enjoyment, and to nature I always turn for an unfailing and inexhaustible pleasure which I believe can be afforded by no other pursuit to the same extent.

Whether these reminiscences contain anything which will make them of permanent interest is a question which I must leave to others to decide. I only know that similar ones have given me the greatest pleasure to read, and I have often regretted that so many persons allow their experiences to perish with them, as they often do because they are too diffident or too idle to write them. However little a man knows, he always knows something which may be useful to others if truly and accurately told; and though I have never kept a diary I hope that the accuracy of observation which the study of natural history teaches may keep me from any recollections which are not strictly correct. As, however, an old man's memory is often misleading, and people are apt to put off too long the record of their experiences, I have determined to wait no longer, and hope that these rough notes will be received as a truthful account of events which may have some interest to others.

I was born on May 16th, 1846, the eldest son of John Henry Elwes and his wife Mary, daughter of Admiral Sir Robert Bromley of Stoke Hall, Newark. My earliest recollection is of moving to the Old House at Colesborne, halfway between Cirencester and Cheltenham in the Cotswold Hills, after my grandfather's death in 1851. My grandfather used to live here about half the year and the other half at Congham, Norfolk. As the old house was too small it was pulled down in 1852 and a large new house built close by. In those days building was cheap, and the architect as usual designed a much larger house than was intended or is now wanted, and my father spent a great deal of money in various ways on the estate, as most country gentlemen were inclined to do in those days of agricultural prosperity and low wages. Whilst the new house was being built, my father bought a schooner yacht, the *Fairy*, in which he made a long cruise to the Mediterranean, taking his eldest children with him; but the only thing I can recollect was the yacht dragging her anchors during a gale in the harbour of Corfu and being driven against the mole, where she was considerably damaged. I have lived ever since in Gloucestershire,

though I believe that I have never spent an unbroken year in England since I was seventeen. I inherited the love of travel, sport and natural history. My uncle, the late R. Elwes of Congham, Norfolk, author of "A Sketcher's Journey round the World," was, however, I believe, the only member of my family who has ventured before the public as an author.

In 1854 I was sent to a private school kept by an old-fashioned clergyman in a beautiful country near Tunbridge Wells. Judging from a picture by Eddis, I was at that time "a pretty boy," and was much chaffed on arrival at school about my clothes. But though I have no recollections of my studies there, it was a school where boys were encouraged in running about the country in pursuit of birds' eggs and butterflies, and collecting was to our great pleasure and advantage the fashion.

Our school bounds were very limited and no bird had much chance of making a nest within them without discovery and on the weekly half-holidays we ransacked the surrounding country in search of objects to enrich our collections. The boys of the surrounding villages were called to our aid as well, various dodges being employed by the rival collectors to anticipate the return of some delegate to more distant places than we could reach, so as to have first pick of his plunder. Two of the great objects of our desires were a hawfinch's nest and a Great Northern Diver's egg. The former were much scarcer in England then than they seem to be now; the latter could only be obtained by purchase at a price which was almost prohibitive in those days—ten shillings, I think. There was a certain ornithologist named Dunn who then lived at Stromness in the Orkney Islands, who published a catalogue of birds' eggs, which we studied with as much care and anxiety as any art connoisseur studies a sale list of pictures, to see how many of these northern treasures could possibly be acquired out of an income of a shilling a week.

The eggs were sent by post packed in chip boxes, which sometimes arrived considerably broken, and great was the ingenuity displayed in mending up the broken eggs so that they would present a decent appearance when bedded in cotton wool. I added largely to my purchases by money paid for catching rats, at the rate of twopence each, and can remember as well as if it was yesterday some of the favourite runs and holes which were specially good places for setting my traps. The best was in a corner of the stable yard where, imitating the device of the beaver trappers in North America, I set my trap below the surface of a pool of liquid manure through which the rats had to pass to get out of the granary.

This reminds me of an egg sale which took place in London about the year 1866, in which four genuine Great Auks' eggs, which had been discovered in some old collections, were offered. The value of a Great Auk's egg was then about £25, and I wrote to my father asking him to let me have the money to buy it. As he refused I never got a Great Auk's egg, but I know for a fact that one of those very eggs was sold thirty or forty years later at ten times the price. Some years later, however, I was fortunate enough to become the possessor of one of the last pairs of Great Bustard's eggs, taken on or near my grandfather's property at Congham, which were given me by the Rev. J. Pitt of Rendcombe, a celebrated character in his time, and a very fine old sportsman who had

the run of my father's shooting and gave me my first lessons in that pursuit. He was slow but pretty sure with his gun, and whenever he brought down a particularly neat shot cried out "Capital ! Wonderful ! All right !"

There was another dear old sportsman named Bubb, a neighbour of ours, who always came to shoot Chatcombe Wood, then celebrated for woodcocks (I shot my last woodcock here in December, 1921). He dressed in a very long and heavy velveteen coat with two immense hare-pockets in the skirts, and sheepskin leggings reaching halfway up his thighs such as were worn in those days by all woodmen and country labourers. He never would change his old Joe Manton muzzle-loader, and was very slow in loading, but he was a great favourite with us boys because he filled his pockets with a particular apple, still known in the Vale of Gloucester as "Ashmeads Kernel," which he distributed to the party after we had partaken of the beer, bread and cheese, and onions, which then formed the staple of a shooting lunch.

To return to school, I can only say that it has the credit, which I think no other small private school can boast, of producing two boys at the same time who attained the distinction of F.R.S. in after life—namely, Lord Walsingham and myself. Another boy who I can remember there was the late Sir William ffolkes of Hillington, Norfolk, where I used to stay when I visited my uncle, Robert Elwes of Congham; Sir William ffolkes afterwards married one of his daughters. Hillington Hall, which was his property, was a charming old place built of a peculiar local red stone in small thin pieces called Carstone. When staying here in after life, I remember that a place called Docking, though separate from the rest of the estate and without any keeper, produced a greater number of partridges on 600 acres than any other farm I have ever seen or heard of. Sir William adopted a plan, which I think might be followed with advantage elsewhere, of giving the tenant one shilling apiece for partridges, to be divided among the men regularly employed on the farm, and as in the year I speak of no less than 900 were killed, it made every one of them as anxious to preserve the birds as a regular keeper.

Before a boy was considered a past graduate of this school by the others he had to perform certain feats of tree climbing, which consisted in crossing from one tree to another without descending to the ground; and the skill which was thus developed in climbing would no doubt have made us excellent midshipmen, and was very useful to me afterwards in my ornithological expeditions. Catapults were then the only means by which we brought down live birds, and I remember the delight with which I first carried a walking-stick gun, probably the most dangerous form of gun that a boy could be given, for it had no trigger guard and a very uncertain half-cock; so, after nearly blowing a friend's head off while walking along a path, I gave it up.

On leaving this school in 1858 I went to Eton, and as my future tutor, the late Rev. Mr. Durnford, commonly called "Judy," had no room in his house, I spent the first half at a dame's called Stevens, which old Etonians will remember at the corner of Fellows' Yard on the left as you go into the playing fields.

It is extraordinary how such small, ill-arranged and ill-adapted houses

could in those days have been made to accommodate anything like the number of boys they did in separate bedrooms. The only thing I remember at Stevens' was a boy who was at that time in sixth form, high up in the boats, and in various ways a "great swell" in the eyes of all fourth-form boys and newcomers. We looked on him as a sort of god, not perhaps so great as the headmaster, or so much to be feared as "Stiggins," who was then the bugbear of all small idle boys and other delinquents, but still as a being of quite a different station to our own. Some years afterwards when I was a subaltern in the Guards and probably thought as much of myself as the "great swell" did at Eton, I went into some office on business and found the same man quill-driving at a desk. Though I hope he has made his fortune, I could not help pitying him at the time and thinking how are the mighty fallen.

Reminiscences of Eton from more able pens than mine have been so numerous that I must pass rapidly over the four years which I spent there. I cannot, however, omit some mention of the very curious system of education prevailing at the time, which, however theoretically wrong, has certainly produced extraordinary results, if success in after life be taken as a criterion of successful education. In the first place the masters, though nearly all gentlemen and, I suppose, all more or less scholars, were in some cases so lamentably deficient in the art of teaching and managing boys that they were clearly unfit for their work. I remember one most amiable gentleman who had absolutely no power whatever of keeping order, and whose division in consequence were so noisy and disorderly that, when sitting with three or four other classes in "upper school," other masters used to send messages to him requesting him to keep such a degree of silence that they could hear their own classes. I recollect another to whom I was up for two halves who would regularly allow you to read the lesson which you were supposed to have learnt by heart from the book on his own desk, and when he saw you reading only moved it a little more on one side. In consequence I seldom or never learnt a "saying lesson" the whole time I was up to him, and very seldom got punished for not knowing it.

Then the punishments were ridiculous. Fifty lines of Virgil written out was a minor punishment, which might be increased up to five hundred, and when, as often happened, the number of lines accumulated to a point which became impossible without sacrificing all one's playtime, they were wiped out by a complaint to the headmaster, usually ending in a "swishing." This time-honoured punishment at that time was no disgrace and a plucky boy often preferred it to the lines. Only in cases where it was inflicted for conduct which in school estimation was blackguard was there any particular odium about being swished, though in such cases two birches were used and as many as twelve cuts were given. There was a notorious young scamp, though a Duke's eldest son, at Eton then, who was complained of and swished for deliberately shooting with a catapult into the face of an old gentleman who happened to be passing along "the wall." He is reported to have taken a large pin with him which he stuck into the legs of the Collegers who at that time performed the office of "holding down," with such effect that they let go of him. Dr. Goodford, however,

who liked the culprit no more than we did, threatened to have him tied down, and gave him such a swishing as was unheard of. Swishing, like fighting, has now almost died out at Eton, but whether an efficient substitute has been discovered for those two very ordinary events to school-boys I very much doubt. When I asked my boy thirty years later why they never fought now and how a boy would act to another who insulted him or his relations, he replied that public opinion would set down a fellow who did such things as "a cad," and public opinion among boys is a more powerful influence than upon grown-up people. So I suppose that fighting, like duelling, must be looked upon as a thing of the past, and whether, as the Germans and Americans think, both are necessary to keep up the determination and courage for which those nations are, like ourselves, distinguished, is a question which the future alone can determine. As long, however, as such dangerous games as polo and such rough ones as football are generally popular among young men and lads, I do not think we need fear the decadence of the British race.

To return to our studies, Classics were really the only things which a boy had any real encouragement to study. In order to pass the Army examinations which had recently been established an Army class was started and six or seven mathematical masters were engaged, but these, or some of them, being of a different social position to the regular masters and having no houses, had little or no influence either with masters or boys, and it was a question not then settled in the minds of the boys whether they had the same right to set punishments and complain to the headmaster (usually equivalent to swishing) as the classical masters.

I remember one of these mathematical masters, who, though no doubt a very good teacher, was from his manners and appearance looked on by his pupils as "a cad" and in consequence got on badly with them. To show the insolence of which some boys are capable I may say that when he set a punishment of Virgil to write out, the boy fixed two or three pens in one holder and covered a sheet of paper with hieroglyphics which, though purporting to be Latin verses, no one could read. When the "poena" was shown up the mathematical master asked what all this scrawl was supposed to be, as he could not read anything on the paper. The boy replied: "Oh, I suppose you do not know Latin," and proceeded to quote Virgil from memory. However, he did not get off, and eventually mathematics came to be looked on as a regular part of our work.

Though a certain amount of history and geography was taught it was nearly all ancient, and in consequence we grew up with as little knowledge of both these important branches of knowledge as an Eton boy whom I met some years ago, who was then in the sixth form, and is now a rising member of the House of Commons. When asked whether a native of India who was distinguishing himself—at football, I think—was a Sikh or not, he knew no more what a Sikh was than a megalosaurus. The weekly map was the only part of my studies in which I remember to have ever had the slightest interest, and my strongest competitor in that art was Mr. Freshfield, afterwards President of the Royal Geographical Society.

I became a "wet bob" and spent many happy days on the river in various kinds of boats. Unless you were rich enough to afford a "lock-up boat,"

which meant a private boat kept by one of the three boat-builders whose rafts lined the shore above Windsor Bridge, you had to take your chance of a "chance boat," usually in those days a skiff without outriggers. To get this entailed hard running up town directly after chapel or school was over, and one of the great objects among boys not in the boats was to see how far one could get up the river in the course of the two and a quarter or two and a half hours before "absence," which was a calling over of the names of boys in the school yard at 6 p.m. in the summer. It was easy enough to go up to "Surly," a public-house above Boveney lock, three miles from Eton. In an outrigger it was possible to get to "Monkey Island," another public two miles further upstream, and there were athletes who talked of going to Maidenhead and back, nearly fourteen miles, but I only remember one—a little thin boy named Hall, who squeezed himself into the narrowest and lightest sculling boat ever built, said to be only eight inches wide—who actually accomplished the feat.

We used also to take long walks into the country in "after four" and succeeded sometimes, by running as long as we could and sometimes getting a lift when we were too blown to run any longer, in going as far as Virginia Water and back, about fourteen miles, in the limited time at our disposal.

My cousin Tom Hamond and I used to go bird-nesting a good deal in Ditton Park, among other places, though it was strictly preserved and enclosed with high palings. I remember once when he was up a tree after an owl's nest and I was keeping guard, the keeper came along; and though I tried to look as if I was innocently picking flowers, his red head peeping out of a hole in the tree betrayed us. The keepers round Eton, however, were not very difficult with Eton boys, who, they knew, would sometimes have relations with them in after life and who were more troublesome than actually harmful, and I never recollect having a regular row with any of them during our depredations. There was another owl's nest in a hollow elm tree in the playing fields into which a cricket ball was accidentally hit, and was recovered with four eggs afterwards by someone who succeeded in climbing to it.

My tutor, Durnford, was a nice old man in his house and very kind to his pupils, whom he fed most liberally and well. He never complained of me, but I do not think he could have had much judgment as to the possibly latent talent of any boy who hated Latin verses and Greek grammar; for when I was sixteen he wrote to my father and said that as I was doing no good at Eton I had better go away in time to be crammed for the Army.

In those days stamp collecting was a new fad only taken up by school-boys. We had at home an old Swiss governess whose father was either postmaster-general or a high official in the Swiss general post office, and she used to get us parcels of stamps taken off letters in the Swiss dead letter office. Among these were many of the old Swiss Cantonal stamps which were already superseded by the National stamps, and these were very rare. A sort of Stamp Exchange was formed among the boys who collected, and we used to meet on certain days at each other's rooms to "swop stamps." In time I got to have one of the best collections in the school, and when I left I sold my collection for £5 10s. od. to a friend in order to pay my debts. But the promised money never came, and when three or four years after-

wards I went to Cambridge where he was then an undergraduate and met him, he still put me off with promises, which have never been fulfilled. I was told many years after that his collection was the finest in England, and that some of the most valuable rarities in it were the old Swiss Cantonal stamps from my collection.

In those days there was a man named Knox, usually known as "Cad Knox," who sold "sock" on the wall, and had a small bird-stuffer's shop in an alley east of the High Street at Eton. From him I took lessons in bird-skinning, at which I afterwards became fairly adept. Starlings were the favourite birds for practice, as they have a tough skin and feathers which are not easily soiled. He would not let us use any plaster of Paris or arsenical soap until the body of the bird was separated from the skin, and as fast as this was done his hungry children seized the body and put it in the frying-pan for their dinner. There was another bird-stuffer named George Hall who had a little shop in Brocas Lane, son of the well-known old waterman Jack Hall, whose engraved portrait is known to many old Etonians of the twenties and thirties of last century.

At that time there was no school library, and as I was very fond of reading I used to go on wet afternoons to Fryalton and Drake's shop halfway up High Street, where boys were kindly allowed by the proprietor to sit down in the back shop and read any book they found on the shelves. I began to take in Morris's *British Birds*, which was then coming out in parts, but as I got to know a little more about birds than most boys of my age I became dissatisfied with it and gave it up.

The only master I was ever "up to" of whom I preserve a kindly recollection was the Reverend Mr. Stone, a very pleasant man who certainly understood me better than any of the others, some of whom were no doubt very able men according to their knowledge, but seemed to fail to realise that all boys could not be taught the same thing in the same way.

When I left Eton I was sent to the care of the then British Chaplain at Brussels, the Reverend Mr. E. Jenkins, in whose house, in the Rue des Champs Elysées, I passed a year or so in learning French, which I have found of great service on many occasions since; but for some reason my recollections of that period are extremely faint, as they are of the other boys there with me. One thing I do remember is the glorious flute-like note of the Golden Oriole in the garden, and the magnificent tall clean stems of the beech trees in the Forêt de Soignies. After a year at Brussels I went to a regular crammer to be prepared for the Army examination. He lived at Surbiton, and was no doubt a very good crammer, but from other points of view anything but a desirable man. Some of the other lads there were rather a rowdy lot, and one of them succeeded in making me drunk on port, which so heartily sickened me of this wine, or indeed of any liquor, that I have never since—not even on a guest night in a Highland regiment, or at the Beefsteak Club at Cambridge, or at a students' beer supper in Dresden—had a drop more than was good for me.

After passing my examination I had to wait some months before getting my commission, and my father thought it would be a good thing for me to learn German, though I would much rather have gone bird collecting in Scotland. But it was decided that I should go to Dresden, where I spent

three or four months lodging with a German lady, who provided a room and breakfast, and where I did pretty much as I liked in company with other young Englishmen and Americans. It was a very long and cold winter, the Elbe being frozen over, and skating in the Grosser Garten was the principal amusement. It was the year after the Polish insurrection and there were many Polish ladies and refugees in the town whose company we found much more agreeable than that of the Germans, and as my knowledge of French made me quite at home with them I learnt much less German than I might otherwise have done.

In those days Germany was a very cheap country. One heard the best possible music in the stalls at the opera for a thaler; one had the best possible dinner in the Victoria Hotel for two marks, and Liebfraumilch such as I have never tasted since for a thaler a bottle. The English Minister, Mr. Murray, rented a large tract of shooting in the country, and used to ask me to shoot regularly, and here I met an old Colonel von Heygendorf who commanded the Saxon Life Guards, a great horseman and a great sportsman, who took a fancy to me and used to drive me out in his sledge to shoot. He was a most reckless driver, and when the snow was deep used to break in young horses from his regiment by harnessing three or four of them to a sledge and driving at full gallop through the villages.

It was the custom at these shooting parties to have a sweepstake of a thaler each which went to the man who shot most foxes. The Colonel was very knowing about the likeliest post for foxes to come to, and would ask the Englishmen who did not shoot foxes to exchange posts if they drew a lucky post. Hares, roe and foxes were the principal game in the woods, which were driven by large numbers of beaters directed in military order by the bugle. In the open plains there were a good many partridges and the plan adopted to get within shot of them was what the Germans called a "Kesseljagd." This is managed by forming a circle of guns with two or three beaters between each, who surround a large circle of open fields a mile or more in diameter. When the circle is completed, the advance is blown by the Jagdmeister and everyone walks towards the centre of the surrounded area. The hares and partridges at first usually run or fly inwards, but as the circle diminishes and the guns get nearer to each other they begin to fly or run back, and the birds afford excellent rocketing shots overhead. I was lucky enough on one occasion to bring down a partridge which, flying fast down wind, dropped almost on the head of the Colonel who was a long way from me. This lucky shot reminded him of me when I visited the old man twenty-five years later at Dresden with my wife and daughter, who, he insisted, should accompany him to see Buffalo Bill's show, which was then going on. He tried to enlist me as an officer in his regiment, saying that I should never learn half as much in the English Army. But my father very wisely refused, and three years later the Saxon Life Guards, when covering the retreat of the Austrian Army at the battle of Sadowa, were very severely handled and lost a great number of their strength.

In May, 1865, I joined the Scots Guards as an Ensign and Lieutenant at Shorncliffe Camp. Colonel Hepburn, our Commanding Officer, was a fine old soldier of the type of those days, and Captain Wynne Finch was

our Adjutant. Several of the officers and sergeants had served in the Crimea, and the ways of the Army were still very old-fashioned. Muzzle-loading Enfield rifles were still used; wine at mess was much more freely drunk than it is today; and anything like military study was practically unknown. Out of my brother officers a few still survive. Amongst them Paul Methuen, later Field-Marshal Lord Methuen, was by far the keenest, if not the only keen student of his profession among the subalterns. There was a very strong racing element in the battalion, among whom "Curly" Knox, "Lummy" Harford and Charlie Kerr were conspicuous. I had never any taste for this pursuit, but if I had I think the conversation and associates of the racing men of those days would have put me off; for though they were not so bad as an outsider might have supposed, it seemed very difficult, if not impossible, for a young man to have much to do with it without losing his money; and I have never regretted my refusal to take part in a sport which only very straight, very clever or very wealthy men can afford.

The old soldiers in the ranks were very fine soldiers, though not always the best of characters. In all matters of duty the Guards set a standard to the whole Army, because the non-commissioned officers were splendid, and, though our privileges as regards leave were much greater than those allowed in line regiments, yet the duty was done on all occasions as the Guards then and now always have done their duty.

I remember on one occasion, when the Fenians were giving much trouble, the battalion was ordered down at very short notice to Chester to suppress an attempt which had been planned to seize the arms in Chester Castle and start a rebellion. Many of the officers were on leave in distant parts of England, Scotland and Ireland, but the only one who was not with his men when we left Euston Square was one officer who happened to be in Italy, and he rejoined on the next day at Chester.

As an illustration of the way in which regimental duty was run in those days almost entirely by the Adjutant and the sergeant-major, I may say that when the battalion detrained at Chester, very tired and sleepy from having come off guard the night before we started, the Adjutant would not allow the company officers to see their own companies billeted, but insisted on doing it himself, with the result that my company, the "left flank company," stood at ease more than half asleep in the station yard for six or eight hours before getting into their billets.

The Fenians had cleared out before we got there, and after three or four days, during which time the men, though in some cases too much treated by their hosts, behaved admirably, we returned to London. This was the only occasion during the five years I was in the service on which we had anything to do beyond mounting guard, occasional field days and marches out, and a fortnight's musketry practice at Aldershot. Autumn manœuvres were then unheard of; no one was expected to know anything of military history, strategy or tactics; and internal economy of the companies was left to the sergeants and the Adjutant, as the company commanders, who then held the rank of Lieutenant-Colonel in the Army, were on leave during the greater part of the year from August to April, when the so-called drill season began.

Flogging in the army had not yet been abolished, but I only remember one case during my service in which this punishment was inflicted for stealing from a comrade. The man was a notorious blackguard who ought to have been discharged by the Colonel before he was drummed out as part of his sentence. He did not seem to care a rap for the flogging, or at least pretended not to care. The discipline was very good as many of our men, though probably ne'er-do-wells at home, came from the Borders of Scotland and a few from the Highlands.

I remember once when sitting in the orderly room, my own colour-sergeant, a fine old soldier from Skye, brought up two or three recruits from the Hebrides, who had been put under his tuition because they could not speak or understand English. The Colonel asked him what the men were brought up for. He replied: "I canna make soldiers of them, Colonel, and the best thing ye can do with them is to discharge them."

"How is this, Sergeant Macdonald?" said the Colonel. "I thought the men from your islands were always considered the best of soldiers."

"That was true enough in old times, Colonel, but it is no true now," said he.

"And how do you account for it, Sergeant?"

"It is like this, Colonel. The good men in Skye are nearly all gone to America now. In the old days when they had not enough to eat they just had to take it from those that had or starve, but now they are crying to the Government for food in bad times, and they're no wanting to fight."

I was told by the same man that he went out to the Crimea in December, 1854, with a draft of three officers and one hundred men to the regiment, and though they arrived too late to take part in any of the battles, there were only one officer, one sergeant and one man of that detachment present with the battalion when they returned from the Crimea in 1856. Those who have read the accounts of the misery and starvation of our army in the trenches in the spring of 1855 will understand what became of these raw recruits, and contrast it with the losses from similar causes in the last war.



[Photo. Southwell.]

FIG. I.—CAPTAIN H. J. ELWES, SCOTS GUARDS, 1869.

CHAPTER II

ORNITHOLOGY: THE HEBRIDES: TURKEY

I SUPPOSE that I inherited a taste for Natural History from my Norfolk grandparents, for Norfolk has always been a great county for Natural History. On my grandfather's property at Congham the last Great Bustards in Britain laid their eggs, and when a boy I used to hear my great-aunt, Miss Hamond, tell of seeing a flock of sixteen together on Massingham Heath. It was natural that a love of birds should have been my earliest interest in life. In those days all country boys went bird-nesting, and at my first school near Tunbridge Wells, as I have related, it was our greatest joy. There was then no sentiment about taking eggs, as many as possible, and the rarer the birds the more ruthless one was in hunting for them. When I went to Eton I had already the nucleus of a collection. At home, in the Easter holidays, I used to accompany the old Norfolk keeper when plover egging, and learnt how to watch birds without being seen by them. Before I left Eton at sixteen I knew the correct Latin name of every reputed British bird.

In April, 1865, before going up for the Army examination, I made my first independent expedition to collect birds in company with Mr. A. Crichton. We went to Stromness in Orkney and lodged with J. H. Dunn, the ornithologist, who collected birds and eggs for sale. In those days the railway only went as far as Dingwall, the remainder of the journey to Thurso being done on the last mail coach attended by a red-coated mail guard, who told me that he had been gradually driven north by the railway, and was the last survivor of this service of the Post Office in that capacity.

At Stromness I went out shooting in a small boat with Dunn whenever the weather allowed, and used to think that he was over cautious about the weather. But the strong tides and winds in Scapa Flow made boating more hazardous than I then thought, and we had one or two near shaves of being swamped. Dunn, with another companion, was drowned from his own boat some years afterwards on one of these excursions.

On days too windy to shoot on the water I skinned the birds we shot, some of which are now stuffed in my hall. Velvet scoters, long-tailed ducks, eider ducks, mergansers, purple sandpipers, and a Solan goose are among them. The Solan goose, as he fell, disgorged a freshly caught herring, which when cooked was much better eating than the soft cod which was our daily repast, with eggs and bacon and tough mutton chops—about the only fresh food we got.

I began to make notes on birds, some of which are still of interest. Among others I find one on the Slavonian grebe, which is a regular winter visitor from the north, and remains in some numbers as late as the end of April, when I saw as many as twenty in company. A few pairs no doubt remain and were found breeding in some small shallow hill lochs in Inverness-shire.

I received from A. W. Clarke, Esq., of Meddart, Ross-shire, some eggs among which were a white-tailed eagle's egg taken at Whiten Head; also a

genuine fieldfare's egg taken by him from a nest of four in the Duchess of Sutherland's park. The breeding of this bird in Scotland is a very rare occurrence which has not been recorded recently as far as I know.

When we returned to London from Shorncliffe in the autumn of 1865 I lived in my father's house in Portman Square, and was fortunate enough to make friends with Mr. F. D. Godman, Lord Lilford and Mr. H. E. Dresser, all now keen ornithologists who had a few years previously founded at Cambridge the British Ornithologists' Union, and who contributed to the pages of the *Ibis* papers which set the high standard of accuracy and thoroughness that have distinguished British ornithologists ever since. I became a member of the Union in 1866 and have belonged to it ever since. All its founders, except the brothers Godman,* have now departed, but their example and their work live, and it is largely owing to their influence that I continued my studies in ornithology, which certainly taught me a great deal that was afterwards most useful when I took up butterflies and plants. I now began to realise that Natural History had more pleasures for me than a military life. Every bit of leave I could get was spent in shooting and collecting.

In 1866 I paid my first visit to the island of Islay, staying there with a gamekeeper named Legg, who allowed me to shoot over a large area of land on which wildfowl were numerous, and there I killed five species of wild geese. In Loch Indail there were a good many brent geese which fed on the *Zostera* which grows abundantly there, and there I had a narrow escape from drowning, owing to the capsizing of a boat whose rudder broke at a critical moment. Though encumbered with thick clothes and in a heavy surf, I just managed to struggle into water where I could touch bottom between the waves; but the boatman, who knew the depth better than I did, was so scared that he forgot the little English he knew, and I very nearly swam into deep water again before he warned me of my danger. My gun I recovered at low tide two days afterwards, not much the worse for the salt water.

On a sandy island covered with bent, called Ardnave, a large flock of barnacle geese used to feed. I made a most successful stalk among the sand-hills, and got no less than nine with a right and left shot from a twelve-bore gun, the heaviest shot I ever made with a shoulder gun. But barnacles are the worst eating, as brent geese are the best, of all the species I have tried, and I never again fired a shot at them.

The Cornish chough was a very common bird at that time on the north side of Islay. It is the most graceful in its flight, and most pleasant in its cry, of all the crow tribe. It seems very strange that this bird, which in England is confined to a few localities on our southern and western coasts, should be so common in some of the high mountain regions of Europe and Asia, and that the Himalayan chough, which occurs at 12,000 to 15,000 feet above sea level, should differ so slightly from our native bird, though its environment is so different. Another bird that I found there was the

* Both F. Du Cane Godman, President of the British Ornithologists' Union, and Percy Godman, who both received the Gold Medal presented to the four surviving founders on the fiftieth anniversary of the Society, have since died: F. D. Godman in 1919, and P. S. Godman in 1922.

raven, the earliest breeder of all British birds, and now rare or extinct in most parts of England. I discovered a nest on the sea cliffs at Laggan Head and took the eggs on February 28th, 1866, being let down by a rope from the top of the cliff, which was my first essay at cliff climbing. If the rope is sound and one is careful to displace all loose stones as one goes down, it is much less dangerous than climbing the grassy slopes of cliffs without a rope, however easy they may seem to be.

At this time, Mr. Robert Gray, of Glasgow, was about to publish a work on the Birds of the West of Scotland, and to it I contributed notes on the Birds of Islay. I gave the Gaelic names by which they are known on the island; I got them from a man named A. Maclachlan, who accompanied me two years later on a more extensive tour in the Hebrides, where as a boatman, interpreter and cliff-climber he was of much assistance.

In Islay on this visit I stalked some wild swans, the only ones I ever had a shot at in Scotland. But golden plover were then as always my favourite bird on the table, and give good sport if you know how to call them on a misty day. St. John's *Wild Sports of the Highlands* has left very little to say about this sort of sport and remains to this day the best book on the subject.

In 1866 and 1867 I paid two visits to a place then rented by my cousin, A. Hamond, and Lord Bristol, called Shildaig of Gairloch, on the west coast of Inverness-shire. Here I shot my first stag in October, 1866, on a great flat moss in Torridon after a very long crawl on my stomach with only one boulder between me and the stag for the last 400 yards; it was a poor beast as regards head.

There were many eagles in the district at that time, and a very nice variety of game, though grouse were never plentiful. I met Mr. Osgood Mackenzie of Gairloch, who has published a very charming book on the West Highlands, on which his intimate knowledge of the language, the people, the sport, and the Natural History gives him an unusual authority. On April 20th, 1867, I had a delightful day with him on Loch Maree, which I think the most beautiful loch in the Highlands on account of its size, surroundings, and the ancient forest on its shore and islands. On this day I found a nest of the Greylag goose, and, on the largest of the islands, Eilan Suidh, the deserted eyrie of an osprey from which Mr. Mackenzie had taken five eggs in former years, though it had not been used since 1861. At that time, however, they still bred on Loch Monar, on a loch in Strathspey, where I afterwards saw and photographed the nest (*Trees of Great Britain*, plate 165), and on Loch Ericht. In 1908 I saw the last survivor of the ospreys in Scotland, at its former breeding place on Loch Arkaig near Achnacarry. I have five eggs taken by the late Ronaleyn Gordon Cumming, which were undoubtedly taken by him at one of these places.

On the same day I found a short-eared owl's nest with three eggs, and saw the black-throated diver whose eggs I took on an islet in this loch in 1871.

In 1866 I had an interesting visit to the New Forest with Mr. F. D. Godman in search of honey buzzards' nests. At that time several pairs bred regularly in the Forest and their eggs were usually taken by a man named Peckham, to whom I was recommended by Mr. Cumberbatch,

the superintendent of the Forest. On June 3rd we went with him to a wood called Salisbury Trench, where he knew of a nest which his boy was watching till we came. A little way off the boy appeared and said the bird had just left the nest, which was about fifty feet up an oak tree. I went up and found a large nest lined with fresh green sprigs of beech with two eggs. Though it had been raining, the nest and eggs were dry, and I let them down in my handkerchief and packed them up. When we came to blow them that evening, though their size and shape were all right, the colour and strong smell of turpentine made us suspicious of foul play; but as Peckham knew of another nest we agreed to say nothing at present. The next day, after a very pleasant walk to the north end of the Forest, we came to another nest in an oak tree very difficult to climb. I went up, looking out as I went for signs of anyone having been before me, and whilst I was going up a honey buzzard which Godman saw very plainly flew round and lit on a tree close by. In this nest I found one egg which resembled the others in colour and smell. When I got down, I said to Peckham that the smell was very unusual. "Oh," said he, "did you not know that it comes from the pine shoots which the birds eat?" In the evening, however, we met a man who knew the trick, and who told us that the genuine eggs were probably taken for a collector at Fordingbridge, and that Peckham had a bantam which laid round eggs of the same size and shape as the buzzard's and that he coloured them by dipping them in a solution of ruddle, and fixing the colour with turpentine so that it would not come off. He did not profit by his fraud on this occasion, for when I told Mr. Cumberbatch of it he made the man give up a pair of the real eggs which I have now.

In 1867 I went to a grouse moor in Aberdeenshire which my father and Sir M. Hicks-Beach, who had married my sister, rented, but it was a bad year for grouse, and I never took another Scotch shooting until 1918, as it has always seemed to me that the attractions of big game shooting in wilder countries were much greater than those of Scotland. But I have had some very pleasant times in later years, especially in the forest of Glenavon, which Godman rented for a long period, and where I always enjoyed excellent sport. It seems to me, however, that deer stalking as now carried on is not really, as far as the sport goes, comparable with elk hunting in Norway, with chamois or red deer in the Austrian Alps, or in the highlands of Asia, of all of which I shall have to speak later. The Scotch stalker is no doubt the best in the world on his own ground, and will bring you up to deer which no stranger could approach, owing to his accurate knowledge of the ground and the wind currents. But unless he knows you well and is a more genial companion than some stalkers I have been out with, he is inclined to resent a man using his own judgment. There are so many stags now in most Highland forests, and so few really worth the trouble to get, that I would rather have a week in a really good Styrian forest during the height of the rutting season than a whole season in the best forest in Scotland.

With Maclachlan as my boatman, I made a long tour in the Hebrides in the summer of 1868. My battalion was quartered at the Tower, a station where there was then no duty but guards, and it was possible to get leave.

I had a light canoe—decked fore and aft, and propelled by a double paddle—built on purpose at Greenock, and I took a fifty fathom rope to enable me to go down cliffs. I was joined during the first part of my trip by my friend the late T. E. Buckley, and we began work in the Isle of Skye in April. At that time the white-tailed eagle was so common in Skye that our host, Mr. Cameron of Glenbrittle on the west coast, told me that sixty had been killed in two years by himself and his shepherds, on account of the number of lambs they destroyed. We were able in two days to take no less than three nests, on a very small part of the coast. One of these was only fifteen to twenty feet from the top of the cliff at Rudha-nanlach and I was easily lowered into its nest. The other was a very difficult one to approach, either from below or above, and would have been impossible to take if I had not brought such a long rope. When we got to the top of the cliff (a very hard climb) the men refused to let me go down, as they said they would not be able to pull me up again, so we lowered Sandy Maclachlan, who was about four stone lighter than I, and who was a skilful and plucky climber. Now, I believe, the white-tailed eagle is quite extinct in the Hebrides, and the only ones breeding in Britain are a pair or two which may survive in the Shetland Islands, where they have been carefully protected for many years past.*

From Skye I went to Stornoway and thence to Eishken, the forest lodge of Park, then rented by Mr. Godman. There, in a very easy place, I got a golden eagle's nest with two beautiful eggs, but we were entirely defeated in an attempt on a sea eagle's nest in the Shiant Isles. This was so far from the top and the cliff overhung so much, that Maclachlan, whom we let down, became giddy from the twisting of the rope and could not swing himself into the nest. I was more fortunate with a peregrine's nest at Loch Bhrollum in the Park of Lewis, from which two cock birds had been shot the same season by the keepers. I was able to shoot the hen from the top of the cliff as she flew off the nest, and have her now stuffed, with four beautiful eggs.

Bird lovers of the present day will probably say, "What a brute!" But in those days peregrines were almost as abundant as grouse in the islands, and if I had not shot her the keeper would have done so. I also got a snowy owl which had not yet returned from its winter quarters to the fells of Norway. But I never fired a shot at either of these noble birds again.

The gales which blow in these islands made it at times very difficult to get about, and I well remember having to crawl over a ridge where the wind was so high that I could not stand against it—and this in the month of May. After leaving Eishken I went to Lord Dunmore's shooting lodge at Amhuinnsuidhe in North Harris and stayed with his forester, Finlay Macleod. Here I found another golden eagle's nest in a cliff called Craig na Uishabreadh in Glen Meavag on April 30th. The nest could be approached from below within five yards, but it was impossible to get nearer to it without a rope; so the next day we came again, and sent two men to the top of the cliff who let the rope down to me. I tied it round me and got into the nest, where I found three beautiful eggs, which, though much incubated, I succeeded in preserving; they are one of the most valued

* Mr. J. G. Millais states (1929) that both these pairs have been destroyed, and the Sea Eagle as a breeding species is extinct in Great Britain.

clutches in my collection. As I was coming down, a great piece of turf came away, and I fell with a jerk which would have pulled down the men above if they had not been firmly anchored in their seat.

My last eagle's nest was got on May 11th at a place called Geo More na Tarkal in South Harris. The old bird was sitting so hard that we could see her from the top of the cliff only about ten yards down, and when Sandy was lowered he nearly touched her before she went off. There were three large white eggs, which, notwithstanding the lateness of the season, had not been incubated for more than ten or twelve days. After this we crossed over the Sound of Harris to North Uist, where I was entertained hospitably by Mr. Macdonald of Newton on the west coast, from whose house one could see by the light of the setting sun the high cliff of the island of St. Kilda, fifty miles away.

Haskeir is a small rock about twelve miles west of North Uist; and on it I found a large colony of *Sterna arctica* breeding, though at a considerable distance from their feeding-grounds. One of the smaller rocks near it is the resort of all the cormorants for many miles, which are probably attracted by the solitude of the place. I found that many of their nests contained fresh eggs in July, though no one had landed there for some months; and as there were many young ones nearly fledged, I presume they occasionally rear two broods. Haskeir is the principal resort of the great seals (*Halichærus griseus*), which breed there in October and November, and were formerly killed with clubs every year, as they lay on the rock with their young ones. This wholesale slaughter, to which the men of Uist looked forward with great eagerness, had now (1868) been stopped by the proprietor of that island, Sir John Orde, as the seals were in danger of being totally exterminated. I noticed here that none of the nests of the *Sterna arctica* contained more than two eggs, which was also the case in other places I visited, while *Sterna fluviatilis*, which is also common in the Hebrides, usually lays three eggs.

In Berneray (or Barra Head, as it is generally called, to distinguish it from the numerous other islands of the same name) I had the good fortune to stay for four days in the height of the breeding season. I had a narrow escape from drowning in reaching this remote spot, which, so far as I know, no other ornithologist had then visited. At Castlebay, in Barra, I found a man who carried the mails and supplies for the lighthouse, when the weather allowed, and agreed with him for a passage in a boat which, I learnt too late, had only just been purchased by him from one of the East Coast fishermen who came every summer for the herring fishing. She was of the old type of open boat, with a big lug-sail, which had probably been sold as no longer seaworthy, and the purchaser with true Hebridean carelessness took her out on his trial trip without examining her tackle. When we got out of Castlebay into one of the sounds where the heavy Atlantic swell meets wind and tide, there was a very short chopping sea, high enough to take the wind out of the sail when the boat was down in the trough of the waves. We tried to take the sail down to reef it, but the sheave in the mast, on which the halyard worked, jammed, and we had to cut the halyard. During the confusion the master lost his head, and let the boat get half-full of water by bad steering. Luckily we had on board

an Excise man who was used to boats, and who was able to take the helm. We had six heavy oars and men enough to man them, as some natives of Berneray were on board. I took one of the stroke oars and my servant, Maclachlan, who was a capable boatman and spoke Gaelic, took one of the bow oars, and whilst we rowed the remaining two men bailed. But they were in such a panic and rowed so badly that, if my man had not threatened them in Gaelic and enforced his threats by knocking one of them senseless into the bottom of the boat, where he was nearly drowned before we had time to notice him, I firmly believe they would have stopped rowing and the boat would have been swamped. As it was, after four hours of the hardest labour I ever endured, we succeeded in getting safe to land on the beach of Berneray, where the lighthouse keeper, who came down to meet us, was waiting. It blew so hard that I had to stay four days at the lighthouse, and the lighthouse keeper was so uneasy about the threats which the islanders had made in his presence to have revenge for the way we had treated them in the boat, that he would not let me or Sandy go out of his sight on the island. Two years afterwards I saw in the *Inverness Courier* a notice headed "Loss of a boat with all hands in the Hebrides," and on reading it I found that it was the very same boat making the very same passage.

The cliffs which form the south coast of the island culminate in a point at the south-west, on the extreme edge of which is built the lighthouse, at an elevation of nearly 700 feet. On both sides of the lighthouse is a deep chasm, reaching down to the sea; and the whole of these rocks, for more than a mile, are as thickly crowded with sea-birds as they can well be.

It was the grandest sight I ever saw to look out of the window of the lighthouse on a very stormy day and see oneself hanging, as it were, over the ocean, surrounded on three sides by a fearful chasm, in which the air was so thickly crowded with birds as to produce the appearance of a heavy snowstorm; whilst the cries of these myriads, mingled with the roar of the ocean and the howling of the tremendous gusts of wind coming up from below as if forced through a blast-pipe, made it almost impossible to hear a person speak.

The most abundant species were the Puffin, Razorbill, Guillemot, and Kittiwake, which I have named in the order in which they tenanted the rocks; the puffins making their burrows from the top to about halfway down, whilst the guillemots and kittiwakes crowded on ledges almost within reach of the spray. There are only three families on Berneray besides the lighthouse keepers; and though they do not look on birds with the same interest as the St. Kildans do, yet they kill a great number as food for themselves and the crews of the boats which come from Islay to fish for cod and ling.

Their favourite method of fowling is quite different from that pursued anywhere else, and is highly successful, as I have known a man get 600 sea-birds in six or eight hours. On a very windy day he climbs about halfway down the cliff, and seats himself firmly on a projecting point of rock, armed with a pole resting, end downwards, across the thigh. As the birds fly backwards and forwards they are driven by the wind within a few feet of his seat, and are knocked off their balance by an upward

blow of the pole. When this is properly done the neck is broken, and the birds fall, with the force of the wind, almost into the fowler's lap; but they often recover themselves and fly away. Razorbills and puffins form the great proportion of the bag; but there are also a few guillemots killed in this way, though they do not come so close as the others, and the kittiwakes keep far below. I sat several times with a man who was killing birds in this way, and counted, as well as possible, the number of ringed guillemots which passed by. I found that they were in the proportion of about one to ten or twelve, which agrees with the observations of others on Handa Island and Ailsa Craig. I took several eggs, on which I actually saw a ringed bird sitting, and found they vary as much as the others, though more were marked with streaks than with blotches. I found considerable difference in the size of the puffins here, one of the largest of which had a beak so big that at first it made me almost doubt whether *Fratercula glacialis* could be a good species, more especially when I found it was fully as large as a specimen from Grimsey Island, near Iceland, kindly lent me by Mr. Tristram. All my doubts, however, were dispelled when I saw two specimens brought back from Spitzbergen by a brother-officer, which were at least a fourth larger than either of the others.

One day I crossed over the Sound of Mingulay, where a landing is by no means easy, owing to the tremendous sea which rises in the narrow channel separating the two islands. To give some idea of the height to which the waves rise in winter, I may say that a green sea lately came right over an island in the Sound, which looked as if it must be nearly 100 feet high, washing away all the sheep on it, though they had hitherto been considered perfectly safe. On the west side of Mingulay the cliffs are even more stupendous than at Barra Head, rising in one place to over 800 feet, and are so smooth and perpendicular that even the kittiwakes could hardly find a resting-place. The same birds are found here as in Berneray, with the addition of the stormy and fork-tailed petrels (*Procellaria pelagica* and *P. leachi*), a few of which breed in holes and cracks in the dry peat on the top of the cliffs. I did not find any eggs, but have no doubt that they do breed, as the natives distinguish the latter species by its forked tail, calling it "Gobhlangoidhe," which expresses that peculiarity in Gaelic, and is used for the swallow in some parts of the Highlands. We found the names of birds here, as at St. Kilda, very different from those used in other islands, and, on returning to the village of Mingulay, took them down from an old man who had in his day been one of the best fowlers in the island. The razorbill is called "Dubheanach," the guillemot "Langaidh," the old kittiwake "Crahoileag," and the young one (which is a favourite dish) is called "Seaigire"; the stormy petrel is called "Amhlaig," and the Manx shearwater "Scaib." This bird was formerly very common, and the young ones, which were called "Fachach," were so highly esteemed that a barrel of them formed part of the rent paid by each crofter in Mingulay to the Macneills of Barra. About a hundred years ago, however, the puffins, which before were not numerous, began to increase very much, and drove the shearwaters from the holes which they occupied in the cliffs; and now they have completely supplanted them, so that only a few pairs of shearwaters are left in the

island of Pabbay, which is next to Mingulay. The shearwater seems to be on the decrease in most of its other breeding-places, though I have never heard any reason assigned for the circumstance. We found a few pairs of black guillemots breeding in the low caves and rocks of Mingulay and Berneray; but the eggs are difficult to get at. So far as I have seen, they are always two in number, and are placed in deep cracks and holes, but never in high cliffs, like those of the allied species.

It is not the distance which makes St. Kilda so difficult of access (it is not more than sixty miles from Harris); but the want of a good anchorage, and the never-ceasing swell which beats on its precipitous shore, even in the calmest weather, form such serious impediments to effecting a landing that, in many seasons, it would be impossible to get there before the middle or end of June.

An intending visitor to St. Kilda must take his choice of two evils: either to go in a small boat, which, on his arrival, can be hauled up on the rocks, though most people would hardly venture three-score miles into the Atlantic in such a craft; or to go in a larger vessel, which can lie in the bay at anchor so long as the wind is light, but would be obliged to put to sea immediately if the weather became bad, as the anchorage is very exposed and dangerous. I had made arrangements for a smack to take me there; but the spring and summer of 1868 were so unusually stormy that I should have failed in the expedition if it had not been for the kindness of Captain Bell, of H.M.S. *Harpy*, a paddle-steamer, which was going to see how the St. Kildans were faring, since they had been cut off from communication with the other islands for nearly nine months.

About one o'clock a.m. on the 22nd May, the *Harpy* got under way from the Sound of Taransay and, passing the Islet of Gasgeir, which is frequented by numbers of the Great Seal, arrived about nine pretty close under the cliffs of Boreray, which is five miles north of St. Kilda itself. As we pitched over the swells which rolled in from the west, long strings of gannets kept constantly passing us on their way to the Minch. They have to travel in this way from fifty to a hundred miles every day to their feeding-ground, as the herrings do not rise near the surface of the water until they get inside the "Long Island." Much of the seaweed they use in their nests is also brought in the same manner, as the rocks of Boreray do not afford sufficient for such multitudes of birds as breed there.

The insufficiency of material induces the gannets to plunder each other, and Martin quaintly describes an instance he witnesses: "One of them finding his Neighbour's Nest without the Fowl, lays hold on the Opportunity, and steals from it as much Grass as he could conveniently carry off, taking his flight towards the Ocean; from thence he presently returns, as if he had made a foreign Purchase, but it does not pass for such. For the Owner had discovered the Fact, before the Thief had got out of sight, and too nimble for his Cunning, waits his Return, all armed with Fury, and engages him desperately; this bloody Battle was fought above our Heads, and proved fatal to the Thief, who fell dead so near our Boat, that our Men took him up, and presently dressed and eat him; which they reckoned as an Omen of good success in the Voyage."*

* *Voyage to St. Kilda*, p. 8.

The gannets do not breed on the island of St. Kilda at all, but only on Boreray and the adjacent rocks, called Stac-an-Armuin and Stac-an-Ligh. These are two almost perpendicular stacks of great height, with flattish tops, which are so crowded with gannets that at a distance they look as if covered with snow. The ascent of these rocks would be impossible to anyone but a St. Kildan; and even to him it is a matter of great difficulty, and can only be effected in the calmest weather. Then a boat is rowed as near as they dare go, and the most active man, jumping out with a rope, scrambles up a short distance and makes it fast to an iron hook, which was fixed in the rock by some of the ancient inhabitants, and without which it would now be impossible to ascend. Four or five of the best climbers then help each other up to the top, where they kill as many of the young gannets as are required and throw them into the sea. This generally takes place in September, when the young are very fat, and heavier than the old birds. They are called "Guga" by the natives, whilst the old ones have the same name, "Sulair," as is used elsewhere, and expresses their extremely sharp sight.*

We were unable to land on Boreray owing to the tremendous swell, and were obliged to content ourselves with a view of its immense crags from below. It is nearly as high as St. Kilda, being 1,072 feet, and is even more precipitous, as there is hardly a level spot on it.

Until we actually entered the Bay of St. Kilda, very few birds, except gannets and gulls, were seen; and I should not have known that the fulmars were there, until I came to the cliffs where they breed, as they move about very little by day, being very nocturnal in their habits, like the other petrels. They are very seldom seen on the coasts of the "Long Island," except after severe gales, or on dark foggy days, when they wander further away.

Soon after we entered the bay the people began to appear; and some of the men came off to the steamer in a large, clumsy boat, the only one, however, they have in which to go to the adjacent isles. Some years before, Captain Otter, R.N., who was employed for many years in surveying the district, got them a large and well-found boat, hoping thereby to encourage deep-sea fishing, which is totally neglected on account of the bad weather which so often prevails. This boat, unfortunately, in attempting to cross to Harris, was lost on some rocks called the Glorigs of Taransay, and all her crew, including seven or eight of the best men in the island, were drowned. This sad accident, together with the casualties which take place every now and then from the carelessness of the climbers, has very much reduced the able-bodied population of the island; and there are not more than twenty men now who can pursue their occupations on the rocks. The population at present (1868) is about seventy, and is not increasing, as many of the children die of a disease which appears to be almost peculiar to the place, and commonly carries them off between the fifth and eighth days.

The men were all stout and hardy, well dressed in homespun cloth; and the younger ones were pleasant, merry fellows, and good companions during my stay, though none of them could speak a word of English.

* Cf. *Ibis*, 1866, pp. 13, 14.

On landing we were met by the minister, Mr. Mackay, who appeared very glad to see anyone, as may well be imagined. Strange to say, he did not seem to take any interest in, or to know much about the birds, though he has been two years among people whose thoughts are more occupied by birds than anything else, and who depend principally on them for their living. I showed a picture of the Great Auk, which Mr. J. H. Gurney, junior, had kindly sent me, to the people, some of the oldest of whom appeared to recognise it, and said that it had not been seen for many years; but they were so excited by the arrival of strangers that it was impossible to get them to say more about it, and though Mr. Mackay promised to take down any stories or information about the bird that he could collect, when they had leisure to think about it, he has not as yet sent me any. I do not think, however, that more than two or three examples are at all likely to have been seen in the last forty years, as Mr. Atkinson, of Newcastle, who went there in 1831, does not say a word about it in his paper,* beyond mentioning the name, and neither John Macgillivray who visited the place in 1840, nor Sir W. Milner, say that any specimens had been recently procured. I believe that Bullock was also there about 1818, and as he had not long before met with the species in Orkney, there is little doubt he would have mentioned it to somebody if he had heard of any having been recently procured at St. Kilda.

I made every enquiry about this bird on the north and west coasts of Lewis, and showed pictures of it to the fishermen; but all agreed that nothing of the sort had ever been seen since they could remember. Indeed the only specimen of which we know for certain that has been seen in the present century is the one that Dr. Fleming had in 1821, which was captured alive by Mr. Maclellan, of Scalpa, somewhere off St. Kilda.

The first thing which strikes one on entering the houses here is the strong smell of fulmar which pervades everything; though much of the filth which formerly filled them is now cleared out, yet they are by no means pleasant to one who is not accustomed to the smell.

Soon after landing, I started off with some of the best cragsmen to the cliffs at the north side of the island, which form the principal breeding-places of the fulmar. On reaching the top of Conacher, which is the highest hill in the island, we came quite suddenly on a precipice which, according to the measurement of Captain Otter, is no less than 1,220 feet high. The whole of this immense face of rock was so crowded with birds, of which fulmars and puffins made up the greater number, that the sea was seen far below as if through a heavy snowstorm; indeed the birds which were flying in front of the cliff almost obscured the view for a little distance. All the ledges near the top were covered with short turf full of holes, in which the fulmars were sitting on their eggs with the head and part of the body exposed outside. In some cases they were quite concealed; but generally the soil was too thin for them to make more than a slight excavation. Thousands of fulmars were flying backwards and forwards, with a soft owl-like flight; and though the air was full of them, hardly one ever came over the top of the cliffs.

After having admired the scene for some time, I prepared to descend—

* *Transactions* of the Natural History Society, Newcastle-upon-Tyne, 1832.

an undertaking which, though dangerous from the looseness of the rock, was by no means so difficult as in some places which I had previously attempted. The usual way in which the ropes are managed is this: one is fastened under the arms, and paid out by the man above as the climber descends; and another is held or fastened to a stake above, and thrown over the cliff, so that the man who is descending can use it to take his weight off the other rope. In this way two men can help each other so as to get almost anywhere. The natives, from constant practice, have wonderful judgment in selecting the easiest places; and if they were always careful, an accident would be of rare occurrence: but the younger men are too fond of casting off the rope and trusting to their own skill; in this way three lives have been lost in the last few years. It also often happens that stones become dislodged and fall on the head of the climber, who may be unable to avoid them; and in this way I had a very narrow escape while descending the cliffs on the south side of the island on another occasion.

On arriving at the first ledge, where the fulmars were, I had no difficulty in collecting the eggs, which were laid in small holes amongst the stones, or in the turf, on a few bits of grass or stems of the sea-pink, which, however, were so slight as hardly to keep the egg from the bare ground. The birds were very tame, and sometimes allowed themselves to be caught with the hand. The eggs were quite fresh; and all that I took on this part of the cliff were distinctly marked with reddish-brown dots and freckles, which did not appear to have been produced by any foreign substance, as the shell was otherwise clean. I cannot account for these marks in any way, as all the eggs from other places were spotless.

After I had collected a few, I came up and got one of the natives to go down to show us his way of catching birds. He took a rod about ten feet long, with a horsehair noose at the end, and slipped this cleverly over the heads of the fulmars, whose necks he then broke and tied them in bunches of five to the end of the rope. I asked him why he killed so many, as I only wanted a few; and he said that if the egg was taken it was best to catch the bird also as she would lay no more that year.

The fulmar, when caught, vomits from its mouth (and not from its nostrils, as is usually stated) nearly a wineglassful of clear yellow oil, with minute green particles floating in it. This oil has a very strong smell, and when kept becomes of a dark red colour, like raspberry vinegar. The St. Kildans collect a large quantity of this oil, by making the birds vomit it into the dried gullets of solan geese, which are hung on strings when full; and a good deal of grease is also obtained by boiling down the young fulmars, which are one mass of fat.

All the fulmars I caught on the nest were females; and I remarked that the eye is not yellow, as is generally stated in books, but black, or dark brown. The stomach is filled with an oily fluid, in which are the horny mandibles of some cuttle-fish, and a greenish substance, which I believe is sorrel, as that plant grows in great abundance on the rocks, and, as the people say, is probably taken by the birds to correct the oiliness of their diet. The feathers of the breast are unusually thick and close; and there was a bare hollow place on the stomach, of the same size and shape as the egg.

After remaining a time to admire the view, which alone would fully repay one for the journey to St. Kilda, I returned to the village laden with the spoils. The whole island is covered with little stone hovels, which are built partly as a protection for the sheep during the gales, and partly to dry the turf, which is used for burning, as there is no real peat in the island. The sheep are of a peculiar sort, not unlike those which were kept by the crofters in most of the Hebrides before the introduction of the improved breeds, and have very fine wool, which is sometimes of a light-brown dun colour. This sort, however, is not very common; and the wool is in great request, as the rent is paid principally in wool and feathers. The factor of the island, who lives in Skye, comes every year in June, and remains until August or September, taking away with him all the spare produce of the island; and as this is the only regular communication with the rest of the world, the people depend on him for everything which they cannot make themselves. The present proprietor, Mr. Macleod, is a very liberal landlord, and the condition of the islanders has improved immensely during the last thirty years, so that they are now much better housed and fed than most of the Hebrideans.

After visiting a few of the houses, and examining all the objects of interest, I returned to the *Harpy* to deposit my birds and eggs, and found most of the older men collected on board begging for tobacco, sugar and other things, though they did not seem very anxious to give us anything in exchange.

Some of the man-of-war's men had been collecting eggs on shore; and this excited the indignation of the older men, who considered it in the light of stealing their property. After we had pacified them with some small presents of tobacco and sugar, I showed them the pictures in my *Yarrell*, among others pointing out the fork-tailed petrel. This, however, they did not seem to distinguish by any peculiar name from the stormy petrel, which is common enough, and is here called "Assilag." The petrels are too small to be of any use for food, and are probably not much seen by the natives, especially as they only come out at night; but the pictures of all the other birds which are found here were at once recognised, and the Gaelic names given. The kittiwake, which is by far the most common of the *Laridæ*, is called "Ruideag"; the guillemot, "Lamhaidh" (pronounced "Lavie"), and the puffin, "Bougir," are also in countless numbers, and, as food, are esteemed next to the fulmar and gannet. The name "fulmar," which is pronounced here as a word of three syllables, "ful-a-mair," is the only case I know of, besides the ptarmigan and capercaillie, in which our common English name is taken from the Gaelic.

The shearwater (*Puffinus anglorum*), which is here called "Scrapire," is by no means plentiful, and only breeds on Soay, where we were unable to land owing to the heavy swell; but as I was anxious to get some of the petrels, we took the ship's boat and landed on Dun with some of the natives. This island, which forms the southern horn of the harbour, is the principal preserve of the puffins, whose burrows cover the whole island like a rabbit-warren. Immense numbers were sitting everywhere, flying up as we approached and settling again behind us. They had only

just begun laying; but I procured a few eggs, which, though quite fresh, were covered with dirt. A few eiders were breeding here, though they are not numerous; and the down is never collected as the young gannets afford an abundant supply.

I expected to find the petrels breeding near the top of the cliff; but none were at present visible, and I think it must have been too early in the year for eggs. There is no doubt, however, that the fork-tailed petrel does breed here, as I have seen eggs from St. Kilda, and Sir W. Milner procured the birds, though John Macgillivray, like myself, was disappointed in finding them. After searching for some time, I looked over a cliff and saw, far below me, a broad flat ledge on which hundreds of fulmars were sitting among the stones. I descended with a rope we had brought from the *Harpy*, as none of those the natives had were long enough. Two of the young men followed me, coming down hand over hand at a tremendous pace. As soon as the fulmars were disturbed from their eggs, the black-backed gulls came swooping down, and carried them off in their beaks, much to the indignation of my companions, who hate the "Farspach," as they call *Larus marinus*, with a deadly hatred, and practise all sorts of barbarities on them whenever they catch them, as they are terrible robbers of eggs. The young men seemed determined to have every fulmar and every egg they could get, as they enjoyed the opportunity of harrying the rock, which belonged to someone else, and probably laid the blame of it on me afterwards.

All the cliffs here are divided among the inhabitants equally, and the boundaries are as carefully observed as if they were fields, so that no one can take eggs on the main island except from his own rock. Boreray, Soay, and the Stacks are considered common property, and are harried occasionally by a party despatched in the large boat for that purpose.

As it was now getting dark, and the wind rising fast, I thought it best to lose no time in getting on board again; for though I was very sorry to leave the place without visiting all the islands of the group, yet I did not wish to be left there a month or more, and the weather looked so threatening that Captain Bell was very unwilling to remain longer. We had much difficulty in getting into the boat owing to the increasing swell, and after arriving on board ship were obliged to take leave of the people and put to sea without loss of time. Before long it was blowing a gale of wind from the south-east, and the weather continued so bad for five weeks that no boat could possibly have landed, so I was obliged to content myself with what I had already seen, and leave a more thorough examination of the group to some future observer.

On my return to the Outer Hebrides, I spent some weeks exploring in my canoe the countless little lochs and islands on which sea-birds bred, and succeeded in finding many nests, some of which, on account of their rarity, I did not mention for fear of attracting people, not so common then as now, who collected eggs for sale. The most interesting of these birds was the Red-necked Phalarope, one of the most beautiful and confiding of the little birds that swim. A good many pairs then nested, as they still do, under the more or less efficient protection of the proprietors on North and South Uist and Benbecula. They were so tame

that one might almost catch them with a butterfly-net, as they flitted about on the edge of the little pools which are found among the sandhills, and their eggs were then so rare in British collections that, on my return, I was able to supply such ardent collectors as the late Canon Tristram of Durham, and Professor A. Newton of Cambridge. In 1914 I saw these charming little birds quite at home in the aviary of Mr. St. Quintin in Yorkshire, who had imported them from Iceland.

I was also able to prove that the geese which were supposed by Professor W. Macgillivray to be the Pink-footed or the Bean goose (which had also been reported by so good an ornithologist as Selby to breed in Sutherland) were really the Greylag goose. Another bird which had been stated by J. Macgillivray to breed, but of which I could find no reliable evidence, was the Goosander; it is now not uncommon in Inverness-shire and Ross-shire, where it breeds in holes, but always near the rapid mountain streams which it frequents in preference to still water.

My next journey in search of birds was more important and interesting, and on that occasion I had the company of Mr. T. E. Buckley, who helped me to write the *List of the Birds of Turkey*, which we compiled and which was published in the *Ibis* for 1870.* In this paper we said very little about the country, but, though the list is now very much enlarged by later discoveries, our account of the birds was the first attempt at such a thing and contained a good many interesting notes, especially on the birds of prey, which were at that time more numerous than in any other country I have visited.

Arriving at Athens at the end of January, 1869, we found the mountains under snow, which was exceptionally heavy that winter. We engaged as dragoman a man named Alexander, who at that time had a good reputation as a travelling servant, and who enabled us to escape a very dangerous and, as they afterwards became, notorious band of robbers. We were warned by the Consul that it was unsafe to go far out of Athens without a guard, and four mounted gendarmes were provided to escort us as far as Chalcis. Our start was arranged for February 2nd, but two hours before daylight on the morning of the 1st, Alexander woke us up, saying that our day of departure was known to the brigands, who had their spies in the town, and that our best chance was to get out of the city before daylight, when the gendarmes would meet us. Everything had been got ready before, and the horses were loaded with unusual speed. When the guards turned up, we noticed that their carbines were tightly strapped to their saddles, which implied that they did not mean to use them or thought there would be no necessity for so doing.

On the next day we passed through a gorge where the brigands might easily have surprised us, and Alexander was very anxious that I should not attempt to use the new breech-loader Henry carbine which I carried, as he said that if we were caught it would only be a question of ransom. As it turned out, the brigands were a day too late, but they attacked and robbed some people who had an escort in this very place, two days later, and we reached Chalcis after a long and tiring ride through Bœotia. Here I got my first taste of the insect pests which were then, as they are now,

* Pages 59-77, 188-201, 327-341.

the curse of Eastern inns. We attempted to cross the mountains of Eubœa. The snow higher up was so deep that we had to come back to the coast, where we lodged for the night in a veritable pirates' castle, which had no entrance on the ground floor and could only be entered by a ladder. On the stone floor of this keep we found our host, supposed to be an ex-pirate, seated on the floor with his retainers round a charcoal fire, and here I smoked my first cigarette, which was then an almost unknown form of smoking in England. We were hospitably entertained with kebabs and pilaf, two excellent Eastern dishes, which I still eat with relish, and, after a long haggles, Alexander announced that he had made a bargain with our host to take us in his galley to Volo, which was then Turkish territory. As it was a feast day they would not start then, but we went down to the shore and slept under a shed ready to start at daybreak. I have never seen a more curious boat, propelled by twelve rowers in what seemed a most laborious way, and very much resembling, I imagine, the galleys of the Venetians on a small scale. She was rowed by six pair of oars double banked, and at each stroke the men had to jump up on to the bench before them and throw themselves back with their weight on the oar into the bottom of the boat.

The dress and features of some of these rowers would have made them well suited to represent Greek pirates in a comic opera. But they stuck to their work like men, with occasional snacks of bread, dried onions and very strong goats' milk cheese, the whole day long, and brought us safely into Volo at night. Here we found the Turkish fleet, under the command of Hobart Pasha, lying at anchor, and I was informed that on account of some grievance between Greece and Turkey which might lead to hostilities, we could not be allowed to land, so we went alongside the flag-ship, and hailed the admiral's ship in English. He told us that the best thing we could do was to go on board a French steamer that happened to be in harbour on her way to Salonica, where we landed the next day.

In this town we found a British Consul who introduced us to the Turkish Governor, who gave us permission and a passport to go into the interior, and, hearing that we were sportsmen, invited us to a battue which he had arranged in the bay. He was very much interested in my Henry breech-loader, as such things were then unknown in Turkey, where most of the inhabitants still used flint and steel guns. I have been put to shame by a young Turk using such an antiquated gun, with which he wiped my eyes handsomely at a partridge; but powder was very scarce, and we were only allowed to land a few pounds by the expenditure of much bakshish.

The marine battue was especially directed against an immense flock of wild swans, which had been driven out of their usual quarters by the severe weather, and covered a large expanse of sea in thousands. Everyone in the town who owned a gun seemed to have been invited, and perhaps a hundred boats were formed into line to surround the swans, with the Pasha in a man-of-war galley in the middle. We tried to explain to him that the line should be a semicircle with the outer horns in advance, and that in this way the swans might be compelled to fly over the boats, but etiquette would not allow any boat to go before that of the Pasha, and the line was so ill kept that very few swans were bagged. I was able, by

firing into the brown of them at 300 yards, to kill one and wing another, and I might have sold my rifle at a fancy price on the spot to the Pasha, but I would not part from it. I was very glad I did not, for the first time I fired it on shore I killed a wild boar, and the second time I bagged the finest red deer stag I ever killed. His head and the clumsy-looking old rifle that killed him are still two of my most valued possessions. Whatever the virtues of the modern small-bore rifles may be, I can testify that a 500-bore Henry with five drams of black powder will kill anything from an elephant downwards, and that fewer beasts have got away wounded from this rifle than from any that I ever possessed.

One of the most curious things that I saw in Salonica, a proof of the mixed population of the district, was the official journal, printed in four different languages with four distinct characters as follows—Greek, Turkish in the Arabic character, Bulgarian in the Russian character, and Spanish printed in the Hebrew character for the benefit of the important colony of Spanish Jews who then as now controlled a great deal of the trade of the place.

As soon as Alexander had got the horses, always a matter which takes time in the East if you are at all particular about your mount, we rode into the country at the mouth of the Vardar river, where its delta forms great marshes, the home of innumerable wildfowl of many species, and spent some days in shooting in this paradise for the wildfowler until ammunition ran low. In the marshy forest on the east of this delta we found the wild pheasant, *Phasianus colchicus*, which, owing to the density of the thickets, was very difficult to flush, and when put up by dogs sometimes flew into a tree. When the snow had melted from the mountains, we went to a monastery called Kalipetra on the banks of the Bistritza river near Verria, where the forests on the lower hills of the Macedonian Mount Olympus sheltered wild pigs, roe and red deer; and where, higher up, bears and chamois are said to be found. With the help of the native hunters and woodmen we had several more or less successful drives, and I was lucky enough to get a stag which I have only once seen the like of. I was posted close to the top of a pass where the snow still lay at about 3,000 feet. After waiting for some time I heard the hounds, which the Turks use for this sport, open a long way down the glen. At last, out of the mist which was gathering round me, two splendid stags came trotting up, and I shot the leader dead at about sixty yards. I slipped in another cartridge and ran to get a shot at the other, but I tripped and fell on the frozen snow; he was out of sight in the mist before I recovered myself. This stag, though very lean at this season, had a fine head of fourteen points and the four quarters weighed 94 okes, equal to about 250 pounds.

On a cliff near Verria I took my first nest of the black vulture, but though we saw lammergeyer we never found their eyries. The white-tailed eagle, *Haliaetus albicilla*, was as common in the marshy woods on the Karasmak river as I had found it in the previous year in the cliffs of the Hebrides, and breeds on willow and black poplar trees. It is here so plentiful that we found three nests within half a mile of each other, all of which were tenanted, and there were numerous others at a short distance.

In these dismal woods, which are interspersed with patches of high reeds, with dense brambles and underwood in the dryer places, the water is often up to one's waist. Many sorts of wildfowl literally swarm, and attract a corresponding number of birds of prey. Vultures, eagles, falcons, buzzards, harriers and owls were so numerous that in the evening nearly every tree was tenanted by some great bird which had come from the surrounding swamp to roost. Among these, spotted and white-tailed eagles were most common; and the latter were all breeding in the month of February. Some pairs, indeed, must have commenced nidification as early as Christmas; for a nest was found on February 17th, containing two young ones at least a week old. The nests were usually placed on large willows or poplars, and from these eyries we obtained a view which seldom gladdens the eye of a naturalist. Here and there one could see small parties of cranes stalking about amongst the bog-myrtle bushes, great white herons in snowy grandeur wading solemnly in the reeds, pygmy cormorants sitting on the branches which overhung the water, flocks of little gulls hawking like swallows in the bright sunshine, ducks of a dozen species flying about in every direction, smews and grebes diving in the streams which intersect the marsh, harriers and eagles sailing over the tops of the reeds and striking occasionally at some unwary duck; while waders and warblers of many kinds frequented the outskirts of this ornithological paradise. Indeed the days that we spent at Luko Monastir, a small monastery on the edge of this morass, were among the pleasantest of our tour; and what with pheasant and duck shooting in the mornings, nesting and eagle shooting in the afternoons, and skinning in the evenings, our time was fully occupied.*

Early in March we went to Constantinople, where I made the acquaintance of a French banker, M. A. Alleon, who was as fond of birds as he was of good living, and not only helped us to explore the Forest of Belgrade, which was then the breeding place of many rare birds of prey, but enabled us to taste the delicacies of Turkish cookery, which is too little known in Europe. It is a curious fact that even in out-of-the-way parts of the East you often find, among Turks, Greeks, Arabs, Hindus, Malays, and even Tibetans, men who have a natural genius for cookery, which is lacking, as a rule, in our country, and even more so in countries colonised by our countrymen. I have had a better dinner for ninepence in a Bulgarian country town than one could get for ten times the money in England, Scotland or Ireland, where meat dishes seem to be the only idea of good living among the lower and middle classes.

After a few days in Constantinople, we went on to the Crimea, where we visited the battlefields and trenches, then in very much the same state as they were left by our army, and on the battlefield of Alma I saw the ground where my regiment had gained so much distinction.

I remember one thing which may, to some extent, explain the very weak defences of the Russian left on the Alma, whose valley is bordered on that side by earth cliffs, which were easily stormed and taken by the French. As one approached from the direction whence our Army came, these cliffs appeared, owing to some optical illusion which I cannot

* Quoted from *Ibis*, January, 1870.

explain, so much higher than they really are, that birds which at a distance we thought to be large birds of prey, turned out, when we got close to them, to be only jackdaws, and the cliffs which seemed impregnable were so low that an active man could scramble up almost anywhere. Spring in the Crimea was much more backward than in Turkey, and there was little to interest a naturalist at that season, so we returned by way of Odessa and landed at Kustendji, now the Rumanian port called Constanza, on April 1st, 1869.

Here we found an English medical man, Dr. Cullen, who was very helpful, and we spent a very profitable month in the Dobrudja, on the Danube, and in the country about Shumla and Varna. The ornithological results were very rich, as vultures, falcons, eagles and many other birds were very abundant.

I made the acquaintance here of Mr. H. Barkley, afterwards and until his death one of my best friends. He was one of four brothers who had laid out and built the line from Varna to Rustchuk, and his book, *Bulgaria before the War*, describes the country, its life and people much better than I could do. He, knowing the Bulgarians more intimately, formed a much higher opinion of their qualities than I did, but we, like most Englishmen, much preferred the Turks, and especially the Tartars, who had colonised the Dobrudja after the Crimean War, and who were always more friendly, hospitable and genial, than the plodding, industrious and avaricious Bulgarian peasants. Though one cannot judge correctly of any people until one knows their language, and though they have shown in recent years that they possess military virtues which were not then supposed to exist, I never liked the Bulgarians, and this dislike was increased by my later journeys in their country.

We had one experience of the rough and ready way in which the Turks then administered justice, which I must relate as it occurred. Whilst staying at Kustendji we had our lodgings in a so-called hotel kept by a Greek, but only slept there for four or five nights, and generally had our meals with Dr. Cullen. When it was time to start home and we had everything packed to go, by the only train in the day, to Tchernavoda on the Danube, where the steamer for Buda-Pest called twice a week, the Greek innkeeper would not bring the bill till the very last moment, and when it came it was so exorbitant that I refused to pay more than half what it came to. He then refused to let our luggage go, and in consequence we missed the train. I at once went to the Vice-Consul; he was away, but his dragoman, who was the official interpreter, accompanied me to the Konak, where the Kaimakam administered justice. We found this official ready and willing to hear the case at once. The innkeeper was summoned and the bill produced. The Kaimakam, who had once been to Paris, was very pleased to air the French that he knew, and went through the bill in detail, with sarcastic remarks on the items. "Does the fellow think he keeps the Grand Hotel? Six beshliks a day for a bedroom with bugs in it! He ought to be proud to entertain English travellers for two. Eggs, wine and pilaf and kebabs, four beshliks! Is there a famine then in Kustendji and I not to know it? Such a meal is dear enough at one beshlik. I will not allow such a scandal to pass unpunished in my town,

and moreover, the clerk finds the addition is very incorrect. You have offered him too much, sir! Instead of seven liras I shall reduce the amount to five, and one of his own countrymen would not have paid more than three. Moreover, he has laid hands on your luggage without right, for which I fine him one lira." Much laughter and applause in court. But when I offered the amount awarded to the innkeeper, he was in such a passion that he flung the money on the floor of the court and refused to take it. This made the Kaimakam very angry.

"What is this? Pig of a Greek! Do you insult my judgment in this way? I will teach you better. I fine you three liras and three days' imprisonment as well. If you come here again for such a thing, I will make you eat stick." More laughter and applause in court, when the prisoner was removed in custody. We thanked the judge and went out in triumph. After some experience of county courts in England, I should say that Turkish justice was not so bad as it is sometimes painted, for in any other country we should have taken as many days as we took hours to get a similar matter decided, and probably a less favourable award.

The next question was how to get to Tchernavoda in time to catch the steamer which left that evening, and as my leave was nearly up I had to catch it somehow. The English manager of the railway said that he would give us a special engine for five pounds, which we agreed to pay. When we got near Tchernavoda something went wrong with the machinery and the English driver got down, and lay on his back under the engine working with a spanner. In order to test his work he ordered the Bulgarian stoker, who was on the cab, to move some lever, but by mistake he moved the starting lever enough to move the engine a foot or two. A little more, and the firebox would have crushed the driver to death. He quite coolly crawled out, and began to correct the stoker with his fists, but the man broke away, and fled into the country, and we went on without him. There were some curious characters among the drivers and gangers who were brought out from England by the Barkley brothers to work the line at first. Though they had then been some years in the country and had learnt enough Turkish to direct the native navvies, many of whom were very tough customers, they seemed to think it was beneath their dignity to talk to them without a mixture of English words, just as British soldiers talk to the natives of India. But at the same time they were able to hold their own with the roughest of the Albanians, Kurds, Armenians, and Bulgarians who were attracted by regular pay and English honesty to the service of the company, and the Barkleys, who had made and managed the line for some years, always kept up the best relations with the people and had great influence and power in the country.

In the autumn of 1869 I retired from the Scots Guards as I found that there was little or no prospect of any real soldiering, and the extra rank which officers in the Guards then enjoyed made it impossible for me to exchange as a captain into a regiment in India as I tried to do.

CHAPTER III

TOUR IN INDIA, 1870: MADRAS, DARJEELING AND SIKKIM

ON January 16th, 1870, I landed at Madras after a bad passage of twenty-eight days from Marseilles in the P. and O. *Mooltan*. I stayed at the Club, where I was introduced to the late Colonel Michael, one of the founders of the Forest Service in the Presidency, and well known as a great hunter. This Club was then the *ne plus ultra* of Anglo-Indian luxury; and I was much amused to find that a servant with a pellet bow was constantly walking about to scare the crows, which were so bold that they often attempted, sometimes with success, to plunder the dishes as they were carried from the kitchen to the dining-room.

I left Madras by train for Trichinopoly, where I had to wait a day for my luggage, and went on by bullock cart to Madura. In those days trotting bullocks, which were changed about every six miles, were the usual means of locomotion on the plains of Southern India, averaging about five miles an hour when the roads were dry and level. At Madura I was hospitably entertained by Mr. Arbuthnot, the Collector, who showed me the temples, which are very large and curious. I was much interested in the civil court where Arbuthnot heard cases daily; he told me that he had great difficulty in preventing the natives employed about the court, and even his own servants, from taking bribes from the suitors to get influence in their favour.

On January 22nd my brother officers and companions, Captain Barne and the Hon. F. Bridgeman, who had gone out a fortnight earlier, returned from the Sherramalay Hills where they had been hunting for a week and had killed three bison. After spending some days in engaging servants, buying ponies and getting camp outfit, in which we were much helped by Arbuthnot, we started on the evening of the 26th for Tirimungalam, about twelve miles out, in a dog-cart, and there found two bullock carts waiting to take us to the foot of the hills. Owing to the muddy rivers which had to be crossed, and in which the carts often stuck, it was a slow night's journey, without much sleep. In the morning we breakfasted at a large village, and rode thence to the foot of a pass which led into the Wursenaad valley, about seventeen miles, where we found our camp pitched in an open spot on the banks of a river.

The Wursenaad valley at that time was mostly filled with thick jungle, and a very favourite place for elephants; it was more or less preserved by the Collector of Madura for the sport of himself and his friends. Native trackers had already been engaged, and gave excellent reports of the number of elephants in the valley.

In those days, when breech-loaders and express rifles were hardly known, heavy rifles or smooth bores were considered the best for elephant hunting, and I had been lent by Colonel Michael a single 4-bore rifle weighing over twenty pounds, which was loaded with round bullet weighing four to the pound, and an ounce of powder. The kick of this rifle was such

that one did not wish to fire it, except at an elephant, as it left its mark on one's shoulder. We had been carefully drilled by Arbuthnot as to the great importance of getting as close as possible before firing, and of aiming only at those spots on the head where a bullet would penetrate the brain. As none of us had any experience in elephant hunting, except our host, he thought it best that we should hunt in couples, drawing lots for first shot, with the understanding that, if the elephant did not fall to the first shot, the other man should fire at once.

On the 28th the trackers, who had been out since daylight, came in to say that there were elephants feeding within two miles of camp. When we drew near the place, it was discovered that there were two distinct herds, but the jungle was so dense that it was impossible to say whether there were any tuskers with them. Arbuthnot and Bridgeman went after one herd, Barne and I took the other. We followed the tracks for a long time, crossing a beautiful stream with sandy pools overhung by large teak and tamarind trees, and finally got near the herd in a place where the ground was soft and marshy. The jungle was so dense that one could not see twenty yards in any direction, but we followed the fresh tracks very cautiously and finally sighted, about twenty yards off in an opening, two cows, one of which had a calf, and a male with moderate tusks. They did not see us, and I took a steady shot with the big rifle at what I believed to be the correct spot in the bull's forehead; but he did not fall, and went off with the cows. I had hit him a few inches too low. Barne tried to cut him off, but missed him in the thick bush, and when we rejoined each other we decided to follow the track, which was slightly marked with blood. I do not mind confessing that, though when the beasts were in sight I was perfectly cool and free from funk, yet when following up a wounded bull, who might charge at any moment through the thick jungle, I was not so comfortable. Colonel Michael had told me of a case when he was charged by a wounded elephant, who actually tried to drive his tusks through him whilst he lay on the ground; by a miraculous chance one tusk was broken and only pressed on his body without breaking the skin, whilst the sound tusk made a hole in the ground beside him. However we never saw our elephant again, and, as the body was never found, I suppose that he recovered from the wound.

For the next week we continued hunting in this valley without much success, for though Bridgeman killed a small tusker, and Barne wounded another, I never had another chance at an elephant; we did not like to shoot at any other game for fear of disturbing the elephants. On one occasion I was so close to a cow that I could see her trunk breaking off branches within five yards of me; but I never saw her body, and when she got my wind she went off with a rush and very nearly ran over Bridgeman, who was behind a tree. The salt licks were probably the great attraction for elephants there; the valley, uninhabited except by a few jungle men, is said to be very unhealthy for most of the year.

Early in February, as Arbuthnot had to return to his work, we broke up our camp and marched to a large village called Bodenaikenoor, near which place bison are found on the hills adjoining the Travancore territory. Here we were to meet Mr. Munro, who was in the service of the Rajah of

Travancore as Collector and Magistrate of the Cardamom Hills, which form the southern part of the range known farther north as the Arnimalai Hills. We started before daylight to ascend the pass, about 4,400 feet high, which leads into the Cardamom Hills. At the top of the pass we came out into an open grass country in which the glens or cholahs are wooded, as in the Nilgiri Hills. After a few miles' riding we came to a magnificent forest, in which some of the trees must have been 200 feet high, without a branch for two-thirds of their length and with wide spreading buttresses at their base. In all this country there are wild elephants, but not so many wild birds as in the lower hills, though most of them are of different species. The ground below is fairly open and more or less cultivated in small patches with the cardamom plant which grows here naturally, and is valued for its seeds, at that time worth six shillings a pound. We found Munro at a place called Colapara, where he lived during the season of the cardamom harvest; he had a number of natives employed in gathering the seeds, which at that time were a Government monopoly.

On February 12th I went out early with Bridgeman, who wounded a big sambur stag in the long grass, but we did not succeed in recovering it. After breakfast we heard of some elephants which had been disturbed by our shots, among which there was a big tusker, so we followed their trail for some way down a narrow valley with rocky hills on either side. The herd were evidently not much alarmed, as they had crossed the stream several times, and soon I came in sight of three cows, two calves and a young bull going slowly along in grass eight feet high, about 100 yards off. Then a big tusker, in company with a cow, appeared behind them, but we could not get nearer than within forty yards of him on account of the stream and high grass. As it was Bridgeman's turn for first shot, I waited till he had fired at the ear, and then, as the bull did not fall, I aimed at the heart with the big rifle. He fell, but got up again, getting two more shots as he rushed away and disappeared in the grass. After reloading we climbed a rock, to get a better view of the ground, and we both fell into a deep hole hidden in the long grass. On getting out we thought we heard a low groan, and, approaching carefully, found the big bull lying dead. As all the shots were on the side on which he had fallen and it was impossible to turn the body over, we agreed to divide the tusks, which weighed about forty-five pounds each and were considered a large pair for that district.

Though it is now fifty-two years ago, I cannot remember that this success caused me as much pleasure as several stalks after stags, elk and chamois have since done, and I do not understand, except for the danger and the value of the ivory, why elephant hunting, in India at least, is ranked among the highest forms of big game hunting. For my part, I would not care to shoot another elephant in India, and I have never had the chance in Africa.

A very curious thing happened to Munro on one of his marches in these hills, which I tell exactly as he told it to me. He was riding along on his pony, with his coolies and servants some way ahead, when he heard a great shouting from the men, who had all climbed into trees. A large rogue elephant was standing in the path, with one foot on the case of

Munro's big rifle, the stock of which was broken, and his trunk over the large medicine chest which Munro was in the habit of carrying in order to doctor his numerous coolies. The elephant appeared stupefied, and remained for some time without moving. When at last the animal went off, Munro found that a bottle of chloroform in the chest was broken, and this had apparently affected the elephant. The same animal the next year attacked Lord Waterpark, who was riding in the district, and pursued his pony, which it caught and killed, after the rider had jumped off. We saw the bones of this rogue lying on the hillside, where he had been killed by a native armed with a matchlock, who had crept up close to him and put an iron bullet into his brain.

I had very bad luck one evening when I had gone out alone with my Henry 500 express to look for sambur. I spied a large tusker standing alone in the long grass, and saw that he had very long and very much curved tusks. As I had only two solid hardened bullets with me, I determined to follow the elephant till I got what seemed a chance for a deadly shot, and, after going round to get the wind right, I followed the tracks through grass about eight feet high. The elephant, however, turned back and returned on the other side of a small nullah, parallel to his former track, so that I only saw him when he was pretty close to me. I remained still until he moved on, and then I took what I thought a sure aim at the temple, and fired. The elephant shook his head but did not fall. I remained motionless, expecting a charge; but he moved on into a dense cholah, where I did not dare to follow him alone, as it was now getting dusk. The only thing I could do was to light fires in the grass to keep him from coming out; this I did and returned to camp. Next day we found him gone. Munro sent out trackers who followed his tracks a long way into the low country, where he joined a herd; they either lost the tracks or were afraid to go further. Some time after, Munro heard that an elephant with very long and curly tusks, which was almost certainly my beast, had been found dead with a bullet in his head, and the tusks had been cut out and carried to the Rajah of Travancore. I asked Munro to try and purchase them for me and offered 600 rupees, which was a high price at that date. But they were so much admired for their length and shape that he could not get them, and thus I lost the finest trophy that I ever killed.

We visited several coffee planters who had recently settled in the neighbourhood of Peermaad at about 3,500 feet elevation in the Travancore Hills. Coffee planting was then a very profitable business in this district, as land and labour were cheap, and the crops good, something like ten pounds per acre profit being often realised. Cinchona had just begun to be grown, but tea planting was not started for years afterwards, though I believe that a large part of the forests over which I hunted are now cleared and covered with thriving and profitable tea gardens.

The best book written by a planter that I have ever read is *Experience of a Planter in Mysore*, by R. H. Elliot, now of Clifton Park near Kelso, where he has been as successful in agriculture as he was in planting.

During our stay in this beautiful country I ascended one of the highest mountains in Southern India, which I do not think had then been measured,

but which I made by aneroid 8,200 feet. In March it was quite cold up there, and the cholahs were filled with beautiful rhododendrons in flower (*R. arboreum*), some of which attained thirty or forty feet in height. Another beautiful plant which grew there is *Lilium neilgherrense*, which, through the help of Mr. Morgan of the Forest Department, I afterwards introduced into cultivation, and figured for the first time in my work on "Lilies," but like many other species of lilies it has not proved as easy to keep as it was to introduce. Of birds I made a nice little collection in the Travancore Hills, but I found that collecting and sport do not well combine, as one cannot shoot birds without the risk of disturbing game, to which my companions naturally objected. But though there are a certain number of species peculiar to these mountains, they are nothing like as numerous, as varied or as interesting as the birds of the Himalayas.

After spending six weeks very pleasantly in camp, Bridgeman and I left Peermaad and rode twenty-two miles to the ghaut or pass which goes down to the plains. Sending our ponies back we went on for ten miles to Cumbum in a bullock bandy. From there we went on for thirty-five miles to Periacolum, near the foot of the Palni Hills, where Arbuthnot had a bungalow. We walked up a well-graded path through a beautiful forest to about 5,000 feet, and found a pleasant party of engineer officers in the bungalow. The general features of this group of mountains are very similar to those of the Nilgiri Hills, consisting of grassy downs interspersed with wooded dingles or cholahs. At 7,000 feet Lord Napier had a pretty little bungalow, which commanded a lovely view of the plains, and another man had a garden where some English fruits and vegetables thrived very well. Potatoes were as good as in England, and many Australian trees had been planted and grew very fast and well. But at that time there were hardly any residents in these hills, and both sambur, ibex and elephants were fairly numerous. I collected some birds which are peculiar to this range, including a blackbird.

We left Madras by sea and reached Calcutta on March 30th. On landing we were met by a brother officer who was aide-de-camp to Lord Mayo, then Governor-General, and who brought us an invitation to stay at Government House. We remained there a few days and took part in a day's hog hunting with the Calcutta Tent Club. At the Calcutta Museum I found Dr. Anderson, the then Superintendent, who had lately returned from an expedition to Upper Burmah and the frontiers of Yunnan. I consulted him as to the possibility of exploring the Mishmi Hills on the extreme north-east frontier of Assam, where many rare birds and animals were known to exist, and which I had intended to visit if possible. But, owing to the recent murder of two missionaries, Messrs. Krick and Bowie, in those hills, it was considered too dangerous, and Lord Mayo told me plainly that it would not be allowed by the Government, as they had already had a great deal of trouble in punishing the murderers, and had given orders that no one was to be allowed to go beyond the frontier of Assam.

He gave us an introduction to Colonel Haughton, who was then Commissioner of Cooch Behar, and it was arranged that we should accompany a hunting party, which was being arranged by Dr. Brougham in the Terai

near Jelpigori, where the Government elephants were placed at our service. I engaged a native bird-skinner on Dr. Anderson's advice, as I found that in the great heat it was necessary to skin birds the same day they were shot. Though one can rarely trust the determination of the sex to a native, and I always wrote my labels before the skins were made up, it saved an immense deal of time, trouble and dirty work, which I had already found very irksome in Southern India. We left Calcutta with the Viceregal party, who were leaving for Simla on the 8th of April, and got to Sahibgunge at daylight. In those days one had a ferry of thirty miles in a steam tug to Caragola, and from there went in palkis to Purneah, as no carriage could be had. The next night we drove about 100 miles to the foot of the hills at Siligori, where there was a very fair dak bungalow on the banks of the Mahanuddi. This was then the end of the carriage road to Darjeeling.

As we heard from Colonel Haughton that the hunting party would not start for a week, we rode up to Darjeeling, staying for one night at Kursiong, a lovely place at about 4,500 feet on the top of the first steep ascent from the plains. In those days the forest came close up to the little hotel at Kursiong, where I passed some pleasant days in collecting birds, which were very numerous and all quite different from those of the plains. The forest at that elevation was splendid, the trees being covered with ferns, climbing aroids, creeping plants, orchids and mosses. I have never, except in Mexico, been able to collect so great a variety of birds in one place as I did here between 4,500 and 6,000 feet. A short visit to Darjeeling gave me such a good impression of the country that I determined to spend some months there. We were glad to meet Major Barnard, the officer in command of the depot, and Lieutenant Grenfell, of the 60th Rifles, afterwards Field-Marshal Lord Grenfell, who were to be the other members of the tiger-hunting party in the Terai.

I shall say nothing about the beautiful scenery and surroundings of Darjeeling, which has to me always been the most delightful place in India. Though several books have been written about Sikkim, Hooker's *Himalayan Journals* stands out far above all others. In the twenty-two years which had elapsed since Hooker was there, a good deal of clearing had been done for tea-planting, but there were few changes compared to those which have come since the railway was made.

On April 15th we rode down again to Siligori, where we found tents from Jelpigori and the elephants assembled, all ready for work. But as Dr. Brougham had not arrived, it was decided to make a short hunt up to a place called Sivoke, where the Tista river emerges from the hills, and where, in those days, rhinoceros and tigers were abundant. This place is notoriously unhealthy, as is the whole of the Terai at this season, and I believe it was here that many of our men were infected by the malaria which broke up our party later. At that time it was not known that mosquitoes were the cause of our infection. It was supposed that the malaria was produced by the action of the sun on the wet or marshy ground, and that it was to be avoided best by sleeping in a house built on piles some feet above the ground, which was the custom of the Mechis, a tribe who were at one time the only permanent residents in the Terai.

It was also thought that by sleeping in mosquito curtains, and not exposing oneself to the air before dawn or after sunset, it was possible to remain more or less immune. But I have no doubt that, though the constitutions of certain individuals, usually men of dark complexion and spare habit, are much less subject to fever than others, and though the continued use of small doses of quinine tends to weaken if not to keep off attacks of fever, yet no amount of precaution against mosquito bites will ever make it possible for Europeans or natives to live in the Terai during the rainy season without suffering from fever. The amount of illness and mortality which prevailed in all the districts at the foot of the hills, known as the Dooars, when they were first opened up by tea planters, was very serious, both among Europeans and among the coolies, who were mostly immigrants from Bengal.

Our first beat for rhinoceros took place on the other side of the Tista river, which was about a hundred yards wide and at that season was just fordable for elephants. It was very interesting to see how the smaller elephants took advantage of the breakwater formed by the larger ones and packed themselves together just below them in order to avoid the force of the rapid current. The water was almost over the backs of the smaller animals, which would have been washed off their feet if alone, but, feeling every step of the way carefully, all crossed safely.

We then formed a line of elephants at intervals of fifteen to twenty yards in the long grass and reeds which covered the country, and beat it with the flanking elephants rather in advance. There were a good many swamp-deer, but we found it very difficult to hit them, when shooting for the first time from the howdah of a moving elephant, and we only got one.

Later we beat a dry watercourse, 400 yards wide, which was full of dense reeds, so tall that even when standing up in the howdah one could hardly see the next elephant. In these reeds the rhinoceros lay and slept during the day, having regular runs along which they passed without being seen from above. Once or twice there was a rush, and if the elephant was quick enough to follow it up, and the reeds were not too dense, one got a snap shot, but I cannot say that the sport was very successful, or that it is, under such conditions, a sport that attracts me. Once a rhinoceros charged and struck one of the elephants with his horn, causing a regular stampede, and it was very difficult to get them into line again. We also found that a much better knowledge of the ground than any of our party possessed was necessary to beat it successfully for tigers, and the jemadar of the mahouts, on whom we had to depend a good deal, was not very keen about the job in the absence of his own chief, who was unable to join the party as we expected.

The chief interest of this kind of shooting, to me, consists in watching the behaviour and character of the different elephants. It was very curious to watch the way in which the elephants, at the word of command, bend and break down the branches and smaller trees which overhang their path, so as to let the howdah pass under them. They do not, however, seem to be able to break anything really large, and are particularly careful not to disturb any trees on which bees' nests are fixed.

After another day's hunting of the same character, in which a deer and

two wild boars were bagged, and a large bear got away wounded, we returned to Siligori, shooting wild peacocks and jungle fowl on the way. Dr. Brougham had not arrived, so it was decided to form another camp farther from the foot of the hills, where the jungle was not so dense, and tigers were reported to be. On the way we halted at Titalya, where we found Mr. Davis, the police superintendent of the district, who had probably shot more rhinoceros in the Dooars than any man in India. The sepoy of a Gurkha regiment, which had been quartered at Jelpigori after the Bhutan war, were very keen and successful rhinoceros hunters, going out on foot in small parties and creeping along the paths formed by them in the dense reed beds. They had killed no less than seventy in the course of a year or so, and as the horns are highly valued in native medicine, they had made quite a lot of money by their hunting.

On the 23rd of April we got news of two tigers not far off, but the jungle was so much intersected with deep nullahs, full of dense thorns, through which the elephants could not pass, that we did not succeed in surrounding them, and the wild bees were so aggressive that the elephants were fairly driven out of the thicket at the critical point. Grenfell and Barnard both got badly stung, and the mahouts declared that it was impossible to get their elephants back again, as they fear the bees' stings even more than their riders do.

On April 24th we moved camp again to a place which a man-eating tiger was reported to frequent, but, after beating down the Tulma river for three or four hours without finding him, we returned to camp. Barnard and Bridgeman were bathing in a pool close to the tents late in the afternoon, and the elephants were all unsaddled, when a man came rushing up with shouts of "Bagh," and our companions told us that the tiger actually looked out of the thicket close to where they were in the water. We got the elephants ready as quickly as possible, and I was posted down the river some way forward, while Barnard and Bridgeman beat it down from the place where they had seen the tiger. My elephant, a fine large tusker, stood very quietly whilst I listened, and I very soon heard a shot. In two minutes a tiger appeared coming along the other bank of the stream, which was here nearly dried up. A thunderstorm had been brewing and it was getting so dark that I could hardly see my sights when I got my shot. The first barrel turned the tiger from me, up the almost perpendicular bank of the stream. The second seemed to break his back and he fell into the stream, which was there hardly a foot deep, with his four legs kicking in the air. But the storm burst with such extraordinary suddenness and violence that before I could get my elephant to the place where he lay, it was as dark as night, and the water was rushing over the spot where the tiger fell. I had some difficulty in finding my way back to camp, where the tents were flooded, the fires out, and the dinner spoilt.

Next morning I went out early to look for the tiger, but, after a long search, I could not find him. The body was found not far off two days later, when the skin was completely spoilt. It was very annoying to lose my first tiger in this way, especially as I never had a chance of another all to myself.

We found tracks of another that day, and I shot a wild pig through the head, as it rushed past. The elephant nearly ran away, having, like many elephants, a horror of wild pigs, though he was perfectly staunch with tigers and had not moved an inch when I had my shot the day before.

After this we rode into Jelpigori, where we found Colonel Haughton, the Commissioner, a fine old soldier who had been through the Afghan, Bhutan and Khasia campaigns, and had served in Burmah and as Governor of the Andaman Islands. He was living in a large house built entirely of timber and bamboo, and we passed a very pleasant evening with him.

The next day, Bridgeman, Grenfell and I went to a place called Domohni, and camped in a grove of mangoes and areca palms. I added a few birds to my collection every day, though it was fearfully hot, and we began to feel the effects of the climate. Next morning Barnard, having got an extension of leave, arrived, and we went on to Ramshaihat, which was said to be a very good place for rhinoceros; it was a nasty malarious-looking spot, and a large herd of semi-wild buffaloes made it both noisy and odoriferous.

Next day the others went out two hours before daylight, hoping to catch the rhinoceros feeding in the open, but I did not feel fit, and Bridgeman came in very seedy with fever before noon.

Barnard wounded a rhinoceros in the hind leg, and followed it for a long way on his elephant, firing away all his cartridges without bagging the beast.

It was now over 100° in the tent, and as Bridgeman was rather bad, I sent to Jelpigori for a palki to carry him in to the doctor as soon as possible, leaving Grenfell and Barnard in camp, where they shot several rhinoceros in the next few days.

As soon as Bridgeman was well enough to move we returned to Kursiong in the hills, and stayed there and at Darjeeling until the end of May, when he was sufficiently recovered to leave for England. Grenfell also had an attack of fever, no doubt caught in the Terai, but I escaped with a comparatively mild one.

The rainy season now set in for good. For the next two months Darjeeling was almost constantly in a cloud, and the air so damp that I had the greatest difficulty in keeping the collection of bird skins, which I was rapidly accumulating, in fair condition. My bird-stuffer became ill and went back to Calcutta, but I found a Lepcha, a native of Sikkim, who was quite a good collector, and whom I taught to make up bird skins very fairly well. As a rule the morning was clear for about an hour after daylight, when a drizzle set in which gradually turned to rain, continuing all day and night and becoming sometimes very heavy. For seven weeks there was not a single day without rain, and I did not once get a real view of Kanchenjunga, the highest mountain in the world except Mt. Everest, which, like Everest, is visible from near Darjeeling when the weather is clear.

I began to make a collection of butterflies and moths, which are there in greater abundance and variety than perhaps in any other place in the world. Most of them are caught by Lepchas who reside in the warmer valleys beyond Darjeeling, and who have acquired an ability in collecting

which surpasses that of any other uncivilised people with whom I have ever come in contact. The Lepcha language is perhaps richer than any other in names for plants, birds, animals and insects, as the people seem to have a special talent for collecting plants and natural history specimens generally, which has been developed by long practice.

Colonel Mainwaring, a retired officer of the Bengal Army, who had lived at Darjeeling for many years, had studied their language, and had compiled a dictionary, very carefully and neatly written out in manuscript. He told me that there were approximately as many words in it as in Liddell and Scott's Greek Lexicon, and that there were few birds, beasts or insects too minute to be without a name in the Lepcha language. These primitive people have been gradually displaced from their homes by the great number of Nepalese, who have been attracted by the employment on tea plantations and public works, and who have settled in great numbers on the rich land in British Sikkim and Bhutan. These people, being much bolder, more energetic and industrious than the Lepchas, seem likely to overrun the lower hills of the Eastern Himalayas, where they are constantly extending eastward, even as far as Assam.

As I found the climate of Darjeeling too damp and foggy at this season to be suitable for my work, I accepted an invitation to stay at a tea plantation called Ging, 2,000 feet lower down on the road to the Rangit, which was managed by Mr. A. Macdonald for an English company. Finding this much pleasanter, I arranged to live with him until the weather made my expedition into the interior possible. At this plantation we lived in a good bungalow with plenty of room, and I had the advantage of being able to dry all my bird skins, insects and plants in the tea factory, where charcoal fires are constantly kept up to dry the tea. This tea industry, which had been started a few years previously, had then begun to recover from the very severe depression which was due to the extravagant and ill-managed operations of the companies who commenced it. Some of the gardens opened up at first were at too high an elevation, or on land so steep that the terraces were continually washed down by the rains. Many of them had been planted originally with China tea, which, though more delicate in flavour, could not compete in yield or in price with the stronger and more astringent tea made in Assam from the indigenous plant, which was now replacing the China variety everywhere in the district. But though a great deal of money had been lost from mismanagement at a time when almost any European was thought capable of looking after a tea plantation, yet wherever the land and situation were good, the management efficient, and the capital adequate, tea was paying very well indeed, and I have never made a better investment than in a plantation which, at Macdonald's suggestion, we took up a year later.

The planters and civilians were all very hospitable, and though some of the civilians hardly seemed to recognise that the whole wealth of the Darjeeling district was due to the capital and enterprise of the planters, I made several friends among both sets, all of whom, I fear, have passed away. I also visited and spent a few days at the Government cinchona plantation at Mongpo, which was then under the temporary superintendence of Mr. C. B. Clarke, one of the most remarkable men in his way

that I have ever met, with whom in later years I formed an intimate friendship in the Khasia hills.

The cinchona gardens were then being rapidly planted with the red barked species, *Cinchona succirubra*, which was found to succeed better at suitable elevations, 2,000 to 4,000 feet, than any other variety that had been tried. Though few of the trees were old enough to produce bark in quantities sufficient for any but experimental purposes, the gardens developed later into one of the most successful and profitable investments that has been made by the Indian Government.

I also made excursions to the valley of the Rangit river, and crossed the Tista by a wonderful suspension bridge nearly 100 yards long and made entirely from rattan canes and bamboo. The Tista valley was then roadless, and the district of British Bhutan on the other side, which had been recently occupied, after the Bhutan war, was nearly all forest, with a few scattered clearings. I went along the ridge as far as Dumsong, a frontier post now abandoned, but the weather at this season was too continuously wet to make collecting profitable. Except for a few barking deer, which frequented only the steepest and most rocky places, there were no terrestrial mammalia or large game in the lower and middle regions of the hills, owing perhaps to the innumerable leeches which abounded during the rainy season.

In July I heard that Mr. William T. Blanford, of the Geological Survey, was desirous of making an expedition into the interior, and as he had the same objects and taste for natural history as myself, and was an experienced traveller in India, I arranged to join forces with him and travel together. I had plenty of time to make the necessary preparations for a journey which had not been attempted since Dr. Hooker's great expedition of twenty-two years before. Though the difficulties of supply and transport were known to be considerable, I had the support and good will of Major Morton, the Deputy Commissioner of Darjeeling, and had acquired sufficient knowledge of the dialect used in the district, a mixture of Hindustani, Nepalese and Bengali. I engaged a Sirdar or headman, a Bhutia named Guruk, a capable and trustworthy man who lived at Darjeeling and knew Tibetan more or less. He had charge of a selected gang of twenty-two coolies, all Bhutias, and I had a Lepcha servant, and two collectors to assist in shooting and skinning and in drying plants. Blanford had his own Hindu chuprassi, and in addition I sent on a party of ten Nepalese, from the higher regions of Nepal, who were to make a depot of rice in the interior; and who, I hoped, would be willing to accompany us in case the Bhutias were afraid to cross the Tibetan frontier.

Each of these coolies was paid at the rate of eight annas a day, and was to provide his own food whenever it was procurable. The loads of rice and other necessaries for ourselves, which we made as few as possible, were all carefully weighed as a maund (eighty pounds) each, and packed in the long bamboo baskets which all these hillmen use, and on the top of which they put their own pots, a blanket to sleep in, and any spare clothing they may have, the whole being topped by a more or less waterproof mat of bamboo, which covers the man's load as well as his head and

shoulders when on the march. Such loads, averaging nearly 100 pounds each, seem heavy for marching over such bad and steep and often slippery paths as we had before us, but the Bhutias and Nepalese often carry much more on their own business; and though they go slowly, and stop to rest often, they will do as long a march as we cared to do ourselves in such a hot and trying climate.

Blanford arrived from Calcutta early in August, and on the 10th I started all the coolies to await us at Dumsong on the other side of the Tista, and on the 12th started on my pony for the cane bridge, over which it was impossible to ride. It was a pouring wet morning, and as I found a bridge broken in the Rangit valley, I had to walk a good deal further than I liked. The eight miles up a steep ascent of 4,000 feet from the Tista bridge was one of the hardest grinds I ever had in a broiling sun, with the thermometer in the valley over 90°. I got in at dark, however, and found the servants waiting and the coolies gone on.

As Blanford had been a little out of sorts and had stayed a day longer at Ging, I managed next morning to borrow a mule from a policeman, which I sent down to meet him at the bridge. I myself followed our coolies, who had gone on about twenty miles along the ridge to a place in the forest where there were a few Bhutia houses, called Pedong, or Phyndong. Here I had my first night in the small tent we had between us, which was much better adapted for cold than for such a warm climate as this, for during the rainy season it is never cold or even chilly in the forest below 10,000 feet. Blanford joined me the next day, and we soon settled down to routine, which we found best suited to our work on the march. Unless the morning was exceptionally wet, or there was reason for delay, we breakfasted at daylight on tea and chupatties fried in ghee, and started the coolies as soon as the tents and baggage could be packed, but they would never start until they had cooked and eaten their first meal, which took at least an hour and often more. I generally got ahead on the path with one of my shikaris, as I found that in the early morning, before anyone had disturbed the path, I was most likely to find birds feeding on or near it. If I saw anything specially good, I would leave my shikari to get specimens and follow on, and after three to five hours on the road I always tried to halt by a river, or in some agreeable place, for breakfast. We selected one of our best coolies to carry a light load and keep up with one of us, so that no time might be lost in waiting for cooking pots and food. We generally had curry of tomatoes and chicken with our rice, and when there were neither pineapples or bananas, we had some jam and biscuits. At the higher elevations we were sometimes able to get mutton or goat, but found that meat was by no means so necessary for hard work as many people suppose.

Mr. Elwes did not leave any account of this interesting and adventurous expedition into what was then a little-known country. But a detailed description of the journey with notes on the fauna was contributed by his companion, Mr. Blanford, to the *Journal of the Asiatic Society of Bengal*.* Sikkim is bounded on the north, towards Tibet, by the main chain of the Himalayas. It was the object of the travellers to study the fauna of these lofty snow ranges, which no

* Vol. xl., part 2, pp. 367 *seq.*, and vol. xli., part 2, pp. 30 *seq.*

one save Hooker in 1848-9 had observed even cursorily. To avoid the discomforts of the route up the Tista valley, which is very hot and very long, they intended to cross the Cho-la, Sikkim's eastern border range, into the Chumbi valley and make their way northward along the edge of Tibet, re-crossing the main range into upper Sikkim by the Tankra-la pass. They hoped to find the Tibetan passes unguarded and to discover an unfrequented way on the western skirts of the Chumbi valley. They were, however, disappointed.

Leaving Phyndong on August 16th, 1870, the travellers crossed the Rishet valley to Rhinok, where they met an official sent by the Raja of Sikkim to beg them not to cross the Tibetan frontier. They pushed on in a north-easterly direction across the Rangchu valley to Chusachen and up a long forest-clad spur towards the upland pastures. At about 11,000 feet the dwarf bamboos were few, and the forest consisted mainly of silver fir and rhododendrons. An open space was gay with brilliant composite yellow flowers, on which many red-tailed green honey-suckers (*Æthopyga ignicauda*) were feeding. Amongst the dead leaves were found a few land shells, notably *Alycaeus*, *Diplommatina*, and a discoid *Cyclophorus* never before recorded at so great an elevation. "Elwes was as usual ahead," writes Mr. Blanford: "I had marched along quietly." They spent a night in a grassy valley, at a halting place called Gnatong, and on August 23rd marched up to a barren ridge forming the crest of the Jelep pass, at about 13,000 feet. "On the crest of the ridge some twenty Tibetans were posted to oppose our passage; they were quite unarmed, except with their knives, and remained seated around the pile of stones which marks the frontier; their Jong or Captain, a round-faced rosy Tibetan, with by no means an intelligent countenance, in the centre. He appeared to take no notice of us, and seemed solely occupied in muffling himself in his huge cloak to keep off the wind, which blew piercingly over the exposed ridge we were on. We subsequently learned that the guards, Jong and all, I believe, were merely villagers, who were ordered up to guard the frontier, and, singularly enough, neither on this nor any subsequent occasion did we meet with soldiers such as Hooker describes."

"We sat down," Mr. Blanford continues, "and ate some breakfast we had brought with us, and then Elwes became disgusted at the stolidity of the Tibetans, and determined to see if they could be induced to recognise our existence. I should have mentioned that two or three questions put to them through one of our men had only elicited short replies from one or two of the guard, the Jong remaining as insolently abstracted as if he expected immediate absorption into Nirvana. So to teach them a lesson of politeness, Elwes walked rapidly across the frontier and began descending the opposite side. The men were utterly taken by surprise; they stood up and crowded round me, then with one accord rushed after Elwes, scrambling rapidly over the rocks despite their long cloaks, and, finding that expostulation was useless, they flung themselves down in the path before us, beseeching us to return, and expressing to us by most emphatic gestures that all their throats would be cut if we persisted in entering Tibet. With all this there was no attempt at violence or threats; they got in our way as much as they could, but that was all. Hereupon we halted and explained to them as well as we could, through a very bad interpreter, that it was not polite to sit and stare at strangers without taking any further notice of them. I believe that this little incident had an excellent effect, for in all subsequent visits to frontier posts we were received with the greatest civility and politeness, and I am convinced that we rose in the estimation of the Tibetans by insisting on their treating us with proper respect."

There was nothing for it but to retrace their steps to below the ridge. Then they turned north along the uplands to meet the Raja at Chumanako, where the Raja's father had seized Hooker twenty-one years before. The Raja was friendly, but

positively declined to sanction their crossing into Tibet. Their plan of keeping to the west side of the Chumbi valley, while avoiding Chumbi, was declared impracticable; they must, said the Raja, descend to the Tista valley and follow it up to Lachung if they wished to reach the Tankrapass. On August 28th they rode up to the pass called Cho-la, 15,000 feet above the sea, but it was misty and there was no view. "At the frontier chait (or boundary pillar) we found an officer and a guard of about fifteen men, who were civil and greatly relished some whisky we had with us." At Chumanako Elwes shot some birds, including the Kashmir dipper (*Cinclus Cashmiriensis*). Next day they started down the Cho-la valley for Tamlung, the Raja's capital, and thence marched northward for four days, "through much rain and swarms of leeches," to Chungtam, at the confluence of the Lachen and Lachung rivers which form the Tista. They struck up the valley of the eastern stream, the Lachung, to the village of that name, where they camped on September 7th. "Elwes went off to visit the Tankra pass on the second day, but I had been so much punished by the leeches in the hot valleys that I thought it advisable to rest a little." The travellers met again higher up the valley at Yeomatong on September 13th. Elwes had been disappointed in his expectations of *Ovis ammon*, but he had obtained several good birds, *Lerva*, *Accentor Nipalensis*, *Fringillauda nemoricola* and *Alsocomus Hodgsoni*, the speckled wood-pigeon, "which it was rather surprising to find at an elevation of 13,000 or 14,000 feet." The march was resumed on September 15th up the valley to Momay Sandong, about 15,000 feet, where the travellers heard that a Tibetan officer had come to meet them at the Donkia pass, ten miles away. Lest he should turn them back, they inspected the Sibula, the pass 17,000 feet high leading over the mountain barrier between the Lachung and Lachen valleys, but they found it impracticable for laden coolies.

On September 17th they rode up to the Donkia-la and were received politely by the Tibetan guard. But their request for permission to cross the frontier and take the short and easy route westward to the Kongra Lama pass—a route traversed in 1849 by Hooker in the reverse direction—was refused. "There was no threat of stopping us by force; the people only said 'If you choose to go by force we cannot stop you, but all our heads will be cut off.'" They waited three days and then argued the point with the Suba or Governor of Kambajong, who had now arrived on the scene. But he protested that he had direct orders to forbid them passage. However, they were rewarded by a superb view from the top of the pass, 18,500 feet high. "Cholamu lake is in front beneath the feet of the spectator; beyond is a desert of rounded hills. Farther away range after range of mountains, some of them covered with snow, extend to a distance which the eye cannot appreciate. The total change of colour and form from the valleys of Sikkim, the utter barrenness, the intense clearness of the atmosphere, produce such an effect as if one were gazing into another world." "It is doubtless one of the most remarkable landscapes in the world and alone worth the journey from Darjeeling in order to see it," says Mr. Blanford, and Elwes fully concurred in his opinion.

Elwes was, after all, fated to enter the forbidden land. "He had strolled out up the side valley which branches off from the Lachung to the west close to our camp and leads to a little-known pass called Sang-la, two or three miles west of Donkia pass. He had gone out without any intention of doing more than looking at the valley; indeed, being rather lame from leech-bites, he had stayed behind in order to rest, but he found himself so close to the frontier that he went on to the top of the pass, and then, seeing Cholamu lake beneath him, and no Tibetan in sight, the temptation to go on was irresistible and he descended to the lake, partly by a snow slope, partly over a shoot of stones. There he could find no one; he had expected to find the Tibetan encampment, but that was high up on Donkia,

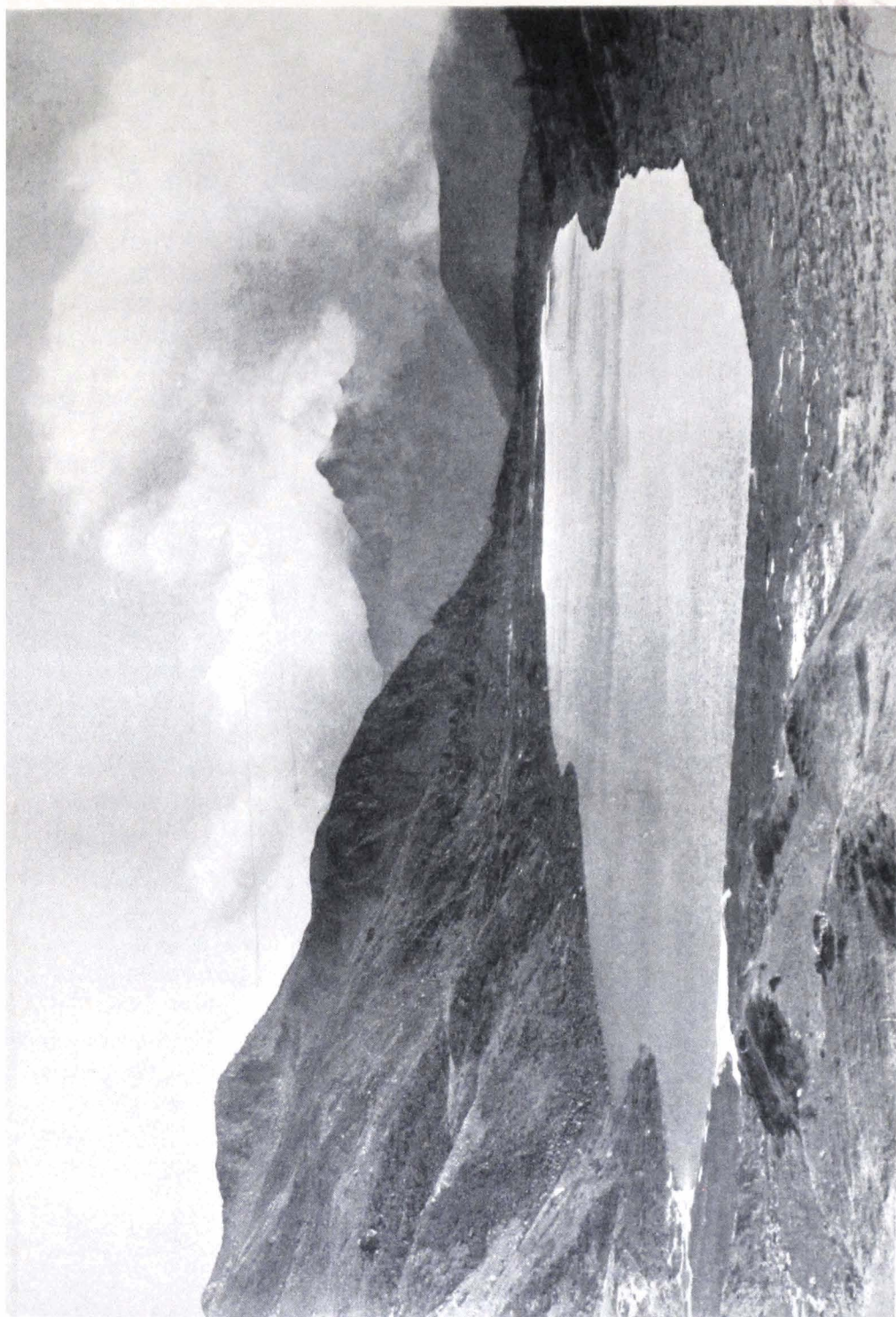


FIG. 2.—LAKE IN THE SIKKIM BORDER HILLS NEAR THE JELEP-LA.

BOOKLYN

so after firing three or four shots, of which no one took any notice, he was obliged to climb back by Donkia pass and to astonish the Tibetans by appearing from the north." Upon this Elwes comments: "This was the hardest day's work I ever had, and if my Lepcha shikari had not persuaded me to return and found the track leading to the Donkia pass before it became dark, I should have bivouacked at the Cholamu lake without blankets. When I passed the Tibetan guard in the dark, they fired shots in our direction." Next day the Tibetan governor was furious at Elwes's accidental violation of the frontier. As their coolies would not enter Tibet, the travellers had to agree to retrace their steps and reach Kongra Lama by the circuitous Sikkim route; though Mr. Blanford declares that the Tibetan guard had no reason to fear punishment if they had allowed him and his companion to follow in Hooker's track just across the frontier.

Elwes was now very lame after his long climbs and had to go south by easy stages. The slow journey down the Lachung valley refreshed him. On September 30th the party left Chungtam and marched up the Lachen, the western head-waters of the Tista, till they reached the Tibetan frontier again on October 4th. High up the valley, where its bed is composed of moraines alternating with stony flats, the travellers secured some rare birds of a Palæarctic type, notably *Otocoris Elwesi*; *Leucosticte hæmatopyga*—which was only known before from Western Tibet—and another finch, then new to science, *Montifringilla ruficollis*; *Fregilus pyrrhonorax*, *Cinclus sordidus* and *Accentor rubeculoides*. The horned lark, *Otocoris*, was first found by Elwes, who shot three specimens close to the Kongra Lama pass, at a height of 15,000 feet; it was thus named after him. Mr. Blanford and Elwes were met at the frontier by the Tibetan governor, who presented them with three fresh skins of the wild sheep, *Ovis ammon*, and the Tibetan deer, *Procapra picticaudata*, and some live sand-grouse, while lamenting, as a Buddhist, the sin that they had committed in shooting birds. The plateau was desolate and afforded no views into Tibet. The travellers therefore, after spending a day with the Suba, marched south again, collecting as they went, and a fortnight later reached their base.

On returning to Darjeeling I estimated that during the journey in Sikkim I had ascended, on foot, something like 127,000 feet in all; and as much of this was done in a high temperature over an extremely bad path, while during the latter part of the time I was weakened by the leech bites, of which I bear traces to this day, I was very glad of a rest.

I had plenty to do in getting my collections dried and packed to send home, and found that I had nearly 1,000 specimens of birds, including 330 species, of which three proved to be new. Besides these I had about 200 species of ferns, among which three or four were new, notwithstanding the very much larger collection that had been made on the same ground by Hooker.

I had also a large number of butterflies, which were examined by Mr. Atkinson, of the Bengal Civil Service, who had collected for some years at Darjeeling, and who found among them a *Parnassius* taken at nearly 18,000 feet, which I afterwards described as *P. epaphus* var. *Sikkimensis*.

I found that a good many of the butterflies which I had collected in June and July had become damaged by damp, but there remained a great number of fine specimens, which I gave to Mr. F. D. Godman on my return home. They are now incorporated with the British Museum collection.

Between the 23rd and 27th October there was a continuous rain amount-

ing to twenty inches, which is very unusual so late in the season, and a good deal of this fell on the high mountains which we had just left, in the form of snow, covering the Kanchenjunga range down to 17,000 feet and lying lower on the Cho-là range. On the 29th October I packed off all my things to Calcutta by the Government bullock train and said good-bye to all my friends with much regret. I rode down to Siligori, where I found the grass fourteen to twenty feet high and a good deal of the country flooded.

Colonel Haughton had sent an elephant from Jelpigori, as the country was impassable for any other animal on account of the flooded state of the rivers, and it took me the whole night to get over the distance in a very uncomfortable manner, as I became so sleepy that I had to tie myself on the pad for fear of falling off into the water. On this night I probably got the germs of a fever which attacked me afterwards in Assam, where I accompanied Colonel Haughton during his tour of inspection, and which almost completely destroyed my memory of the events which happened during that tour. I find in my collection a pair of eggs of the white-headed eagle, *Haliæetus leucocephalus*, marked "H. J. E. *ipse*," but though my memory of similar events is usually very clear, I have not the least recollection of how or where I got them.

When I returned to Calcutta I met the late A. O. Hume, who was then the premier ornithologist in India, and who was very anxious to go through and describe my new birds. I allowed him to borrow a few, which I never saw again until the whole of his immense collection was presented to the British Museum. Among them was a new species of Crake, of which Hume says in Hume and Marshall's *Game Birds of India*, ii.: "Elwes's Crake, *Porzana bicolor* Walden. At the close of 1870 I picked out a bird of this species from a collection made in Sikkim by Captain H. J. Elwes. Unfortunately the box containing this and other valuable skins from Assam was mislaid and never turned up for years, when it was found among other property in the Agra Custom House. In the meantime I received a second specimen from Mr. Mandelli and at once described it, naming it after its discoverer. I sent the description to the *Ibis*, but the editor, instead of publishing it, put it aside for seven or eight months, and only remembered it when Lord Walden, who in the meantime had received a third specimen, described it (*Stray Feathers*, iii., p. 283, 1875), as *Porzana bicolor*. Thus the name of the real discoverer is lost sight of, and it is only in the trivial name that this can now be preserved. Little is known of its distribution. Elsewhere it has only been met with in the Khasia hills, where Godwin Austen was the first to find it. It has been classed by Blanford in *Fauna of British India*, iv., p. 171, in the genus *Amaurornis*."

Though at the time we started I had no previous acquaintance with Blanford, whose education and previous associations had been very different, and whose ideas were at that time very different in many points from my own, I found him an admirable travelling companion and never had a word of dissension during the ten weeks during which we lived together, under very trying conditions, in a very small tent. I renewed the friendship that we then formed when he retired from the service afterwards

and lived in England. His wide experience and good judgment, as well as his great scientific knowledge, which gained him the fellowship of the Royal Society, were of the greatest advantage to me in my subsequent studies.

We found that Hooker's *Himalayan Journals*, which had been published twenty-two years previously, was an admirable guide both as to the geography of the country, which he had mapped, and as to the botany and general features. I have used this book on four subsequent occasions with the greatest pleasure and profit, for though Hooker was primarily a botanist, he was an accurate observer and describer of everything of interest, unsurpassed by any naturalist whose works I have studied. His memory remained fresh among all the natives with whom he came in contact; and he left behind him a reputation which any man might envy. No one who has not followed his tracks in the early days when Sikkim had no made paths can realise his determination, industry and courage.

On his return from India Elwes was married, in April, 1871, at Elmore, Gloucester, to Miss M. S. Lowndes, second daughter of the late Mr. W. C. Lowndes, of Brightwell Park, Oxfordshire. He went to live at Miserden, a few miles to the west of his old home, in 1872, and devoted much of his leisure to the working up of his Sikkim collections. Reading widely for this purpose, he found that current theories did not fit his own observations in the field. In an elaborate paper, *On the Geographical Distribution of Asiatic Birds*, which he read before the Zoological Society on June 17, 1873, he defined what, in his view, were the true natural divisions for the avifauna of Asia. He showed, in particular, that the Himalo-Chinese sub-region, as he termed it, was a distinct and homogeneous tract extending from Kashmir right along the great Himalayan chain and across Southern China to the Pacific. While much of the detailed exposition is necessarily superseded, the paper still deserves to be referred to, as exemplifying Elwes's fresh and vigorous intellect and his grasp of scientific principles.

Elwes also published in the *Ibis* a careful memoir, "A Revision of the Genus *Henicurus*," a beautiful and peculiar genus of birds—somewhat resembling the Wagtail—which is specially characteristic of the wooded gorges of mountains in the Himalo-Chinese region. But he did not continue these detailed researches.

When I settled down after my marriage (he wrote in later years), I found that it became difficult, if not impossible, to continue my ornithological work without constant access to the British Museum and to London libraries. As I had neither the means nor the desire to spend so much time in London as this would have entailed, I gradually ceased to pursue my ornithological studies and parted with my Indian collection.

But I did not lose my interest in the subject, and though I have no claim to be considered an up-to-date ornithologist, I have kept in touch with my older bird-loving friends at the meetings of the British Ornithologists' Union, and have formed new friendships among the younger generation. And I may add that these early associations have been of immense value to my work in other branches of Natural History, on account of the exactitude and attention to detail in which the ornithologists have set so high a standard to other naturalists.

The only other journey I ever undertook with purely ornithological objects was in company with the late Mr. Seebohm in Denmark.

An account of this was published in the *Ibis*, for we were fortunate in having Mr. Benson, a well-known ornithologist of Copenhagen as our guide, and spent a very pleasant time with him and his assistant in Jutland. An isolated forest lying in the middle of a great tract of moorland was one of our best localities. Here Goshawks and Kites were common. The Goshawk makes a very large nest of beech twigs lined with lichen, and lays three or four green eggs, which are unlike those of any other bird of prey.

In another forest called Roldskov we were personally conducted by a very jolly old Danish forester on an Iceland pony to the eyries of the Black Stork, which, unlike its cousin the White Stork, is a very shy bird, and breeds in remote forests on trees. I took two nests myself on May 9th, one of which was in an old Sea Eagle's nest thirty feet from the ground.

Perhaps the most interesting place to which we went in Denmark was a large extent of marsh and saltings near Tarm, in the Ringkjoping fiord. Here were abundance of Ruffs and Reeves, Pintail and Garganey. We were, however, too early for the Great Snipe, which breeds here in some numbers. Other good finds during my Danish trip were the nests of the Turnstone, the Red-necked Grebe and the Marsh Harrier. On our way home we stayed a few days in Holland, and visited the Horster Meer near Amsterdam, where the Spoonbill and Purple Heron breed in a strictly protected colony.

CHAPTER IV

ASIA MINOR, 1874

Elwes after his marriage gradually turned his attention to horticulture. In his early studies he received much advice and help from the late Mr. T. Atkins of Painswick, whose collection of hardy and Alpine plants was at that time unrivalled in this country. The development of his new interests is well illustrated in his account of a collecting tour in South-western Asia Minor.

In the winter of 1873-74 the late Lord Lilford was in the Mediterranean in his yacht, and asked me to accompany him on a trip to Cyprus. I accepted this invitation with pleasure, but, owing to an accident to the yacht, it was postponed after my arrangements for leaving home were made. So instead of joining the yacht at Naples as intended I took passage to Smyrna from Marseilles on March 6th, 1874. Passing through the Greek islands, where after an unusually severe winter snow was lying within 1,000 feet of the sea, we called at Syra on March 11th. A walk into the country showed that vegetation was very backward, and, except a few Grape Hyacinths, Anemones and Genista, there was nothing of much interest in bloom.

On reaching Smyrna the next day in a storm of wind and rain I found that frost and snow had been so prevalent in the interior that it was too soon to travel. After consulting Mr. Whittall, I decided to go further south and see what I could do in Lycia; but, as there was no steamer for a week, I spent my time in collecting birds and what few plants I could find in flower near Smyrna. I engaged an Italian interpreter who spoke Greek and Turkish, and paid a visit to Ephesus, where I was befriended by Mr. J. T. Wood, who had for some years been engaged in excavating the Temple of Diana and other ruins for the British Museum.* There were many woodcock and snipe and duck in the country round, and I found three rare and interesting birds new to me—*Ruticilla mesolunca*, *Emberiza cinerea*,† and *Sitta syriaca*—besides a jackdaw, whose white collar was, like that of the Macedonian jackdaw, much more strongly marked than in its English relative. I also found Crocuses, Cyclamens and Romuleas, but little else in flower; though that most beautiful shrub, *Arbutus andrachne*, with its russia-leather-like bark, was very striking.

On March 21st I embarked on a small Glasgow steamer which touched next day at Samos, where I went on shore. It seems a rich and well-cultivated island, and, the climate being milder than that of Smyrna, the almond trees were a mass of bloom. On March 23rd we called at Kalymnos, an island mostly inhabited by sponge divers, and later on at Cos, where I saw the celebrated plane tree.

Symi, another sponge fishers' island, was very barren looking, but I found the rocks covered with a most beautiful Cyclamen which I believe to be a form of *C. persicum*; the flowers are not so large as those of the

* See his *Discoveries at Ephesus*, 1876.

† *Emberiza cinerea* was discovered near Smyrna in 1836 by H. E. Strickland and has not been found elsewhere.

plant which English florists have spoilt by high cultivation, but they were to my eye the best of any wild cyclamen that I know. Here I also saw a bulbous plant, with large plicate leaves, which I suppose to be an unknown species of *Colchicum*, but I was not successful in bringing it home alive.

Three hours after leaving Symi the boat reached Rhodes, but I had no time to go into the country. The next morning I landed at Macri, a small town in a gulf which affords one of the largest and best harbours in the Levant. Macri is very prettily situated at the foot of hills covered with scrub of *Lentisk*, *Myrtle* and *Arbutus*, with pine trees higher up and high mountains in the background: but, lying as it does close to a large marshy plain, it is, like many places on the coast, so unhealthy in summer that most of the inhabitants migrate in May to their summer quarters, which are called "yailah," in the mountains.

The only family of European descent I found here was that of a Mr. Vassito, who with his two sons was very civil and gave me all the help he could in getting horses for my journey into the interior of Lycia. This province, which both to an archæologist and to a naturalist is one of the richest and most interesting in the Levant, has been well described by Fellowes, and by Spratt and Forbes, who in 1840 travelled here and described the innumerable ruins which are found all over the mountains. But no English naturalist has ever explored its beauties; and though the country was then and still is in a very primitive and unsettled condition, I know of none so near Europe which would probably afford so many novelties both in botany and in entomology. After getting lodgings in a Greek house I went to explore the country, and found a yellow *Fritillary* described by Baker as *F. Forbesi*, which has not been found elsewhere, and a beautiful form of the winter flowering *Iris*, which flowered in November in my garden, and was figured in the *Botanical Magazine*, Plate 6343, as *Iris Cretensis Janka*, but is now considered to be a form of the Algerian *Iris unguicularis*. The rocky ground was in places covered with the most beautiful leaved *Cyclamens* I ever saw, and a tall yellow *Spurge* and a white flowered *Cistus* were also coming out.

On March 25th I went to the other side of the bay, where many of the great white herons were feeding on the marsh, and found some terrestrial *Orchids* already showing flower. *Ophrys*, *Orchis*, and *Serapias* are all very numerous both in species and in quantity in Lycia, and their tubers are collected and dried under the name of *Salep*, which is used as a food and considered, as it was formerly in England, as very nourishing for invalids.

The next day I went to meet a Turkish hunter on the other side of the bay, where many wild pigs were said to be found, and beat some marshy thickets of *Oleander* and thorny creeping shrubs with dogs. One of the Turks was an old soldier who had been at the siege of *Silistria*, and, like all the old soldiers I met in *Asia Minor*, was very friendly to Englishmen. But their system of hunting was not scientific, and though several pigs were found I had no shot till the afternoon, when, standing in the reeds in a thicket between two hills, I heard the dogs give tongue, and a large grey boar rushed towards me. I let him come within fifteen yards

and then fired as he rushed past. Though he did not fall till he had run fifty yards or so, when the dogs came up I found him shot through the heart and quite dead.

I had some trouble in getting horses, but succeeded with the help of the chief of police in hiring some for twenty piastres a day. A mounted zaptieh was sent with the party to help us in case of need, so that on March 28th I was at last able to make a start.

The horses were very fair, and we travelled over the dry rocky hills, covered with stunted evergreen oak and *Pinus halepensis*, across the watershed which separates Macri from the valley of the Xanthus river. Alpine Choughs and Blackheaded Jays, with *Emberiza cinerea*, were the most interesting birds, and a sweet scented Daphne, Cistus and Mediterranean Heath were in flower. The soil was mostly red stiff loam from the hard limestone rocks which form the hills, and notwithstanding the wet winter was already very dry. We reached a small, poor village called Minara about four o'clock, where I found bad lodging in a Turkish hut. I visited the ruins of the ancient Pinara, discovered and described by Fellowes. The theatre remains very perfect, and there are thousands of tombs and chambers cut out of the rock in the cliffs round the site of the town, which must once have been a populous place, though now surrounded by a barren and rocky wilderness.

On the next day's ride to Tortuca I crossed a spur of the Cragus mountain and found many large Valonian Oaks, *Quercus Ægilops*, whose acorn cups are collected in quantity for farming and were then a valuable article of export. I saw many Alpine and common swifts, and in the pine forest above the village both green and spotted woodpeckers. But by far the most interesting bird was the little nuthatch, only found in Asia Minor and Syria (*Sitta Krueperi*). It is confined to these rocky pine forests where it breeds in holes of trees like its European congener, whilst *Sitta Neumayeri*, the Syrian nuthatch, is essentially a rock-haunting bird.

From what Spratt and Forbes had written* I expected to find big game abundant in this neighbourhood. But the inhabitants seemed poor and stupid, and there was very little grass among the rocks at this season. Bears and red deer probably exist higher up in the mountains, and there were certainly wild goats, *Capra agagrus*, on the sea cliffs, for I saw some small ones and a fine pair of horns thirty inches long in the village. But however interesting this part of Asia Minor may be to an archæologist or a naturalist, there is not enough game to attract a sportsman. I went on from here to Junok, near the ruins of the ancient town of Xanthus, and in the valley near the sea found spring much more advanced and the trees coming into leaf. Here for the first time I found very comfortable quarters in the house of an old Turkish officer, Mehemet Aga by name, a Turk of the old school who had served in the Russian war of 1828, as well as in the Crimea, and who, though a poor man, was very hospitable and seemed really pleased to receive me in his house.

Among the ruins I found many beautiful Ophrys and other orchids in flower, and warblers and magpies were abundant on the borders of the marshy plain. At the next village, Bayeerzan, I lodged in the Oda, a

* *Travels in Lycia*, 1847.

room kept for strangers' lodgings in most Turkish villages, but I was not able to collect much owing to the very sharp rocks, overgrown with bush, which cover the country and make walking very difficult off the paths.

Nine hours' ride from here I reached Cassaba, crossing a pass 3,000 to 4,000 feet above sea level, where the snow was only just melted, and where I shot a wood-pigeon out of a flock which were not as yet paired. The scenery in the valley of Cassaba is very curious, the hills being composed of soft sandstone which is weathered by the rain into innumerable little conical hills and ravines, very bare of vegetation except terrestrial orchids. At Cassaba there was a Kaimakam, a very poor specimen of the modern Turk, who invited me to go out shooting next day; though he brought a lot of beaters and dogs, the beat was so badly managed that the wild pigs all escaped without a shot. On April 4th I left Cassaba for Myra, about eight hours' ride through the Dembra gorge, the most beautiful valley I have seen in Asia Minor. We had to ford the river twenty or thirty times, and on its bank I found a rare Fritillary, which was described by Boissier as *F. Lycia*. Lower down this gorge opens out into a plain in which the village of Dembra or Myra stands near the sea, and there I lodged in the house of a Custom-house official. I was told that a bear had been killed near here in the winter, but whether the bear of this region is the Syrian bear, as I suppose, or a variant of the brown bear, I cannot be sure. Vegetation here was well advanced and the wheat, already two feet high, looked splendid. After it is cut in May there is said to be time for the people to go up to their summer villages and sow barley, after harvesting which they come down again to the plains in time to sow wheat. What a contrast to our English climate, where wheat is often ten or twelve months from sowing to harvest. A fine læmmereger sailed over my head here, and on the shore I shot a specimen of the African cuckoo, *Coccyzus glandarius*, just arrived from the opposite coast. Choughs were also seen in the gorge and a rare bunting.

On April 5th, being Easter Sunday, I stayed at Myra and visited the ruins of the ancient city about a mile from the village. Though not so extensive as some of the ruins in Lycia the amphitheatre is in very good condition, the arches and the double corridors at the sides being perfect. There are also large rock tombs with fine sculpture above some of them.

Next day I returned by the same route to Cassaba and found a very graceful species of *Thalictrum* with white flowers as large as a shilling, and some nice ferns, irises and other plants. At Cassaba I packed up the living plants I had collected as well as I could, including a great number of Ophrys and Orchis tubers, and started to return to Macri by another route, which led for six miles up a steep hill by a rocky path difficult for horses. Neither at Cassaba nor at the large village of Ahoory could I get barley for the horses, food of all sorts being now unusually scarce and very little to be got for ourselves. Turks seem to be able to do with less than almost any people, and I never lived so badly on any journey as during this trip in Asia Minor, where not even coffee was procurable in many of the villages and we had to content ourselves with bad bread, onions and sour milk. After leaving Ahoory the road became better and

gradually led up to a great forest of pines, succeeded higher up by cedars and junipers. The ground in some places was a perfect garden of spring flowers. Two or three species of *Crocus*, *Cyclamen vernalis*, *Scillas*, *Chionodoxas*, two species of *Colchicum*, and quantities of *Anemone blanda* covered the ground; and I have no doubt that anyone staying long enough in this range of mountains in summer, when the snow has melted on the higher summits, which rise to something like 10,000 feet, would gather a rich booty in plants, birds and butterflies. But though it is now over forty years since I visited Lycia, I have never heard of anyone going there on purpose to collect.

After crossing a pass at about 5,000 feet elevation, the road descended along the side of a very steep gorge to some farms inhabited in summer by the people of Ahoory, but then quite deserted. Farther on I reached a place where some Albanian Greeks had started a sawmill and were cutting the pines into boards for export. There we stayed for the night and slept in a wooden hut with some wild-looking Greek woodmen. There was a slight hoar frost on the ground in the morning. Going into the forest I found for the first time the fine large snowdrop which now bears my name, and which has since been exported in large quantities from the mountains near Smyrna and has become common in English gardens. I saw tracks of wild pigs and also of bear, but could find none among the men who had any idea of hunting; their one object seemed to be to cut and burn the forest, which is no doubt by this time largely destroyed. For eight miles beyond the mill the road led through the same pine forest, in which were four or five sawmills, and then crossed the wide bed of a mountain torrent which had at some time been dammed by landslips. Tits, woodpeckers, nuthatches, and finches, including the Serin finch, were the common birds of this forest, but on a march of this sort, when one cannot stop long to go off the road, one cannot do more than sample the birds and plants. The only way to collect properly would be to bring a tent and provisions so as to be independent of the dirty villages and their inhabitants. But it must be remembered that this trip was only undertaken as a reconnaissance, when the voyage to Cyprus was prevented.

From Arsa I descended to the valley of Xanthus, where the river was unfordable owing to melting snow, and I had to go two hours upstream to reach a bridge. After this the road lay through a fine plain with large scattered pine trees, more like a park than anything I have seen in Turkey, only the grass is wanting and the sun very hot. In the evening I reached Macri and found the steamer had left for Smyrna the day before. So I arranged with a man to provide horses at eighty piastres each to go to Mughla, and the same zaptieh, Ibrahim, whom I liked very much, was to accompany me. A bear was reported by the hunters who went with me before, but they were not at all inclined to go after him, and the men who knew the place could not be found, so, knowing the wandering habits of bears, I thought it only a waste of time to go after him alone. I sent on the horses to a place six hours on the road to Mughla, and crossed the gulf in a boat to a little port called Godjik, where I found a very bad lodging. The road from here was over a very different and

much less beautiful country, but I found some new plants, among them *Tulipa undulatifolia*, which was afterwards figured from my bulbs in the *Botanical Magazine*, Plate 6308, and two new Fritillaries, one of which was named after me by Boissier and figured as *F. acmopetala* by Baker in the *Botanical Magazine*, Plate 6321. This is a late plant of no great beauty, which seems quite hardy in England. The other was *Fritillaria dasyphylla* Baker and is figured on the same plate as the last.

An hour from Godjik I passed the place where the last English traveller, who followed this road twenty years ago, was murdered by robbers, who at that time were worse than now. But since 1876 I believe the country has again become unsafe, and it is likely to remain so until better government is instituted in Asia Minor. It is very hard for travellers to know what risk they run in such countries. As a rule English consuls magnify the danger, and the local authorities will not let anyone travel if they know that brigands are about. But though I always had a gun or rifle in my hands, and never carried more money than was necessary or stayed long enough in one place to allow an attack to be planned, yet I had two very narrow escapes of being captured in Greece and Macedonia.

Between Godjik and Mughla I had to cross the Dalaman Chai. Owing to snow melting in the mountains the ford was very deep, and my guide would not lead as he said that I, being the heaviest man on the strongest horse, ought to go first. After several attempts in which my horse almost lost his footing, a local peasant came and showed us the best place to cross. I stayed that night in a village called Ortaga, where another old soldier, who had pleasant reminiscences of English officers under whom he had served in the Crimea, was very friendly and did his best to get us what little food was procurable.

The next day's journey was a ride of eleven hours, partly over prettily wooded hills where Valonia Oaks and a little-known tree peculiar to this district, *Liquidambar orientalis* (cf. *Trees of Great Britain*, 3, 505), are found. They were not, however, so large as one which I have since seen in the public gardens by the railway station at Montpellier, where the climate is very similar to that of Western Asia Minor. I also found two more new species of Fritillary, as well as the handsome Tulip, *T. undulatifolia*. We passed two of the large Circassian villages which have been planted all over the fertile parts of Asia Minor since the Crimean War, and are easily recognised by the little granaries raised on posts, and by the wattled enclosures round the houses and fields. These Circassians do not mix much with the Turks, who say they are thieves and much addicted to stealing horses and cattle, and as they are bold fellows and well armed, and not hospitable to strangers, I never stayed in one of their villages.

In the evening we forded another river, the Qamlam Chai, and stayed the night at a poor coffee shed on its banks. The country round here is very pretty, a good deal like some parts of the Highlands, though better wooded; it would be a very good field for a naturalist in summer, though the mountains are not so high as those in Lycia. In the afternoon I crossed a level plain of beautiful smooth grass and reached Mughla, the largest town I had seen since leaving Smyrna, at an elevation of about 3,500 feet. There I found a new khan outside the town, and met the only European

resident, a young Italian merchant who traded in Valonia, and who dined with us and a Turkish officer in the khan. A hot south wind was blowing all the afternoon, which made travelling unpleasant for the first time since I started from Macri.

On April 15th and 16th, I had a long ride down a level valley, well cultivated with barley, and arrived after dark at a poor guard-house where I passed the night. I found some plants of interest, including still another species of Fritillary. I did not succeed in reaching Aidin, which is reckoned at twenty-four hours from Mughla, and slept in a factory on the bank of a river, where I saw a pair of the Great Spotted Kingfisher, *Ceryle rudis*. The next day I started early and got into Aidin in time to catch the train to Smyrna, whence I intended to go by the Austrian steamer to Constantinople. She was so crowded that I accepted Mr. Whittall's invitation to stay with him at Burnabat and wait for the French steamer on the 19th. But as she left before her regular time I missed her also, and I determined to spend the short time I had left in a trip to Cassaba and to return home *via* Brindisi.

I left by the afternoon train to Magnesia (Manisa). There I had to sleep in the waiting-room at the station, but I got a very fair dinner at a cookshop in the bazaar, consisting of kabobs, pilau and yaoort (sour curds and cream), for the small sum of two piastres—fivepence. The next day I started early up the mountain which lies above Magnesia, and which on the lower slopes is a garden of vines, figs, apples, pears and cherries. The blossom on these, mixed with scattered Judas trees in full flower, was most lovely. Wild flowers were also numerous and I saw Peonies, Aubrietia and Alyssus in full bloom, whilst higher up quantities of Snowdrops, Crocus, Scillas, Ornithogalum, *Anemone blanda* and *Chionodoxa* made a lovely spring garden. Near the top, at about 4,500 feet, snow was still lying in patches among the scattered pines, but was melting very fast under a hot sun. I shot the rufous Desert Buzzard, *Buteo desertorum*, and saw Læmmergeyer, Egyptian and Griffon Vultures, as well as several of those beautiful little Falcons, *F. Elornis*, hawking about for insects in a strong wind. Rock martins and blue thrushes, warblers and pied wheatears (*Saxicola Stapazina*) were the common birds. I got back after a walk of nine hours in time for the afternoon train to Cassaba, where I was hospitably received by Mr. Hutchinson, the engineer in charge of the extension to Alashehr which was to be opened in a few months.

On April 21st I went up the line on an engine as far as the line was open to Salikly, about twenty-five miles from Cassaba. I intended to ride on to Alashehr, but could get no horses as at this season it is the Turkish custom to turn most of their horses out to grass and give them a two months' rest. I therefore determined to go up into the Bozdagh mountains, which run parallel to the line on the south of it and attain about 6,000 feet. The plain through which the line runs is very fertile and grows large crops of corn, cotton and tobacco; but that year both crops and stock had suffered much from the unusually hard winter. The lower slopes of the mountain are of hard red or whitish gravel, much cut up and worn by water into steep ridges and gullies, and as they were very dry

and burnt up I found few plants or birds of interest till I got to a considerable elevation. I met a man coming down with a horse-load of apples in perfect condition; they are said to keep good till the new crop is ripe, and the same is said of the celebrated Cassaba melons, which were still fresh and juicy and of delicious flavour after being kept six months in a dry cellar. I brought a few home and showed them to a fruiterer in Covent Garden. He said that their looks would condemn them in the London market, however good their flavour might be, as appearance was more important in the public estimation than taste. I do not know any part of the Mediterranean where such fine and cheap fruit is produced as in Asia Minor, and there seems no reason why it should not be imported at a profit, as well as dried fruits, if proper arrangements for the storage and packing were made.

At about fifteen miles from the plain, the valley up which I rode opened out into a plain covered with fine grass and inhabited in summer by the people of Odenish; but though many horses and sheep were grazing there, very few people had come up, and the high mountain above was still covered with snow. On the other side of this plain I came to a pretty lake, a mile long, surrounded by houses, fields and gardens, in which nightingales were singing, and beyond these were small woods of oak, walnut, poplar and willow, in which I saw hooded crows, starlings, buntings and woodpeckers. After finding lodgings in a small and dirty house belonging to the man who came with me as guide, I went out to search for plants, but the flora there is not so rich and varied as in the mountains of Lycia at the same elevation. I found some tulips, croci, irises and other plants, but on the light sandy soil which prevails there they were not so fine as in the heavier red loam of Lycia.

The next day I returned by a shorter but much rougher road to Salikly, passing some men who were dragging down one of the figured walnut logs, which are collected all over Asia Minor and Armenia for export to Marseilles, where they fetch a high price, and are cut up into veneer and gunstocks. I also saw an encampment of nomadic Yuruks, who wander from place to place all over Asiatic Turkey, living in black hair-cloth tents very like the tents used by the Tibetan nomads, but longer and more comfortable, with a cane-work shelter to keep the wind out. I also passed some hot sulphur springs, with a temperature of about 110° , which are used for bathing by people in the neighbourhood. On getting back to the station I skinned the few birds I had shot and returned to Cassaba, to Mr. Hutchinson's hospitable home.

On my last day in Asia Minor I rode out to see the melon gardens for which Cassaba is famed. The plants are raised on hotbeds and planted out in the trenches in May. I was told that the best variety, which was then grown for the Sultan's table, will not keep for more than a few days and has degenerated in quality of late years. My father, who brought home the seed of this variety thirty years before, said that the same thing had happened in England.

On returning to Smyrna I heard of a Greek who knew something about flowers, and who promised to collect bulbs in the summer; and this was the beginning of what has grown into quite a big business, as *Galanthus*

Elwesii, *Chionodoxa luciliæ*, and some other species were afterwards imported in very large numbers and now form quite a marked feature in our spring gardens.

The boat from Macri in which I had sent my collections to Smyrna arrived just before I left for Corfu, but the next day in changing steamers at Syra the box which contained the greater part of the bulbs I had collected was stolen or mislaid. I had luckily kept a small number of most of the species in my big plant box, but I never recovered the lost box. I had a day at Corfu, where the country seemed much greener and the climate much softer and less arid than in the islands of the Ægean. In the gardens formerly belonging to the English Governor, which had by now become half-wild, I saw a great many beautiful trees and plants, especially terrestrial orchids, which though not so varied in species as in Lycia were in great abundance and beauty.

On the whole I was very well pleased with the results of this little expedition, which I have never found an opportunity to repeat. Though my friends, George Maw and Seebohm, both went to Smyrna, no one that I know of has since been in Lycia.

CHAPTER V

TOUR IN INDIA, 1876

IN 1873 my friend Macdonald died suddenly at Darjeeling, and left a young widow, who returned to England. Since I left Darjeeling in 1870, he had opened up, on land acquired from a native at Choongtong, near Darjeeling, a tea plantation, for which I found half the capital, and which he managed with the assistance of a young German born at Darjeeling, who had a quarter share in the concern. I felt bound to take over from Mrs. Macdonald her interest in this plantation, and finding that the management was very inefficient, I offered a quarter share to Mr. A. D. Smithe, a young civil engineer who had gone out the year previously. It became necessary for me to go out myself and put him in charge.

I arrived at Darjeeling in March, 1876, and found things very unsatisfactory at the plantation, as the native labourers would not work for the German and the accounts were in a very confused state. I had to take charge myself until Smithe was installed, and I then left him to feel his way. Before returning home I made a short journey in the western part of Sikkim which I had not previously visited.

On this excursion I was the only white man, but I took my old Sirdar Guruk with seven coolies, and a Lepcha shikari to shoot and skin birds. I also took a plant collector who had been employed at the cinchona plantation, a Nepalese syce for my pony and a Madras servant as cook.

I started on March 22nd, and on the way down to the Rangit river stopped for a short time at my old quarters at Ging, where I had lived with poor Macdonald six years before. The tea garden was not looking so well, but in the aviary were some splendid Impeyan pheasants and a Tragopan showing its magnificent wattles, which only develop their full colour in spring.

On getting down to the old cane bridge I found it much dilapidated. I camped there for the night, as the temperature at this season is pleasant in the valley, and there are no pipsas, mosquitoes, or other hot-weather plagues; but the dried up vegetation and the absence of the swarms of butterflies which are so conspicuous here in the rains left no inducement to stay. Early next morning I went down the valley to collect. I found *Arundinaria bambusifolia*, a very handsome terrestrial orchid, growing in wet places, and *Ærides odoratum*, very dry and shrivelled, on the Sal trees, but the only other orchids in flower were a *Spiranthes* and a sweet-scented *Eria*. I saw a few of the large hornbills and shot one of the long-tailed green pigeons, *Sphenurus apicauda*, and returned about ten to breakfast with a missionary whom I found staying there.

After breakfast I rode up through the Sal forest to the open slopes above, where a colony of Nepalese immigrants had settled. They had cleared all the forest between 2,000 and 5,000 feet which was not too steep to cultivate. They were working some small and not very productive copper mines, and were much more energetic cultivators than the Lepchas. On the road I met coolies on their way to Darjeeling loaded with very

fine sweet, loose-skinned oranges, which are largely grown about Temi and Burmiok in the Tista valley and are the only good winter fruit in Sikkim. I reached Namchi, where I put up in Lasso Kagi's old house.

Next day I went on up the ridge which leads to the top of Tendong, and found the trees covered with *Dendrobates*, *Cælogyne*, *Pleione*, and other orchids, not yet in flower. On the top of Tendong at 8,000 feet the forest of oak, chestnut, magnolia and other trees is very dense, damp and gloomy, owing to the long dark moss which covers the tree-trunks. In this forest grew some beautiful terrestrial orchids such as *Anæctochilus*, *Goodyera* and *Calanthe*, also large *Arisæmas*, Solomon's Seal and many other herbs and ferns. The usual forest birds were in straggling parties, composed of many different species, among which a lovely little flower-pecker, *Myzanthus ignipectus*, was the only one new to me. I breakfasted in the forest, where the path on the right descends to Temi, and followed the ridge through very thick forest. For a long time no water could be found to camp at, but after a long search we found enough and waited for the coolies, who arrived just before dark, though my Madras boy did not turn up till next day. Though the elevation was about 7,500 feet, it was much warmer in the thick forest at night than at Darjeeling, where the radiation produces hoar frost when the sky is clear, and I had a comfortable night. At daybreak we heard the curious cry of the Tragopan pheasant not far off, and whilst I was dressing, my little shikari went out and shot a magnificent male in full breeding plumage and a female. As soon as the sun rose the birds ceased their love calls and were much more wary. Directly they leave the trees on which they seem to call in the same way as the Capercaillie in Europe, they are almost impossible to see or to follow in the dense forest and on the precipitous hillsides covered with bamboo which they frequent, and I had some difficulty in finding my way back to the path.

In this forest there are barking deer, squirrels and a few of the Panda, *Ælurus fulgens*, a very remarkable arboreal animal which is peculiar to this region, but which, during my trips in Sikkim, I have never seen except in captivity. It is a very handsome beast as large as a fox, with rich, reddish fur, and cannot be so rare, as living ones are often brought in for sale at Darjeeling. Its only near ally in the world is a much larger animal discovered by my late friend Abbé David, in the virgin forests of North-west Szechuen and known as *Æluroides melanoleucus*.

For some miles farther along the ridge the forest was so dense that I had no view on either side, but at last the path came out on a steep, narrow ridge where *Rhododendron Hodgsoni* was in flower. On the nectar of its purple-pink blossoms were feeding two of the most beautiful birds of the Himalaya, *Myzornis pyrrhura*, and a honey-sucker known as *Æthopyga ignicauda*, which goes up to 11,000 feet during the rainy season. Both of them had their heads covered with pollen from the flowers. On open places near here I found a rare plant discovered by Sir Joseph Hooker in the Lachung valley, and I brought home bulbs which flowered in England two years later and were figured in the *Botanical Magazine*, Plate 6385, as *Fritillaria Hookerii*. It is allied to the better-known *Fritillaria rosea* or *macrophylla*, from the North-West Himalayas; though

its flowers are botanically like those of the European Fritillaries, its bulbs, leaves and manner of growth are very distinct. It is now separated under the generic name of *Notholirion*.

From this ridge I descended to the village of Thorging, in a very pleasant situation at about 5,500 feet overlooking the Rangit valley, and camped in a newly built Bhutia house of which only the roof and beams were completed. These houses are built as follows. First, great blocks of wood, shaped like the old stone rick staddles used in Gloucestershire, are planted on large flat stones. Strong posts and beams to support the floor are placed on them about four feet above the ground, and about ten feet above the floor there is an open ceiling of bamboo covered in by a thick thatch of split bamboo with low eaves. Between the roof and the ceiling grain is stored. Underneath the house the pigs and fowls take shelter, and the walls are formed of bamboo mats. Windows are few and small, and the fireplace is an open hearth of stones in the middle of the floor. When new and clean these houses are very comfortable in this climate, but they soon get dirty, begrimed with smoke and full of fleas, and the roof requires constant repairs to keep the rain out. The view from here over the Rangit valley and the Singalela range beyond, with the monasteries of Pemiongchi, Tashsiding and Sanga Chelling, would be very fine, but it was then obscured by haze and smoke from the numerous jungle fires which were made to clear the land for crops.

Next day I descended by a steep but, for Sikkim, fairly good path to the Rangit river, shooting a barking deer on the road. I bathed in the river and swam the pony over with the help of a bamboo rope. A large flock of monkeys were feeding near the river on the flowers of tall trees which I could not identify. After breakfast by the river, I ascended a steep spur where the afternoon sun was quite hot, and camped out at about 4,000 feet, collecting birds on the way.

On the 27th I sent the coolies by a lower road up the Kulhait valley to a village near Sanga Chelling, where they were to await me, and went myself to visit the monastery of Pemiongchi, which, like most things in Sikkim, has been so well described by Hooker that I can add nothing of interest to what he said about it. But it seemed that neither here, nor at Sanga Chelling monastery, where I found only one dilapidated old lama in charge, were the lamas as prosperous as they were formerly. This may have been due to the large immigration of Limboos from Nepal, who were then settling in all the valleys on the Sikkim side of the Singalela range and destroying the forest rapidly. On my way up to Sanga Chelling I shot a pair of the beautiful *Trogon Harpactes Hodgsoni*. These birds have very dense and soft plumage, and sit on trees, making short flights, like a flycatcher, to catch the insects on which they feed. I also shot a fine jungle cock and some of the Sikkim Kaleege pheasants, and I found an immense mass of a beautiful orchid, well known in English gardens as *Cælogyne cristata*, covering a rock with its white and gold flowers.

The next day I crossed the Kulhait river, and while sitting on the bridge to wait for the coolies, I shot a pair of the large spotted black and white Kingfisher, *Ceryle guttata*, as they flew up the stream. I also got a

Cormorant, which is not uncommon on the larger rivers at this season, though I do not think they breed in the mountains. A little beyond this I found an old Kuzi who had accompanied Hooker during his journey in Nepal in 1849, and who spoke as well of him as did all the people who remembered him in Sikkim. I was badly stung here by the nettle called Mealum by the natives, and felt the pain of it for two days afterwards. *Erythrina* and *Bauhinia* are the two handsomest trees flowering at this elevation of about 4,000 feet.

In the villages I passed on my way upwards I could buy no rice or Indian corn for the coolies, and the scarcity of food of which Hooker so often complained seemed general at this season, though in later times potatoes have been freely grown and produce fine crops on the richest forest at a much higher level than Indian corn or millet will thrive at.

The Limboos are more independent and energetic, and less civil and hospitable than either Bhutias or Lepchas. Though they are not much troubled by caste prejudice, I do not think they intermarry with the Sikkim natives, whom they are gradually ousting from the higher valleys.

I camped at the edge of the virgin forest at about 6,000 feet and was able to buy a sheep for six rupees from a Limboo settler, who had pigs, goats and buffaloes as well, but paid only a very small rent for his land. He would soon become rich and prosperous, whilst rapidly destroying the forest, in which his stock could range at will. The next day I kept on uphill to the Islumbo pass and collected some interesting forest birds and plants. Among the former were two little wren-like birds, *Tesia* and *Pnæpyga*, which skulk among the dense bush and are difficult to shoot, two kinds of handsomely mottled thrushes, *Oreocincha dauma* and *O. mollissima*, and some pretty blue flycatchers, *Nittava* and *Siphia*. Among the plants, *Arisæmas* with large-veined flowers and long tails were conspicuous and three of those which I introduced were afterwards figured in the *Botanical Magazine*, namely *Arisæma nepenthoides*, Plate 6446; *Arisæma utile*, Plate 6474; *Arisæma Griffithi*, Plate 6491. *Lilium giganteum* was also common in damp shady ravines, with veins of the large heart-shaped leaves much more richly coloured than in English gardens, but the flowers not yet out. *Paris polyphylla*, much larger and handsomer than our English *Paris quadrifolia*, was also in flower, and, though nominally with eight segments, sometimes had only five or six. Higher up, rhododendrons and various kinds of bamboos were abundant, but only one species of the former was yet in flower. Near the top ridge, at about 11,000 feet, appeared a species of bamboo new to me; it was called by my Bhutia collector "Benbum." Another dwarf species grows higher up on this ridge which he called "Heem."

The commonest bamboo, however, and the most luxuriant at 8,000 to 9,000 feet is the best for fodder; the "Maling" of the Nepalese is called "Pheong." "Parang" is another very slender and graceful species attaining thirty feet high, which is found on shady slopes at 7,000 feet. The scientific names are given in Gamble's *Timber of British India*.

I camped near the top of the ridge at 11,000 feet at a place where the water was nearly dried up, and there found a very lovely primrose in great profusion, yellow-eyed on very short stems. On a plant only five

inches across, I counted twenty large bright rosy flowers with a yellow throat almost concealing the mealy leaves, which resemble those of its near ally or variety, *Primula Winteri*, recently introduced to our gardens from the North-West Himalayas. The night was cold and clear with frost, and in the morning I had a good view of Kanchenjunga for the first time since leaving Darjeeling. I shot a blood pheasant, *Ithaginis asiaticus*, in the dense rhododendron scrub, and saw a female Impeyan pheasant, as well as many small tits, creepers, and other birds which are common at these elevations, but which do not occur round Darjeeling. The vegetation, however, was still dried up and wintry in its aspect, and few flowers, except *Daphne*, were out besides the *Primula*.

I made a short march and camped early with the object of collecting, but a strong cold north-west wind drove the birds down to more sheltered places, and the only rare one I got was a curious short-billed grey bird which I never saw before or since, called *Conostoma æmodius*—a bird of very obscure affinity. On April 1st I started early and rode along the ridge, which in places is rocky and very narrow, crossing the top of Singalela at about 12,000 feet. It is lovely up there in summer when the open pasture is covered with glorious flowers of *Meconopsis*, but it was bleak and barren at this season. The forest is composed mainly of Silver Fir, whose tops are often much blasted by wind and exposure and the branches covered with dark masses of moss and sometimes laden with Epiphytes. On the other side of Sandakpho the ridge dips sharply and here I got the lovely sun-bird, *Æthopyga ignicauda*, and a beautiful yellow bird allied to *Ruticilla* called *Tarsiger chrysæus*. At a flat swampy place on the ridge called Kalapoksi, meaning "black pool," I found *Pleione Hookeriana*, a lovely little orchid, which ascends higher than any of its family and is beautifully illustrated in the *Botanical Magazine*, Plate 6388, from a drawing made by Miss Woolward of the plant which I brought home.

From here the path made along the frontier by Mr. Edgar, then Deputy Commissioner of Darjeeling, began. Farther on at 8,000 feet I found *Rhododendron argenteum* in full bloom, but I do not think it is so handsome a plant as Hooker says it is in his book. *Satyrium nepalense*, a rather common Himalayan plant, was also collected and figured afterwards in the *Botanical Magazine*, Plate 6625, from my plant. A large white magnolia, which may be a form of *M. Campbelli*, was also common in the forest at 8,000 to 9,000 feet.

I got to the top of Tonglu about five, and found a new dak bungalow in course of construction, which has since become one of the most popular shelters for excursions from Darjeeling. I bought a live Tragopan pheasant from a Nepalese who had snared it, but was unsuccessful in bringing it home. From here, on the next day, I descended to a place called Simana, where there is a well-used road into Nepal, and from thence returned along the Goompahar ridge. The forest at that time was fine on this ridge and full of birds which increasing traffic, wood-cutting and noise have now driven away. I saw *Pnæpyga pusilla*, *P. squamata* and *Tesia castaneo-coronata*, all ground-loving skulking birds. On counting up my collection I found that I had got 130 good skins during the thirteen days I had been

out. But a good many of them were shot by the shikari, who, if he knows his business well, always gets many more species than a European, owing to his better knowledge of the notes, habits and feeding places of the birds; and to his greater ability to creep quietly about in the forest and also to find the birds when shot. Small birds falling into a dense mass of vegetation are often extremely difficult to find, unless they fall close to one, and it is always advisable to take a native with you to retrieve and climb for, and carry, what you shoot yourself.

When I returned to the plantation I found that Smithe was getting on with the people, but that the principal Nepalese Sirdar, who had authority over by far the greater part of the coolies on the plantation, and who received a pice per day for each one who turned out to muster, had been keeping a lot of buffaloes in the forest belonging to the estate, which was of great use to us in supplying fuel, building materials and grass for thatching. The buffaloes were doing much damage, and I told him I could not allow him to keep a dairy at our expense, as there was plenty of land further off. He grumbled a good deal and said he would leave the estate with his coolies, which would have seriously affected our labour supply. But I had acquired sufficient knowledge of the way to manage the Nepalese, and of the advantages which our coolies had in getting plenty of free land for their own cultivation, so I told Smithe to give the Sirdar a week to move his buffaloes. The man was a tall, active and plucky fellow, as most of these Nepalese Sirdars are, and thought he would see how much the new manager would stand. So one day, when Smithe was lying in his bed with a slight attack of fever, the Sirdar came to the bungalow and, entering his room, spoke in a very insolent manner. Smithe told him to clear out; as he did not go, Smithe jumped straight from his bed and knocked the man head over heels out of the room with one blow. The effect was excellent, both on the Sirdar and on the coolies generally, who realised that a new régime had commenced.

These Nepalese coolies are a much more bold and independent race than the natives of the plains; they require to be treated fairly but firmly, but they will not stand any bullying. I remember a row on another plantation between a newly arrived assistant, a tall athletic Scotsman, who thought he could do what he liked with the coolies, and one of the head men, who was a noted athlete and wrestler. The two fought till neither of them could stand up any longer, but neither gained the victory. They then summoned each other for assault before the Deputy Commissioner, who fined them ten rupees each. Another case, on my own garden a year or two later, illustrates the Nepalese character. A coolie, who had good reason to suspect that his wife was keeping company with another man, lay in wait for him one night. By Nepalese custom or law, which of course is not recognised in British territory, a husband finding his wife *in flagrante delicto* has the right to give one blow with his kukri, a heavy curved knife which every Nepalese carries in his waistband. When the lover came into the house, the husband waited a while, and then, creeping in, cut the man's head off with one blow, which was supposed to have killed the wife at the same moment. Anyhow, the two

were found dead together in the morning, and the husband fled to his own country and never returned.

In May, 1876, I returned to England, and had a most uncomfortable passage in a small and overcrowded steamer, having been unable to get a berth in either the P. and O. or the Messageries Maritimes, which were then the most comfortable boats. In the Bay of Biscay we had a very heavy gale from the North-East, against which we could make no headway for the greater part of three days, and as all the fires were put out by the sea the position at one time seemed very critical.

The year after his return home Elwes moved to Preston House, Cirencester, where he lived for fourteen years. He took over the management of the farms on the Colesborne estate that had been given up by tenants owing to the agricultural depression, and he soon became as keenly interested in farming and sheep-breeding as he was in his purely scientific pursuits. About this time, too, he began to study entomology, specialising in the butterflies of Europe and Asia, of which he rapidly built up a very large collection.

CHAPTER VI

TOUR IN INDIA, 1879-1880

IN 1879 I returned to India in company with my brother-in-law, Mr. F. D. Godman, who had never been there. Arriving early in November, we spent two or three days near Bombay before going on to Indore, where the late General Sir H. Daly was then Resident and had invited us to visit him. In his house I met a remarkable man, Aberigh-Mackay, then Principal of the College which had been established for the education of the sons of rajahs and noblemen. He was the author of a book which in its time had a great popularity, and which, forty years later, I have re-read with as much pleasure as I did the first time.* Aberigh-Mackay gave a very interesting account of his work and told us how easy it was to manage and to teach young Hindus in comparison with English boys of the same age. They seemed to acquire learning and manners with great readiness, and in some cases became so fond of the college that they did not want to go home. But he found that when they were again subject to the bad influences of native courts of the old school, and of the harem, they often relapsed into their former habits as quickly as they had forgotten them.

From Indore we went on to Simla, where we hoped to find Mr. A. O. Hume, but as he was away, we made a short trip up the great Tibet road to Narkandah. We were caught in a heavy snowstorm, which obliged us to return to Simla, so that I did not have as much opportunity of comparing the fauna and flora of the North-West Himalayas with those of Sikkim as I had hoped. My general impression was that, though the climate is for most of the year more pleasant to Europeans, and the attractions for sportsmen are much greater, yet neither the birds, insects, nor plants were at all comparable in variety, interest and beauty with those of Sikkim. On leaving Simla we visited Agra and Delhi, and arrived at Darjeeling at the end of November. The weather at this season was usually fine and clear and the nights quite cold. On December 15th the ground was frozen and there was ice half an inch thick, but there was no snow below 10,000 feet and that did not lie long.

I found everything very prosperous at my tea plantation, which had been paying a good dividend for three years past. My friend Mandelli was now part owner of an adjoining plantation which we tried to amalgamate; but difficulties of finance intervened, and the affair was not carried through.

There had been some considerable loss of planted land, owing to landslips, which on slopes lying at an angle of from 35 to 45 degrees are frequent all over the district since so much of the forest has been cleared. The difficulty of getting wood for making tea boxes was increasing, largely owing to the restrictions of the Government Forest Department, which had now established a working plan for the whole of the forest not alienated to planters or in the possession of natives. It seemed to

* *Twenty-one Days in India*, by G. Aberigh-Mackay (Allen, London, 1880).

me that this working plan had been drawn up on lines which, however applicable to other conditions, were in some respects wasteful, and unfair to the all-important local planting industry. For instance, there was a considerable tract of forest on the north slope of the Goonipahar ridge within three or four miles of our plantation, which was full of old toon and other trees suitable for tea boxes. The toon, *Cedrela toona*, is, on account of its light but strong wood, preferred to all others when it can be got at a reasonable price, but these trees, though in many cases more or less decayed, could not be cut without leave from the Forest Department, until this block of forest came in its turn to be worked over. In consequence we had to buy our wood in Native Sikkim and the boards had to be carried by coolies three or four days' journey to the plantation.

After some correspondence the officer in charge of the Darjeeling forests got leave to mark and sell certain trees standing, but the transaction was surrounded by so many formalities, and the native forest guards made so many difficulties in order to get bribes from our contractor, that in the end we had to give it up altogether, and the Government lost what might have been a considerable revenue from these dead trees. To give an idea of their size, I may say that, on the banks of a river just below my plantation, there was one whose roots had been undermined by a flood, and which fell across the river, forming a capital bridge nearly 100 feet long and three to four feet in diameter. I have never seen any accurate measurements of the size of various kinds of timber in Sikkim, except those which are given in Gamble's *Timbers of British India* and a few examples in my own work on trees, but I do not think that they often, if ever, attain a height of 200 feet or are as large as some of the trees in Burmah, Tenasserim and Malaya.

We paid a visit to Mongpo, where the extension of the cinchona plantations was going on rapidly, and the manufacture of quinine had now been commenced.

My friend Mr. Gammie was now resident superintendent and a keen collector of birds and eggs, in which he was materially aided by the large number of coolies on the plantation. Some of the boys were clever at snaring birds on their nests, and thus enabled him to identify the eggs of a great many species whose nesting habits were previously unknown. But the variety of birds in Sikkim is so great, and some of them are so rare, or more probably so very local, that even now there are some of which we know little or nothing. On one occasion, when I was staying at Mongpo, I was riding with Gammie along the edge of a narrow gully crossed by a small bridge when he heard, in the thick scrub close below us, the note of a bird which he did not know. We sat down with our guns one on each side of the gully. It was a long time before I got a glimpse of a small brown bird with a long curved bill creeping near the ground, so close to me that I could not help spoiling it with the shot. I found it was a bird described long ago by Hodgson as *Rimator malacoptilus*, which we only knew from his description; and of which only two specimens, I think, had ever been got before. There were still others in the same place, and after a long time I succeeded in shooting two more, one of

which we could not find while the other was a good specimen. Gammie has since told me that these were the only ones he ever saw or heard during his many years' residence at Mongpo.

The same remarks apply to many kinds of butterflies and moths, as I shall show later, but I may here mention one remarkable case which happened in May, 1886. I was riding through the virgin forest at about 6,000 feet on the road from Darjeeling to Mongpo, and as the day was misty and drizzling, I had seen few butterflies. As I passed over a bridge on the road I noticed a small blue butterfly and I dismounted to catch it. I found that it was a species unknown to me, but before the gleam of sunshine which had brought it out passed by I got two more. I described it as *Chilades pontis*, in the Proceedings of the Zoological Society for May 3rd, 1887. But though I sent a native collector to stay some days at the same spot, where he got a good many males, I never got a female for years afterwards; and the only place where a similar butterfly has since been found is in China, where Leech discovered a nearly allied species at Ningpo. I have since obtained a third in Central Formosa, so that the only three known forms of this peculiar genus are separated from each other by intervals of over a thousand miles. These are the facts which add so much to the interest of collecting, when the collector is well acquainted with the distribution of the objects he seeks and is able to recognise the scientific interest of even such insignificant little objects as these.

Before coming up to Darjeeling, Godman made a trip to Buxa, a hill station in the lower hills of Bhutan, a hundred miles east of Darjeeling, in the hopes of finding a butterfly of extraordinary beauty and rarity, which had been discovered some years previously by Dr. Lidderdale when quartered there with a native infantry regiment, and which had been described and figured by Hewitson as *Bhutanitis Lidderdalii*. This beautiful butterfly is black with white stripes and three long tails on each hind wing. Godman was unsuccessful in his search, as he was unable to reach the spot where it was supposed to be found. My friend Mandelli was also very anxious to obtain this butterfly, and on three separate occasions sent two of his best Lepcha collectors to Buxa during the rainy season provided with guns, money and a letter to the police to give them what help they could. On the first occasion they both got fever and returned sick; on the second expedition one was killed by a tiger and the other would not remain alone; on the third the Bhutanese robbed them and frightened them away. And so our collections remained without a single specimen, until my friend Doherty discovered the butterfly in the Naga hills at Mao near the Manipur frontier and gave an account of its habits.

Another of the beautiful butterflies which was for a long time only known at Darjeeling is *Teinopalpus imperialis*. It is a very strong flying species which comes out during the rainy season near Darjeeling and flies rapidly round and round small open spaces on the tops of hills like Sinchul at 7,000 to 8,000 feet whenever the sun shines, though this is often not for days together. The native collectors used to lay down baits of some dead animal or stinking garbage at these well-known flying places, and watch them for hours together, so that the male was not very rare in

collections. But the female, as is often the case among butterflies, does not fly with the male and settles usually on high trees in the forest, and in consequence was so extremely rare that, though for years I had a standing offer of ten rupees for a perfect specimen, which represents about two months' wages to a native, I never got one till I bought Mr. Wilson's collection. My friend Knyvett, also a very keen collector, told me that the only female he ever saw until the food plant, which I believe to be *Daphne cannabina*, was discovered, was one which settled on the ground where he was playing lawn tennis, and which he did not see till he had put his foot upon it. But this butterfly has now been found not only in the Khasia hills and in Burma, but also in Western China, and remains practically without variation in all these places, the only representative of its genus in the world.

When Godman rejoined me at Darjeeling we started on December 15th for the interior with a party of twelve coolies, a bird collector who was with me on my last trip in 1876, and a man named Nimtien, formerly employed as a plant collector, whom I now promoted to be sirdar. We also had two servants, a pony and a syce. Lieutenant Harman of the Royal Engineers, who had been employed in surveying the Tibetan frontier, lent us a tent, and we had some Lepcha plant collectors from the Botanic Gardens to collect seeds and plants.

My principal object was to compare the distribution of the birds at this season with that which I had previously observed during the rainy season, and to find out to what extent the birds which breed at elevations above 10,000 feet descend to the lower valleys in winter. Our route lay across the Rangit valley and over the shoulder of the Tendong mountain *via* Namchi to Temi in the Tista valley. On the way we met parties of Lepchas carrying heavy loads of sweet oranges from their villages in the Tista valley to Darjeeling. These oranges are, like those of the Khasia hills, largely exported to Calcutta, and are loose-skinned oranges of the Mandarin type. On the road we bought them very cheaply, twelve or sixteen for an anna. We also met parties of Nepalese carrying lime in baskets containing two maunds (160 pounds) each from Namchi to Darjeeling. It seems an immense load, but in this country a maund (80 pounds) is not thought too much for a woman or a boy. During one season, when there was cholera among the coolies and labour was scarce, the Nepalese women on my plantation volunteered to carry tea boxes, weighing from 100 to 112 pounds, on their backs up to Darjeeling, an ascent of over 4,000 feet by a steep slippery path. They begin as children to carry water in long bamboos with the joints broken out, from the stream to their houses, often a long way up the hillside. Though their muscles do not appear to develop as those of the men do, yet it seems that the actual physical strength of the female sex, among uncivilized races, is, like that of female horses, cattle and dogs, not much if at all inferior, in proportion to weight, to that of the male sex.

In the Tista valley at this season the climate was delightful, with a temperature varying from 50° to 70° according to the elevation. Birds were very numerous in the forest, and we got a good many which I had not previously shot myself. Hornbills, both of the large



FIG. 3.—NEPALESE HILL-WOMEN IN SIKKIM.

black and white kind, *Dichoceros bicornis*, and of the smaller species in which the male is black and the female chocolate, were feeding on the fruit of immense fig trees in company with several kinds of pigeons, barbets, and many other birds. In the waste land which had been cultivated, and which in Sikkim is always covered with wormwood and bracken, birds were not so abundant; and all the gentle slopes from about 3,000 to 5,000 feet were of this character or were cultivated by Nepalese settlers.

We met parties of Lamas travelling to and from the various monasteries in the Little Rangit valley, and always found them civil and well disposed; they offered us a grateful drink of Marwa beer, with which they were always well provided. On the 20th December we crossed the Tista by a long cane bridge, and sent the pony back, as the paths were becoming too rough and steep to ride much.

On the east of the Tista we passed through many small Lepcha clearings, and, crossing the Ryott river low down near its junction with the Tista, had a steep climb up the opposite side. We found a good many orchids in this part of the country, as they have not been carried off to decorate the gardens as in many places near Darjeeling. *Dendrobium*, *Cælogyne* and *Vanda Cathcarti*, with some beautiful leaved *Anæctochilus*, were the most ornamental; and there were also some fine Aroids in flower and fruit in the forest.

On December 22nd we camped at a place called Maling, which commanded a magnificent view up the Bah valley towards Kanchenjunga, whose snowy peaks here seen from a comparatively short distance, look far higher than they do from Darjeeling. The Bah valley, which joins the Tista from the north-west opposite Singtam, is one of the least-known valleys in Sikkim. It had then never been visited by any European, as there seemed to be some strong objection among the Lepchas to allow anyone to visit the Talung Goompa, which is some way up, and where the treasures of the Sikkim Rajah were kept in safety. Lieutenant Harman tried to go there, but the path passes along very steep cliffs and he was stopped by stones being rolled down from above.*

In this valley Hooker heard of the existence of wild men, *Himalayan Journals*, chap. 5, and I was very desirous of penetrating the valley so as to enquire further about them, but every sort of difficulty was placed in our way on this as on my previous visit. At Singtam we heard that there was too much snow in the Lachen and Lachung valleys to get there without much difficulty, but I believe that we might have done it if time had allowed. So far we had seen hardly any birds except *Accentor rubeculoides* and *Emberiza pusilla*, which I had found on their breeding grounds in those valleys ten years before. I suppose they do not migrate very far towards the plains.

Round Singtam the soil is very fertile and the clearings in the forest extend up to 6,000 feet, producing large crops of millet, followed by wheat, which I had not noticed in the other valleys. The sky had been clear for some days; the clouds which come up from the south apparently do not extend farther up the Tista valley, which here makes a sharp bend.

* Since then it has been visited by Mr. Claude White; see his *Sikkim and Bhutan*.

In the more open parts of the forest we found large scattered flocks of small birds, belonging to many different genera and species, which associate at this season and feed their way in straggling bands, which keep together but move steadily in the same direction. At five successive shots out of such a company I killed *Siva cyanoptera*, *Minla ignotincta*, a *Phylloscopus*, an *Abrornis*, and an *Ixulus*.

This assemblage of birds, belonging to many different genera but all having the same habits, is peculiar so far as I have noticed to this sub-region. I have observed the same thing among birds of the same genera in the forest of Formosa at the same season and elevation. It is also very remarkable how the bills of certain birds, which feed and live in the dense bamboo scrub at higher elevations, have been modified in opposite directions, though as far as we know, their food is similar. Take for instance the *Xiphirhynchus superciliaris*, which is the only species of a genus peculiar to the Eastern Himalaya and always found in bamboo jungle. Its bill is very long and curved like that of a honey-sucker, whilst *Heteromorpha unicolor* has its bill reduced to the shortest possible dimensions, like that of *Suthora* and *Propasser*. Another curious instance is that of *Chloropsis paradoxa*, a bird as yet only found by Abbé David in Western China, which is so like *Heteromorpha* that if its feet were cut off it would be hard to distinguish; but this bird has the outer toe on each foot completely aborted—an unique case so far as I know among all its allies.

We spent Christmas Day at Tumlong, the old capital of Sikkim, in the same monastery where I had previously lodged, and found it much more chilly there, with the snow lying in patches in the forest at 8,200 feet. Notwithstanding this, two very beautiful shrubs were in full flower, *Edgeworthia Gardneri* and *Luculia gratissima*, which I have generally had in flower at Christmas in my greenhouse at home, where its fragrance seems greater than in its native country. Some years afterwards when Mr. White was resident at this place as representative of the Indian Government he had a most lovely garden which is illustrated in his book on *Sikkim and Bhutan*, a work that forms an admirable supplement to Hooker's *Himalayan Journals*.

We visited the Rajah the next day and found him to be a young man of apparently feeble intellect, with a hare-lip, who had little or nothing to say. The Padang Lama, who at that time was acting as "vakeel" to the Indian Government, was very civil and received us hospitably.

After leaving Tumlong we descended again to the Tista valley and crossed it by a cane bridge at Samdong. Thence we ascended 3,000 feet through a forest of very fine trees to Mongong Gompa, where we stayed for two nights as the weather became wet and I had a considerable number of bird skins to dry and pack. In the twenty days during which our trip lasted we got no less than ninety-four species, including many of great beauty and some rarity. Among them was a woodcock, which I myself never saw in Sikkim, but which is not uncommon in some seasons; a very rare wren, *Troglodytes punctatus*, peculiar to Sikkim; and a small grebe which I saw only in the small stagnant lake near the monastery at Mongong.

Of butterflies very few were flying at this season, except at the lowest elevations and those mostly *Lycaenidae* and *Hesperidae*, but a fine specimen of a large silk-producing moth, *Saturnia Tibeta*, was picked up, with some beautiful day-flying moths, one of which turned out to be new. On the next day, December 30th, we stopped in a good Bhutia house at Lingdam and went up to the monastery where a curious annual festival, which I have never seen elsewhere, was going on. After a service with the usual accompaniments of gongs, horns and cymbals, a procession marched out to some little altars, which were set on fire after arrows had been shot over them, and we were requested to contribute to the effect of the performance by firing a salute from our guns. With the exception of the four Lamas who conducted the ceremony, all the spectators—as I have often noticed during Buddhist ceremonies both in Sikkim and in China—seemed to regard it as an amusing sight. I have never been able to detect any real religious feeling among the common people, though they pay the greatest deference to the priests and are apparently as much under their influence and domination as in Tibet.

On our way back to Darjeeling we made a long march along the same ridge which I had crossed on my way to Pemiongchi four years before. There I found a new species of *Curculigo*, and what I believe to be *Lilium oxypetalum*, hitherto only known from the North-West Himalaya, though as it was not in flower I cannot be certain of the species. Among the birds procured were *Arboricola rufularis*, a forest-haunting partridge, a lovely little flower-sucker and *Myzornis pyrrhura*, peculiar to Sikkim. I also shot one of the large yellow-throated martins, *Hirundo fuligula*, which are not uncommon at 7,000 to 9,000 feet. All this forest is very dense and damp, without any break until it descends to 6,000 feet above Namchi.

On January 3rd we sent our coolies with baggage direct to Darjeeling and made a detour down the Rangit valley to the Tista bridge, which was then being built as a permanent structure with iron cables, passable for ponies. We stayed that night with Mr. Munro at his plantation at Pashok, and he gave me bulbs of a fine lily which I believe to be *L. Wallichianum*, and of a *Pancreatium* which is abundant in the Sal forest at about 2,500 feet. From here we rode up to Darjeeling, where we found it cold and misty.

After spending a few days at my plantation we concluded our visit to Sikkim by a short trip to Tonglu, where there was now a nice stone-built bungalow for travellers' use. We found some snow on the road above 8,500 feet on the slopes facing north. Tonglu is surrounded by a lovely grove of old rhododendrons, among which we measured one of *R. ferrugineum*, fifteen feet nine inches in girth at two feet from the ground. Birds were fairly numerous, among them a fine wood-pigeon, *Alsocomus Hodgsoni*, and the long-tailed blue magpie, *Urocissa occipitalis*, which I had not seen before, and which has a peculiar metallic cry like that of the crow tribe with which it is classified. A sharp frost set in before sunset, but in the sun next day the snow was thawing, whilst it froze in the shade.

After a march of fourteen miles along the ridge we found the ascent of 3,000 feet to the top of Sandakphu very trying. The rarity of the

atmosphere above 10,000 feet was much more evident than it is in damper and warmer weather; and Godman's heart was considerably affected by it, so that he had some difficulty in getting up the last part of the ascent. There was a rough house on the top in which we made a large fire, and with plenty of warm clothes we got through the night pretty well, though it was so cold that tea, left in a cup, froze in the room. At sunrise next morning we had the most glorious view of Kanchenjunga as well as of the top of Mount Everest in the far distance, and of Chomolhari to the north-east. I have never seen so striking a view as this in any part of the world, though it is quite impossible to describe or, I should think, to paint. Though the thermometer was below 20°, we found some Bhutia or Limboo shepherds camping out with bare feet just below the bungalow, apparently quite unaffected by the temperature.

On the way back to Darjeeling I shot *Trochalopteron affinis*, which breeds above 12,000 feet, *Tarsiger chrysæus* and *T. superciliaris*. Many nut-crackers, *Nucifraga humispila*, and jays were seen; and in the dense bamboo thicket at 9,500 feet *Xiphirhynchus superciliaris* and *Conostoma æmodium*, which, though not so tame, resembles the Siberian jay in appearance and habits more than any other Himalayan bird. The silver firs, *Abies Webbiana*, which cover the ridge in many places from 11,000 to about 12,000 feet, seem to be for the most part in a dying condition, and have been much injured by fires near the road. Their appearance is very peculiar, as shown in a photo taken by Mr. C. B. Clarke and produced in plate No. 215, of *Trees of Great Britain*. On the bare parts of the hill where much aconite grows we found a number of little bamboo muzzles, thrown down by the roadside, which are used by the Nepalese shepherds to prevent their sheep from being poisoned by eating aconite when passing over these places.

At Darjeeling I met a very remarkable man, Lieutenant Harman, R.E., who died soon after from the effects of the severe hardships he underwent in surveying the frontiers of Sikkim. He was so keen to carry on and complete this work that, when he was no longer able to walk on account of frost-bitten feet, he continued his survey in a chair carried on the back of a powerful Bhutia. On the walls of his room I noticed a dilapidated skin of a large slaty-blue-eared pheasant, which I thought must be a new species, and this he was good enough to give me. On my return home I found my surmise correct, and described it under the name of *Crossoptilon Harmani* in the *Ibis*, 1881, p. 399, Plate 13. This skin was said by the native surveyor who brought it in to have come from a point about 150 miles east of Lhasa in the valley of the Sanpo river, and remains unique to this day. Though Hodgson long ago procured from a Nepalese envoy to Peking a specimen of the white-mantled *Crossoptilon Tibetanum*, which is found near Ta-t sien-lo, my new species is much more nearly allied to *Crossoptilon auritum* of Pallas, which is found farther north in Kansu and Koko Nor, but differs in having no white on the outer tail feathers. A fourth species, *Crossoptilon mantchuricum*, is found in North China, but is very rare and local owing to the destruction of forests and the pursuit of man.

From Darjeeling I returned by Calcutta to Ceylon, where I spent a

fortnight with my brother, who was then managing a cinchona plantation at Rambodde. He had a good bungalow surrounded by a large but rather wild and neglected garden, which seemed to be a particularly favourable spot for birds. The elevation of about 4,000 feet made the climate very pleasant, though the sun was hot in the day, and I collected about half of the thirty-seven species of birds peculiar to Ceylon in the short time that I spent there.

Cinchona at that period was in a very flourishing condition as regards its growth, and owing to the scarcity of quinine, the bark was realising a very high price, which reached as much as 16s. per ounce for Howard's sulphate. Some of the planters cut their trees as fast as possible, and others sold their plantations at fancy prices, but those who held on had a very heavy loss to bear later, when disease became prevalent, and when the price of quinine fell to a point at which it became unprofitable to grow any but the varieties producing bark very rich in the sulphate.

To give an idea of the enterprise for which Ceylon planters have always been distinguished, I may mention the case of a Mr. Campbell. This gentleman, hearing that in the Dutch Government plantations in Java there was a variety named *Ledgeriana*, whose bark produced from 8 to 10 per cent. of sulphate as against 3 to 4 per cent. produced by the species *C. succirubra*, of which it is a variety, went to Java and purchased at a very high price all the seed he could get. He sowed the seed in frames in Ceylon and raised thousands of plants which, if I remember right, when he showed them to me, were selling at one rupee each. Thirty years later in Java I saw perhaps the very same trees which produced this seed, and by the courtesy of the Dutch manager I was able to take some of the seed, with which the Japanese Government started a plantation in Formosa.

I made a short trip to Newara Elia and ascended a peak of over 8,000 feet, but I was very much disappointed with the variety and abundance of the birds, plants and insects to be found at high elevations in Ceylon, as compared with those of a similar altitude in the Himalaya. I rejoined Godman, who had gone to see the Nilgiri Hills, and we returned together to England, having had a most enjoyable and successful tour.

CHAPTER VII

THE TIBET EMBASSY AND THE RISHI-LA, 1886

IN 1885 the late Mr. Coleman Macaulay, then Secretary to the Government of Bengal, after an expedition to the frontier of Sikkim of which he published an account, thought that the time seemed favourable for doing what Warren Hastings had attempted more than a century before, namely, to negotiate a treaty of commerce with Tibet. The Tibetan traders had always said that there was nothing they would like better than a free exchange of products, but that they were prevented from doing so by their suzerain, China. Macaulay first came to England to see how far the Government would support his endeavours, and finding Lord Randolph Churchill, who was then Secretary of State for India,* very favourable to the scheme, he went to Peking to try to overcome the difficulties which were made by the Chinese Government. He was accompanied by a clever Bengali Babu named Sarat Chandra Das, who had visited Lhasa two years before on his own initiative in order to study the Buddhist religion at its headquarters and who, after suffering many hardships on the journey, came back speaking Tibetan more or less fluently. During his stay at Peking Sarat Chandra Das was entertained at the Tibetan monastery. Through the influence which Sarat Chandra Das exercised on the Tibetan lamas and through the ability which Macaulay showed in his negotiations, a formal consent was obtained during the late autumn of 1885 to the despatch of a Mission from the Indian Government to Lhasa. When Macaulay was in England earlier in 1885 he consulted Sir J. Hooker as to the selection of a naturalist to accompany the Mission, and the result was that he proposed that I should go with him in this capacity. When, therefore, I received a letter from him at Peking saying that all was arranged, and that the expedition would start early in 1886, I thought it was best to arrange matters with the India Office without delay, so that I might be ready to join the Mission in India before it started. At an interview with Lord Randolph Churchill it was settled that I was to travel at my own expense to India and back, receiving my out-of-pocket expenses only during the time the Mission lasted. I was naturally much pleased to have such an opportunity as this of visiting a place which no European had seen under what seemed such favourable conditions, especially as I was the only man on the Mission not in Government service. As I had sufficient knowledge both of wool and of tea, which might be the two principal articles of commerce with Tibet, I endeavoured to learn all that was possible in the time so as to fit myself for reporting on the past history and probable future prospects of the Tibetan trade, as well as on the natural history of the country.

To my surprise, however, Macaulay, instead of going straight back to Calcutta, and organising the expedition as quickly as possible, came to England again, ostensibly with the object of purchasing the presents which we were to carry with us, and for which a sum of 30,000 rupees

* June, 1885–January, 1886.

had been allowed by the Indian Government. I have always believed that the India Office never was so favourable to the Mission as Lord Randolph Churchill himself was; or else it had begun to question the policy of sending the Mission. At all events I found that Macaulay was by no means so keen about starting early as he had previously been; and at least two months were wasted in elaborate preparations for an Embassy on a much larger scale than seemed wise to me, or to others who were better acquainted with the facts and difficulties, both political and physical, which had to be overcome.

However, I left England in March, 1886, and arrived in April at Calcutta, where I found the late Mr. Paul, who had been for many years Deputy Commissioner of Darjeeling, and who, because he knew the people and the country of Sikkim more intimately than anyone, had been appointed second in command of the Mission. He informed me that nothing was ready and that, until Macaulay returned from England, he had no authority to give orders. In the meantime I had better go up to Darjeeling, and find out on the spot how matters were progressing. He told me that the following officers were to be the members of the Mission: Colonel Tanner, R.E., as Surveyor; Captain Gwatkin, of the Bengal Cavalry, as commander of the escort and transport; Dr. Leahy as medical officer; Mr. Cunningham; Mr. Oldham as geologist. Mr. Warry, a member of the Chinese Consular Service, who spoke Chinese, was also to accompany us as commercial adviser and Chinese interpreter. An escort of fifty Punjabi sappers and twenty-five mounted men of the Guides were to join us before starting, and no fewer than 500 mules which had lately been employed in the transport of the Indian contingent on the Red Sea coast were to come up from Poona to carry our baggage. Now it seemed to me, as it did to Mr. Paul, that such a large and cumbersome expedition might appear to the Tibetans, when magnified by Oriental exaggeration, rather in the light of an invading army than of a peaceful embassy, and when I got to Darjeeling I found that the Tibetans had already assumed a hostile attitude. The Commissioner told me that the letter he had sent to Chumbi to inform the Tibetan frontier officer of the prospective arrival of the Mission had been returned unopened, and it was generally reported that the Tibetans meant to resist our entry to the country and were already collecting armed men with that intention. I at once offered to go up to Chumbi with the letter and find out how matters really stood. But the Commissioner thought that it would be better to wait until Macaulay arrived.

Whatever the Chinese may have said to Macaulay in Peking, there now seemed to be little doubt that they did not want the embassy at all and had probably told the Tibetans privately to keep us out if possible. I think it is quite probable that if Macaulay had returned from Peking and started at once with a small and lightly equipped party, he might have been able to get into Tibet, if not to Lhasa itself, before the apprehensions of the Tibetan Government had been roused. But now that the favourable moment had passed and the rainy season, which would add immensely to the difficulties of getting through Sikkim, was rapidly approaching, it seemed uncertain whether we should be able to cross the frontier peaceably.

Colonel Tanner, who arrived soon after me as survey officer to the Mission, had had long experience in travelling in the North-West Himalaya and Ladakh. He agreed with me that our best chance of doing any real work in surveying and collecting was to organise our own transport and supplies independently, so that we could see more of the country than would be possible in company with such a large party. So I set to work to buy ponies and engage servants suitable for a long and difficult journey. My old syce came to me as soon as he heard of my arrival, and Gammie recommended a young Nepalese from among his own men as a suitable bearer. Ponies were scarce and dear at this season, but there was a Bhutia horse dealer in the station, Ugyen by name, with whom I had rather an interesting deal. He came one day with a pony which he said was a lama's pony and would carry me wherever a pony could go. He was a raw-boned ugly beast with a head as big as a coffin; he had very good shoulders and loins, but he was so much out of condition that he did not look as if he was worth half the money which Ugyen asked. I had just bought a very good-looking pony from a planter for 200 rupees, but it seemed inclined to shy—a very bad fault on narrow mountain paths—and I asked Ugyen if he would swap. To this he replied that he should want money thrown in, as his pony was the better of the two. I laughed at him and he then offered to race me up to the bandstand in Darjeeling and back, owners up and the winner to take the two ponies. Ugyen was a big stout man, who, in the clothes he wore, looked as if he was two stone over my weight, and I thought it was good enough to accept his proposal. But when he returned to the back verandah to strip and had taken off three or four heavy Tibetan blanket coats and other garments, he appeared in a pair of English riding breeches about three stone lighter than I had thought before, and as my friends told me that he was a first-class jockey, I thought it best to pay forfeit and buy his pony.

“The Lama” as I called him, turned out the best hill pony I ever rode, and was so sure-footed that I could canter up and down the winding hill-paths about the station without fear of his coming down. The only time that he came to grief was when I was riding up from Mongpo. As we were crossing a wooden bridge over a small watercourse, the middle log of the three forming the bridge gave way and let the pony through, all but his head and one foreleg. After a few struggles he lay still, and I took off the saddle and sent my syce to look for help. On the inside of the bridge the stream below was about ten feet down, and the banks very steep and rocky, and I thought it impossible that a horse could climb out of such a place if he fell through the bridge. But after lying for a few minutes the Lama with a struggle managed to get one hind foot up and then jumped right over the bridge into the torrent, out of which he climbed like a cat on to the road again, quite unhurt.

When I left Darjeeling four months later, I gave the Lama to my friend Gammie on the understanding that he was not to sell him, or on any account to allow Sir Richard Temple to ride him. Sir Richard, then Lieutenant-Governor of Bengal, was very fond of coming up to Darjeeling and prided himself on the rapidity of his journey when riding relays of other people's ponies. But as he was reputed to be utterly without con-

sideration for horses, I resolved that he should never get a ride on the Lama. Ten years later, when he had retired, I met him at Lord Northbrook's country place and we had some chaff over this matter, which he had not forgotten.

Early in May the 500 mules which had been sent from Poona to Siligori by rail arrived at the foot of the hills in charge of a sergeant of the Transport Corps, one of the most efficient, energetic and excellent men I have ever worked with. He had a very inferior lot of mule drivers, hastily got together for the expedition. When they got out of the train, the men were rather prematurely served out with warm clothing which had been supplied by the Government; many of them, thinking that if such clothes as these were necessary they would probably be frozen in Tibet, deserted then and there. A lot more were found medically unfit when inspected by Dr. Leahy. As mules are animals which require much experience to load and manage, I quite expected that the difficulty of feeding and getting them into condition would be very serious. But with the help of some friendly tea planters I engaged Nepalese contractors who undertook to supply fodder at Darjeeling until we started, and the mules were brought up to the station and picketed in lines on a bare grassy spur above Ging, which is the only open space of any size anywhere near Darjeeling. Here they were allowed to graze for two or three days till the Bhutia milkmen who used this place as a feeding ground for their cows struck work and said that no more milk could be supplied if the mules were allowed to eat up the grass. The European ladies of the station then rose up in arms, and the Commissioner issued an order that the mules were not to go off their pickets in future. By this time a large supply of fodder consisting of the leaves and small stems of the little hill bamboo known as "Maling" was brought in daily by my contractor, who employed 200 Nepalese in cutting and carrying it from the Goompahar, where there was a good supply. But again we were met by an outcry from all the private horse-owners that their putta-wallahs (as grasscutters are here called) could not get their usual supplies, and our men were obliged to go ten miles off to the slopes of Tonglu in order to find sufficient fodder. I have often seen the coolies carrying on their backs the bundles ten feet long and four feet in diameter, which, when weighed by the commissariat clerk, scaled over two maunds (160 pounds) apiece.

By this time all the members of the expedition were assembled except Macaulay. When he at last arrived, he told us very little about the progress of the negotiations which were going on daily by telegraph between Simla, Peking and London. He had sent up a Portuguese cook engaged in Calcutta at a very high salary, and an immense quantity of European tinned luxuries, wines and spirits and liqueurs, among which, I well remember, were several boxes of *pâté de foie gras* in tins. Biscuits, however, which to my idea were a much more necessary article of rations, were conspicuous by their absence, and though we had not less than twelve mule-loads of medical stores and appliances, I was the only member of the expedition who had Elliman's embrocation or carbolic acid. These and many other little things seemed to point to the fact that, however clever and able Macaulay might be as a diplomatist, he was not

the man to organise and lead a large expedition through such difficult country of which he had no previous experience. By this time I had had several talks with Sarat Chandra Das, who was to have accompanied us as a Tibetan interpreter, but who, owing to some friction or misunderstanding between himself and Macaulay, now flatly refused to go. In consequence we should have been dependent on the services of a youth from the school at Darjeeling, who, whatever his knowledge of colloquial Tibetan might have been, seemed quite unfit for such a difficult and responsible post as that of translator and interpreter to a political and commercial embassy.

Sarat Chandra Das never would tell me anything definite about what had passed in Pekin or since, though, knowing that I was not in the Indian Service but independent of Macaulay's present or future goodwill, he talked more freely to me than to the other members of the Mission. He seemed to have private sources of information, and though I never thought that, to use a common expression, he "funked the job," yet I could see that he was not at all sanguine of our success.

At the end of May, though the rains had not yet become persistent, there were many heavy showers and moths began to appear in great numbers and variety at the camp and in the station. I spent my time between the Club at Darjeeling and Mongpo, and as I had no regular occupation I determined to make my collection as complete as possible. In this I was materially aided, first by my friend Mandelli, who allowed me to select many rarities from his collection, secondly by Gammie, who was still in charge at Mongpo, and lastly by Mr. A. Knyvett, at that time Superintendent of Police in the Jelpigori district, who had collected largely both in the Terai and at Darjeeling, where he often stayed.

The best account I know of collecting moths in tropical regions is in Wallace's *Malay Archipelago*, where he describes his work in Borneo. Though his success was great, I think my own was even greater. I found, as he did, that the best nights for taking moths at a light were warm, dark and wet nights in the rainy season, and that the best situation for the light was an open verandah with a white wall and low roof overlooking a considerable extent of country, so that moths can be attracted from a great distance. The verandah of the Club at Darjeeling had all these advantages, and whenever the night was good I used to work the lamps for some hours after dinner and often with great success. I remember that one night in July when Mandelli was dining with me and it was raining steadily, though not very heavily, we could hardly get through dinner on account of the number of moths that came in. When, armed with large killing bottles, we went into the verandah, we found the walls covered with such numbers that it was not easy to select the rare from the common varieties of which I already had enough. As fast as my bottle was filled, I sat down to pin the moths, whilst Mandelli in turn filled his. A net was not often wanted, as the majority of the moths sat quietly on the white-washed wall within reach. The majority were small, but some large *Bombyces* would hardly go into the bottle, and the variety was so great that on this particular night we caught, between half-past eight and midnight, something like 2,000 moths belonging to about 125 species. This is, so far as I know, a record for this kind of work in the Old World,

though no doubt it might be surpassed. I am inclined to think that the fact that the reflector lamps in the verandah were stronger than any other lamps in the station was the reason why the Club was the best place I ever found. After selecting the best specimens and drying them thoroughly, I used to pack my moths the next day, pinned in flat boxes, and send the boxes away by parcel post two or three at a time. During June, July and August that year I sent home 8,000 specimens, which arrived for the most part in perfect condition. Among them were found very many novelties, most of which were described by Sir J. Hampson in his catalogue of Moths in the British Museum.

During the month of July a very welcome break in the rains occurred, of which I took advantage to make a sixteen days' trip along the Singalela ridge in order to collect butterflies and moths. Though the lower valleys had already been thoroughly ransacked by native collectors and a great number of specimens had been brought from the Chumbi and the Lachen and Lachung valleys by natives employed by Mandelli and myself, yet, owing to the lack of sunshine and to the heavy rainfall which usually prevails at this season, the insects of the western frontier of Sikkim above 10,000 feet were very little known. I had an unusually successful trip. I caught a number of new moths both at night and by day, and several new species of butterflies which nearly all belonged to various genera of *Satyridæ*, such as *Zophæssa* and *Lethe*. These are specially numerous, both in species and individuals, in Sikkim, and are almost all inhabitants of the forest at heights varying from 6,000 to 12,000 feet. These butterflies are nearly all dark brown in general tint, with ocelli above and beautiful patterns of waved lines and ocellate spots on the underside; they seem to be more adapted to a sunless climate than other butterflies flying in the shade; and often on dull misty days they would settle in little flocks on the path wherever any ordure or decaying object had been dropped. I also secured numerous day-flying moths belonging to the orders of *Sesiidæ* and *Agaristidæ*, many of which are very beautiful. But even up to 12,000 feet, which was about the highest level reached on this occasion, I found few or no insects of the genera which are so abundant at similiar elevations in the mountains of Central Asia and China, such as *Parnassius*, *Colias*, *Erebia*, *Oneis*, *Argynnis*, all of which seem in this region to be confined to the dryer, sunnier and, in winter, much colder regions of the frontier of Tibet and the Chumbi valley. The flora of the Singalela range at this season was extremely varied and beautiful. I saw a great number of fine herbaceous plants not seen on my previous journeys, some of which are now fairly well known in our gardens, though many more seem to require a constantly saturated atmosphere, which has been provided only in the Edinburgh Botanic Gardens by means of fixed spraying apparatus. *Meconopsis nivalensis* in particular formed glorious masses of golden poppy-like blooms which covered acres of open ground, but the beautiful primulas were mostly out of flower. A gentian, *G. stylophora*, with large yellow flowers as big as a small teacup, was another discovery; but this, though raised from seed by Max Leichtlin, has failed to grow in England. Of lilies I saw only *L. giganteum* in a few places; bulbous plants generally are scarce. Of

birds I hardly collected any, as most of them were now in bad plumage, and we had already worked this range pretty thoroughly.

When I returned to Darjeeling I found that it was still uncertain whether or when the expedition would start. Rumours of the invasion of Sikkim by the Tibetans were rife. Even if we had not been opposed on the frontier, the condition of our transport mules, which had now been for two months exposed on a bare ridge without shelter and with little exercise in the height of the rains, was very unsatisfactory; and I feel certain that if orders had come to start, we should have lost a great many of the mules before getting into Tibet.* Telegraphing between Simla and England continued daily. I fear that if any inquisitive Member of Parliament had asked questions as to the cost of the Mission, the replies would have been extremely unpleasant both to the Indian Government and to Macaulay. But so far as I ever heard the only question asked was why an embassy which was intended to negotiate a Treaty of Commerce included no commercial member; to which it was replied that I was supposed to have the necessary knowledge—a compliment which I neither anticipated nor deserved.

At this time (July, 1886) a change of Government had taken place in England, and I was rather surprised to notice the immediate change of attitude on the part of Macaulay towards myself. Ever since he arrived I had observed a decided coolness, which I could only account for by supposing that he did not want a member of the expedition who, though under his orders for the time being, had nothing to gain or to lose by subservience to his ideas; his dictatorial methods, I thought, characterised the Indian Civil Service at that period and were distinctly prejudicial to independence of thought or action. These methods were said to have been to some extent made fashionable by Sir Richard Temple, who was a Governor of extraordinary ability and energy but masterful to a degree. Macaulay was one of his men and had been inspired with the same ideas, but when he learnt that my brother-in-law, Sir Michael Hicks-Beach, was a member of the new Conservative Government, as Chief Secretary for Ireland, it seemed as though he looked on me as a person whose influence might possibly be useful. Anyhow, for the rest of the time he allowed me to go about as I liked.

I wished to explore a new route to the Tibetan frontier which, from the little information we could get, seemed likely to be a shorter and less difficult route to Chumbi than the roads over the Jelep-la, Yak-la, or Cho-la passes, all of which at that time were in much the same bad or impassable condition for pack animals as they had been when I first visited the frontier in 1870. I obtained the assistance of a qualified surveyor, Mr. Prestage, who was an engineer on the Darjeeling railway, and we started together to examine this route known as the Rishi-la.

I started on August 12th, after arranging to meet Mr. Prestage, who was not able to leave till two days later, on the other side of the Tista. Mr. Paul, who was going to settle up accounts and send away the elephants which had been awaiting the start of the Mission near Rhenok,

* Exactly the same trouble with the mule transport supplied by Government occurred with the Everest expedition in 1921.

accompanied me as far as Kalimpong; and I found the society of this gentleman, who had resided in that district for some time when acting as settlement officer, a great advantage. We took the road *via* Jor bungalow to Pashok, which, though I have previously described it, was as full of interest and beauty as ever. A fresh set of plants had replaced those which I found here in flower in June, mostly Balsams and *Gesneraceæ*, but the grandest plant I found in flower during the day was a tall robust red-flowered *Hedychium*, which grew in the jungle just before reaching the tea plantation of Pashok. The forest at about 5,500 feet before reaching Lopchu was, or had been, one of the most magnificent in Sikkim, but though the giant trees had not been felled, yet some Bhutia cow-keepers had settled in it and by cutting the branches of saplings to get food for their cattle in the dry weather, had destroyed much of its virgin beauty. I thought birds were much scarcer than when I went over this road on returning from Sikkim in January, 1881, with Mr. Godman, but birds never seem so numerous in the height of the rains as they do in the cold weather, and perhaps the agreeable conversations of Mr. Paul prevented my looking out so much for them. Butterflies also were not abundant, and with the exception of a few *Raphicera*, *Lethes* and other *Satyridæ*, I saw nothing worth taking till I descended to about 5,000 feet, where I found the lovely gold and black *Ilerda brahma* common by the roadside on the edge of the jungle. The clouds cleared off as we got out of the forest and descended through the Pashok tea garden to the bungalow, where we found a hearty welcome as usual from Mr. Munro. He was one of the few planters who know or care much about flowers, and I found in his garden, among other things, the beautiful *Lilium Wallichianum*, which, as far as I know, grows nowhere in Sikkim out of this neighbourhood.* A species of *Gloriosa* with smaller flowers than those of *G. superba* and a fine large *Crinum* were also in bloom; the *Crinum*, like the lily, is confined to the dryer spurs of the inner valley near the Tista river. Though Pashok is, at 3,200 feet, but little lower than Mongpo and not more than ten miles north of it, the climate is much drier and the rains are not so continuous. About 80 inches is the average here, against 150 inches at Mongpo, and 220 at Rungbi, which is even nearer. Pashok also seems much more windy than Mongpo, perhaps owing to its situation on a spur above the junction of the Rangit and Tista rivers. But the dryer climate does not seem to affect the crop of tea, which is as large in quantity and good in quality as in other gardens in the district; though not so much is made at the beginning of the season, it goes on flushing longer than on the other side of Darjeeling.

On enquiry I found that *Lilium Wallichianum* grows at about 4,000 feet elevation near Pashok, among brushwood, and makes its growth late in the season after the rains begin, at about the same time as in England. I saw a few plants close to Mr. Milton's bungalow at Lopchu, but the bulbs were small and many of them not flowering. In the garden it attains

* I afterwards found it where it had been overlooked by Hooker near Singtam in Native Sikkim; and there is a beautiful photograph of it in Mr. Claude White's book, *Sikkim and Bhutan*.

four or five feet in height, and bears one to three large trumpet-shaped sweet-smelling white flowers, which do not differ from those which I have grown in England from the North-West Himalayas. The *Crinum* is found in dry soil on the ridge leading down to the Tista bridge among Sal trees; the bulbs of it which I took home in 1881 did not succeed well in cultivation, though perhaps this was owing to want of heat and too much moisture in the resting season. A pretty little pink-flowered plant, *Didymocarpus mortoni*, was a great ornament to shady wet rock, on the face of which it clung at 4,000 to 5,000 feet, but this, like so many of its Eastern congeners, is too fugacious to be suitable for general cultivation in England, like the American *Gesneraceæ* which it represents in the Himalayas.

On August 13th we started early to cross the Tista before it got very hot, as though the weather had been wet and cloudy for some weeks previously, the valley is always extremely hot during the rainy season. We walked down the four miles of steepish descent to the bridge, along a good broad path through the stunted Sal trees, on the branches of which *Ærides odoratum*, *Dendrobium* and other orchids were here and there to be seen; but the accessible trees near the road have been much denuded of their showy orchids by the Lepchas who hawk them about Darjeeling, where they soon perish. *Costus speciosus* was the showiest flower I saw on the descent, but some fine Gingers and other Scitaminous plants are abundant along the road, though not now in flower.

On reaching the river at 8 a.m. I remained for three or four hours to collect butterflies, Paul going on alone. The sun did not come out till 11 o'clock, but I found many nice *Hesperidæ*, *Lycænidæ* and a few *Papilios* of the commoner species. A fine female of *Neope Bhadra*, the only tropical member of its genus, was taken; and a pair of the large grey Sphinx moth were clinging together on a rock where they were difficult to see. I went down the river a couple of miles, and found the road much damaged by landslips, but it was being repaired under the inspection of a babu whom I found quartered in the well-built wooden bungalow which is kept up at the bridge for the use of European officers and travellers. He gave me something to eat, and told me that, though he did not suffer from fever whilst down at the river, he usually had an attack on returning to Darjeeling; and I should advise no one who can avoid it to sleep there between the months of April and November. The fine new iron suspension bridge which now spans the Tista is a great improvement on the old cane bridge by which I crossed it on the same day of August sixteen years before when starting for Tibet with Blanford. What this bridge cost no one but the Public Works Department can say, but there is no doubt that much money was wasted on the heavy iron castings which were brought out from England to carry the wire ropes, but, proving unsuitable, lay rusting by the path. The carriage of any ironwork of this sort over footpaths by coolies is always very difficult, but the engineers in India are, or were, often too fond of ignoring the conditions under which such works must be carried on, and insist on having everything on the same elaborate and expensive scale as if they were in England.

After breakfast I mounted my pony to ascend the long steep zigzags

which lead up to Kalimpong; though the road had been much improved since I last went over it, it remains one of the hottest and stiffest ascents in the district. I got up about 3 p.m. and found Paul in the house which he had formerly built as his residence, but which was now turned into a dak bungalow, as there was no European officer there except the Deputy Conservator of Forests, who had charge of the very large but almost entirely unworked tract of virgin forest in British Bhutan. I rode with Paul to the bazaar, where he was received with marks of respect and pleasure by many of his old enemies, the Marwari shopkeepers. These clever traders have spread all over British Sikkim and Bhutan, and as money-lenders, cloth and grain dealers, they grew rich and prosperous. They would soon have every Bhutia and Lepcha and a good many of the Nepalese in the country in a state of virtual slavery, were they not checked in every legitimate way by the European civilians. Even as it is, many of the simple hillmen, who have no more chance in dealing with them than a Russian peasant has with an usurer, are so much in their debt that they cannot hope to free themselves. These Marwaris are said to act as middlemen between the Tibetan traders and the Darjeeling merchants for whom they act as agents; and many of the Tibetans, who dislike the journey across the hot Tista valley to Darjeeling, stop to dispose of their goods and make their purchases here.

Kalimpong is now the principal place in British Bhutan, and has a police station and dispensary. When I was formerly here there were a few huts; now there is a regular bazaar on the ridge overlooking the thriving, prosperous and well-cultivated valley of the Dikchu. The immense improvement which has taken place in this district, since the Bhutan war, is mainly attributable to the admirable settlement of the country which was made by Mr. Paul. This, together with a good climate and rich soil, has attracted a large number of industrious and peaceable Nepalese cultivators. These men, under the protection of our Government, have turned what sixteen years ago was a mere jungle, with only a few Bhutia and Limboo inhabitants, into one of the most thriving and best-cultivated districts I have seen in the Himalayas. Rice, both dry and irrigated, Marwa and Indian corn, seem at this elevation of 3,000 to 4,000 feet to grow most luxuriantly, and the cattle are also better than in Sikkim. A small plantation of *Cinchona succirubra*, made as an experiment by Mr. Paul, was growing well; and *Cryptomerias*, ash trees and other exotics in his old garden seemed flourishing. The six elephants, which had been sent up for the embassy and which were now going back to Jelpigori, were camped just below the baazar and seemed in very good condition after the long halt; I could not help thinking how different their lot would have been if we had taken them to Tibet, where cold, starvation and work would most probably have soon killed them.

After Paul had received the salaams and offerings of his former subjects, we went on to call on the Lama of the monastery. We found him shut up in solitary confinement in a small portion of his room. He salaamed through a hole in the partition, through which he received his food, and informed us that he was spending three months in retreat, but whether the penance was voluntary, or ordered in consequence of some

breach of religious discipline, he did not say. The Marwa beer which his servants gave us was excellent, as it usually is in a monastery. We then went on to visit Ugyen, the horse dealer from whom I had bought my black pony at Darjeeling. We found him in a large new house with a corrugated iron roof; his old house had been burnt down. One of the rooms was being fitted up by a Chinese carpenter from Darjeeling as a sort of oratory with the usual Buddhist emblems and carvings. His mother, a dirty but well-mannered and very sweet-voiced old lady, received us with great civility and presented pomegranates and Marwa beer. Ugyen showed us a number of Bhutanese cloaks, saddle-bags, swords and other equipment, some of them curious and rather nicely worked in wool and cotton; but though he was evidently anxious to trade, I found his ideas of their value much larger than my own. His father resides in Western Bhutan on the other side of the Juldoka river, where he acts as agent for the Bhutan Rajah in dealing with the Nepalese settlers who are rapidly crossing from our territory into independent Bhutan. The relations between them and the Bhutanese are said to be fairly good at present, but as the Nepalese get stronger and more numerous they are certain to resist the exactions of Bhutanese tax gatherers, and collisions will ensue. Between such a determined, persevering and courageous race as the Nepalese, and a turbulent, cowardly and overbearing set of semi-savages as the Bhutanese, there must sooner or later be quarrels. If the Nepalese are not checked I see no reason why they should not by degrees colonise all that is worth having of the lower parts of Bhutan adjoining the Dooars, and in this case we should find them very much more desirable neighbours than the Bhutanese. The constant struggle for power which is taking place between the various chiefs in Bhutan, together with the anarchy, oppression and misrule which prevail in that country, make it highly desirable that such good neighbours as the Nepalese should be encouraged.

On August 14th, Paul was obliged to return to Darjeeling, so I said good-bye to him, and after some trouble got three coolies to take my things on to Rississum, an easy march of about thirteen miles. Though the population round Kalimpong is so large, and the pay for coolies higher than they can make by carrying their own goods to market at Darjeeling, they are not easy to find, as at this time of year the maize harvest is going on in the lower and warmer fields on the road a little beyond Kalimpong. I called on Mr. Sutherland, a missionary who had been established here for some years, and was working with some success among the Lepchas at Sittong, where he had a small church, and also among the Nepalese in the Kalimpong district. A great improvement in the moral and material condition of the Lepcha converts is already visible, as Mr. Gammie had already told me. They do not wander and change their residence so often, they cultivate better, and do not live so much hand to mouth as formerly. Their family relations are also improving, and though the Lepcha race is dying out and becoming amalgamated by intermarriage with the Bhutias in British Sikkim, yet the mortality from fever and scarcity of food in the spring is not so great as formerly.

The day was hot though cloudy, and the road for some miles beyond Kalimpong being level and easy and mostly through cultivated or grazing

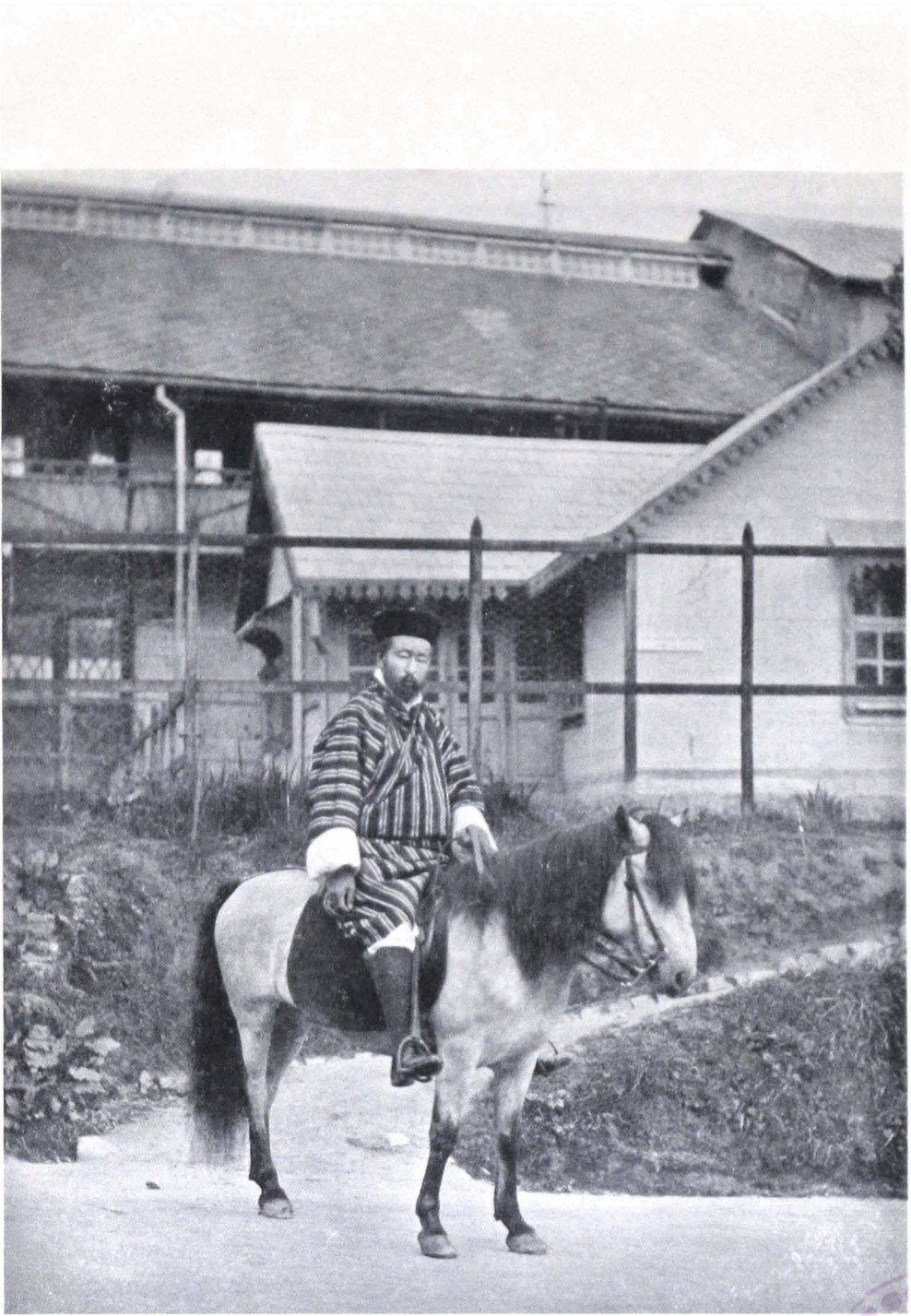


FIG. 4.—UGYEN KAJI, GOVERNOR OF WESTERN BHUTAN.

land, I found little to detain me in collecting. The aspect of the valley below the road was very different from what it had been sixteen years ago; almost the whole of the slope was now cultivated, and only small patches of jungle and a few trees remained by the side of the small ravines round which the path winds. I shot a few swifts, *Collocalia nidifica*, and martins, *Chelidon nipalensis*, which were flying in flocks, and I saw also a few of the large spine-tailed swifts, *Acanthylis caudacuta*, which on account of their extraordinary rapid flight are difficult to procure. All these birds probably breed in the high mountains of the interior, and had now left their breeding-places preliminary to migration; but the breeding-places of the Great Swift, which are said to be in high rocks close under the snow, have not been discovered, and the pace at which the bird flies might carry it in an hour 100 miles from its home.

About eight miles from Kalimpong the road enters the skirts of the forest which covers the higher part of the Dhumsong hill, and there I found at 5,500 to 6,000 feet several plants which I had not previously observed, though they are no doubt found elsewhere. A little pink terrestrial orchid, the graceful though not large flowered *Hedychium aureum* C. B. Clarke, *Didymocarpus pulchra* and *Chirita calva* were growing among others on mossy wet rocks. A few butterflies also made their appearance. So far I had taken nothing but *Hesperidæ*, *Neptes* and *Terias*, besides some large showy day-flying moths of the genus *Euschema*, but now I saw the beautiful *Limenitis zayla* settled here and there on the path. After about ten miles the path branches on both sides. The left hand one goes up to the spot where a small fort or stockade formerly existed; the centre crossed the saddle of the hill and then descends to Pedong, which is the frontier village on the Tibet road; the right-hand path turns along the south side of the ridge to the eastward, and after passing for two or three miles through a dense dripping forest, which contained a bamboo not previously noticed, reaches the new and very prettily situated bungalow at Rississum. This is on a small bare spot 200 feet above the road, and commands a beautiful view over Sikkim and the Kanchenjunga group on the west and of the Cho-la range on the north-east.

The ridge falls steeply close to the bungalow on the north where one looks over on to the deep valley of the Rilli river and the slopes of Rhenok beyond. There is a good deal of clearing in the lower part of the valley and a large village inhabited by Bhutias and Limboos, whose clearings are encroaching on the forest in many places. The bungalow stands at 6,400 feet, and there is a Nepalese settlement near where fowls, eggs, milk and Indian corn can be had. I arrived about four and at once sent off a messenger with a note to the Abbé Desgodins, who lived at Pedong about four miles away. This gentleman was a French Lazarist missionary priest who has resided many years in Eastern Tibet, and had taken up his abode in this isolated spot with two younger priests, in the hope of finding a favourable field for missionary work among the Bhutias. In the evening after a short but heavy thunderstorm, which recurred almost every day that I was in Rississum, the weather cleared, and on the following morning I had a superb view of the whole country up to the Donkia pass. It was a fine sunny morning, and I started early to collect butter-

flies in the forest to the eastward, and to explore the road towards Laba. This road had been opened some time, and though in places rather swampy at this season, it is an easy road for ponies and the principal means of communication with the eastern parts of British Bhutan. It passes through dense virgin forest for many miles, and seems one of the most favourable roads for collecting the butterflies which inhabit the zone from 6,000 to 8,000 feet, many of which are peculiar to the Eastern Himalayas. Half a mile beyond Rississum I crossed a narrow saddle and found on a rock a large patch of that lovely little plant, *Kæmpferia linearis*, a Scitamineous plant allied to *Roscœa*, with dwarf slender stems, and large white orchid-like flowers with purple base and wings. I collected a bunch of it to send alive to Mr. Gammie, and a dozen specimens to dry. It is apparently, as Hooker says, an annual,* and numerous seedlings were springing up. If this plant can be successfully introduced, I believe it should be grown like *Utricularia* in a basket of moss, or on a block like an orchid, and it should succeed in a damp shady greenhouse without artificial heat.

I then ascended gently for a mile or so, shooting one or two green pigeons as I went along, and then came to one or two little openings in the forest where buffaloes are brought to graze. It was too early now for many butterflies to be out, but as I returned I found in this spot *Limenitis daraxa* and other local species. I left my insect collector Bush here to try and catch *Teinopalpus imperialis*, which we had seen in the opening, and went on with Aten alone. As the sun got higher I took numerous butterflies of the genera *Lethe*, *Neope* and *Rhagicera*, which settle on the path and are not difficult to catch as they rise. Most of them were freshly out and in beautiful condition. A little further on at about 7,500 feet I saw a large dark insect sail down the path and by a lucky stroke I secured the beautiful *Neorina hilda*, a rich brown butterfly, four inches across, with a band of yellowish cream colour across the wings and large ocelli below. The female of this is seldom seen in the forest with the male, but I took one on the open top of Jellapahar hill close to the observatory, after a tough race with a soldier who had also had his eye on the prize.

Ascending the slopes of a hill called Khumpong which seems to be the culminating point of the ridge at about 7,800 feet, we heard the sharp bark of a muntjac, or barking deer, in the forest, and we approached with cautious steps. Just as we were coming round a corner where we expected to see the animal, the bark, which is repeated at intervals of a minute or so, suddenly stopped, and a Nepalese policeman on his pony came round the corner and disturbed the deer, much to the annoyance of Aten, who wanted to know what he was doing there. These small barking deer are almost the only large game that one ever sees in the thick forests of Sikkim. The Serow, a larger goat-like antelope, is also found on many of the steeper rocky slopes, but it is so shy that it is hardly ever seen and seldom killed unless you have good dogs to bring it to bay. At the

* In the *Flora of British India*, vol. vi., p. 223, I find that this plant has been described as *K. sikkimensis*, and is considered distinct from *K. linearis* Wall, which represents it in Assam.

top of Khumpong I tried to get a view over the country to the east and north, so as to have some idea as to the route before me, but the forest was so thick that I could only get glimpses of a densely wooded tract of steep hills running up to a long ridge which leads to the top of Rishi-la, the point we wished to reach. The policeman said that the track was so much obstructed by landslips and fallen trees, that it would be impossible to take ponies beyond the turning from the main road; but I have found by experience that the information one gets from those who have not actually been over the ground is often incorrect, and the difficulties exaggerated. Returning from here to Rississum I saw but few birds except the common ones, and the special object of my search, the lovely blue Nuthatch, *Sitta formosa*, which is said to be found on the hills near, remained invisible, though Aten, whose eyes were sharper than mine, and who knew the note of every bird in the district, kept a sharp look-out in the high trees whilst I was searching for butterflies on the ground. I met my pony on the road back and cantered up to the bungalow just in time to avoid a heavy thunderstorm, which drove in my butterfly hunter as well. The few hours of sunshine which one has even during a break in the rains must be made the most of by a collector. Though many of the butterflies in these woods fly more or less even during cloudy and wet days, yet many of them are so rare that one cannot hope to get more than an idea of their variety in a few months' collecting.

In the afternoon Prestage arrived after a long march from Pashok, and brought a brace of Kalij, the black crested pheasant of the Eastern Himalaya, which he had shot on the road. He was provided with a couple of tarpaulin sheets to make tents, and had enough of his own coolies from Darjeeling to carry such supplies as we should need for the next few days. On the following day we did not start till the afternoon as I expected Abbé Desgodins to breakfast. The morning being very bright and fine I spent several hours profitably in collecting butterflies, which came in some numbers to the little open clearing round the bungalow. Among them were the beautiful green *Papilio arcturus*; the very rare *Papilio gyas*, which I had never seen before; the splendid *Teinopalpus imperialis*, of which five or six were flying with great rapidity round the top of the trees, though these were as usual very hard to catch. *Limenitis zayla* and *L. daraxa*, one or two rare and beautiful *Theclas*, and other *Lycænidaæ* were taken. I also saw a single specimen of *Zophæssa yama*, the largest and finest of the genus. The Abbé arrived on foot about eleven with his net, for though not such an ardent naturalist as our mutual friend the Abbé David, whose scientific discoveries in China and Tibet have given him a world-wide fame, he collects insects for friends in France. He was delighted to talk his native language, and gave me much valuable information as to the feelings of the Tibetans, whose language he understood thoroughly. His opinion was that the withdrawal of the Mission would have the worst possible effect on our relations with Tibet, and would make them believe that their hostile demonstrations had frightened us away.

After an animated conversation with our guest we took leave of him about two, and started to overtake our coolies, who had gone on to Pashiteng,

a short march of about nine or ten miles. After crossing the summit of Khumpong we descended about 1,000 feet to a small clearing in the forest called Laba, where a Nepalese had built a house and started a shop. After making some enquiries about the road, we went on three miles to a place where the Forest Department had erected a small wooden house in the heavy jungle. There was a chokidar in charge who admitted us, as in the rainy season, when the ground is swarming with leeches and a dry spot cannot be found whereon to pitch a tent, any sort of roof is better than none. We soon spread our beds and made ourselves comfortable. A sheep brought on from Rississum was killed and divided amongst the coolies and ourselves, and orders were given to be ready to start at day-break. The view from Pashiteng would be very fine if the forest were not so dense, as it lies just at the top of a very steep descent into the valley of the Dikchu and overlooks the Western Dooars which are close below, and the old Bhutia fort of Dalimkote which was stormed by our troops during the war, and where several officers and men were killed by the explosion of a powder barrel. If a really direct and easy road is wanted from Calcutta to Tibet, it must be made somewhere near here, for, as we found in the next two days, a track exists which at very small cost might be made into an excellent pony road from Laba or Pashiteng to the top of the Rishi-la. The night was clear and the morning fine, so we got away by twenty minutes past six, taking five days' supplies for the coolies, who with our three syces, two servants, three shikaris and ourselves made up a party of twenty-one. The track up the steep hill above Pashiteng lay through a dense forest and was so much overgrown with herbage and blocked by fallen trees that the first 1,000 feet took us an hour to ascend. We then got on to the top of the ridge, which was covered with dense bamboo, and plodded for two or three miles along a deep muddy track until we got to the place where the road from Laba came in on the left. As we went along, Prestage's dog occasionally wined a small covey of wood partridges, *Arboricola rufigularis*, which seemed very abundant in this district from 6,000 to 9,000 feet. They run among the dense bamboo, and when flushed either fly up into a tree or go off with a heavy whirring flight. Five or six were shot on the way up to Rishi-la, but they are not very good either for sport or for eating, though with the red monal or tragopan, *Ceriornis satyra*, which is both rarer and shyer, they are the only game birds in these forests. Kalij are only found lower down, and neither the blood pheasant nor the Impeyan descend into these dense damp sunless forests. We found the track very much overgrown with grass and bushes, and had to keep our kukries in constant use in cutting the bamboo which had fallen across it. We took our ponies to see if the path was practicable for them, but I do not think either of us rode a mile during the whole day. I never realised so forcibly how all-important it is to the naturalist to have a good clean open path in order to enable him to see and collect either plants, birds or insects. When the hands and eyes are constantly occupied in clearing away obstructions, and there is no bare ground or open space in which insects can settle or birds can be watched, you get little or nothing. Showy plants also were apparently far less numerous in this forest than on the

road up to Tonglo. On the ascent of Punkasari some miles further on, we passed through one of the most beautiful and remarkable oak forests I have ever seen in the Himalayas, where the ground was fairly clear under the trees; yet the greater part of the immense tract of forest through which we passed was too much encumbered by a dense undergrowth of bamboo and shrubby brambles to have much terrestrial plants of interest.

Water is scarce on the road, but after a succession of short sharp ascents and occasional descents of a few hundred feet, during which we kept due north along the ridge, which leads over the top of the hill called Punkasari, about 8,500 feet in height, we came to a place where two or three decaying huts had been built in the forest. Finding water a little way below the track here, we halted for breakfast and enjoyed a half-hour's rest. The coolies, who were lightly loaded and all Nepalese, came on very well; but though one of their number had been over the ground last year we could not make out how far we should have to go before finding another good camping ground. This place, which is marked on the map, is perhaps the best camp between Laba or Pashiteng and the top of the Rishi-la, as water might not be found further on in the dry season. After a short ascent we came over the top of the ridge, and turning rather to the left descended steeply for eight or nine hundred feet. Then we wound along for some miles either on the ridge or close to it through very dense forest, gradually ascending till we came to a place where a small herd of elephants had come on to the track and followed it up to the top of the mountain. Their marks and the broken bamboos, which were freshly twisted and bent in all directions, showed that they had passed within four or five days, and added much to the difficulty of forcing a passage. On the road we met two wild-looking Nepalese, the only human beings we saw all day, who were bringing down a few wretched sheep from the pasture above. About 2 p.m., as rain appeared imminent and the chance of reaching the top that day was doubtful, we took advantage of a good spring close to the track to camp. Our men drew their kukries and speedily cut down a quantity of bamboo stems, with which they built a level floor or machan, resting on two forked sticks, over which to fix our tent. In the rainy season this is usually necessary on account of the wetness of the ground and the leeches, which, however, were not so bad there as usual. The men also erected shelters for themselves by breaking the joints of a number of bamboos in several places so that they would open out flat; when placed close together and lashed down tight with strips of the outer bark on a light frame-work, bamboos form a really watertight roof. Constant practice has made all these hill-men wonderfully handy in erecting shelters for themselves in the forest, but the hill bamboo is indispensable for the purpose, and all the mats which are used for roofing the temporary dwellings of the Nepalese are made of it. Higher up in the pine forests split shingles are used, and in the hot valleys grass thatching forms a very durable and watertight roof; but bamboo of one sort or another is a *sine qua non* in all Himalayan houses, and is used for every imaginable purpose. We got a comfortable dinner and turned in early. During the night there was a sudden alarm in camp caused by the ponies breaking loose in terror, which made the sleeping natives jump up and yell in

order to frighten away whatever had alarmed them. We seized our guns, thinking that either elephants or a tiger must be close at hand, but, hearing nothing, we tied up the ponies again and went to sleep. As we could find no traces of any large animal in the morning, we concluded that it was a false alarm; but as our ponies were of no use and were in great risk of being lamed by the sharp bamboo stubs and logs through which they had been dragged, we sent them back to wait for us at Laba.

Starting at about 6 a.m. we began soon to ascend the steep shoulder of the hill which led up to the top, and after an ascent of 1,600 feet or more, we came to a place where a long ridge runs down in a north-westerly direction towards Rhenok. This is the British frontier and is marked on the map by a pillar which, however, we could not find. At this point, which is about 9,500 feet, Rhododendrons, *Buddleia Colvilei* and other Tonglo trees first appeared, and the large bamboo was replaced by the dwarf one which grows along the Singalela. The path from here was level for half a mile, following a deep trench among roots of trees, sometimes boggy, and then passing through extremely dense jungle of small stunted trees. Then we had a very steep climb up rocks covered with scrub for about 500 feet. This was the only part of the road that was impassable for ponies. But there would be no great difficulty in cutting a few zigzags, and, as the elephants had found their way up by diverging from the track, it must be easier than it looked. On this climb I found among the dense growth of bamboo some plants of a curious little white-flowered orchid, *Goodyera sp.*, which I had never seen before, a dwarf *Anæctochilus* out of flower, and a green-flowered *Habenaria* with long spurs. At last, about 9 a.m., we reached the summit, but found no place from which a good view of the surrounding country could be obtained, as, though there were one or two very small openings, the whole top of the hill was covered with low forest. To the west and north we could see, over the deep valley of the Jaldhaka river, the ridge up which the Tibet road passes on to the open table-land above Lingtu; to the north a long forest-clad ridge seemed to run from where we were standing into the shoulder of the table-land. With a glass we could just make out the stone blockhouse which had been lately constructed near the head of the steep ascent to oppose the progress of the Tibet Mission. To the south and west we could see but little owing to the cloud which had already begun to rise from the plains, but a long ridge runs south and east in a nearly parallel direction to that by which we had ascended, and in one or two places we made out what we thought to be groves of fir trees in the midst of the forest. As the existence of fir trees in this part of the country, and so near the outer edge of the hills, was unknown to botanists or to the officers of the Forest Department under whose control the whole of this country is nominally placed, I was anxious to make out what the species was. This I succeeded in doing on our descent by sending a man to cut off branches. It proved to be the Silver Fir, *Abies Webbiana*, which I had never seen elsewhere in Sikkim in a mixed forest of Oak, Chestnut and Magnolia; elsewhere it was always in a forest to itself apart from other trees. Sir Joseph Hooker has remarked on the absence of conifers on these wet outer ranges of Sikkim, and the lowest point where the Silver Fir grows on Singalela is

at least 1,500 feet higher than the small clump from which I procured my specimen, two or three miles north of Pankasari and probably not more than 8,000 feet above the sea.

A little way beyond the actual summit we came on a small open place with a pool of rainwater, which, though anything but sweet, proved to be the only water we could get. We camped there and sent Prestage's shikari to look for some shepherds who were said to be about, and whose dogs we could hear not far away. In the meantime I made the most of the sunshine, and caught all the butterflies I could see; but they were both in variety and number much fewer than on Tonglo, and the only species I took were *Zophæssa jalaurida* and *Lethe maitrya*, which were common; two or three *Colias* and a stray specimen of *Pieris Lalage*. Not a single blue or skipper was seen, and birds were conspicuous by their absence. On a bare knoll of pasture just above our camp I found a few very pretty plants of a more Alpine character. The large rosy-flowered *Pedicularis megalantha* was the most beautiful and abundant, but I also found a pretty pink-flowered orchid, *Satyrium nepalense*, a Lobelia near *L. erecta*, *Halemia elliptica*, and a *Phlomis* with heads of lilac flowers, a small pink geranium, *Arisæma Griffithi*, and others of lesser beauty.

After a time the shikari returned with two of the shepherds who were near by with about 200 sheep belonging to a man near Parheteng. They told us that the elephants had crossed over the hill five days before our arrival, that they had descended to the eastward without staying, and that they did not know their drinking or feeding places. Prestage was very anxious to kill a wild elephant if he could get one within the Sikkim or Bhutan boundary, but it was not allowable to kill them in British territory. I do not think, however, that in such extremely dense forest it would be at all easy, and it certainly would be dangerous work, as the dense thicket of bamboo would make it impossible to move freely in many parts of the forest. It seems very strange that elephants should ascend to such an elevation as this, but it is their regular habit during the rainy season; Mr. C. B. Clarke told me that when returning from the Yak-la pass in May, he came on the fresh tracks of wild elephants in the snow at an even higher elevation. The number of elephants which frequent the Western Dooars had been diminished by the numerous clearings for tea cultivation and the large immigration; but they are still numerous a little to the eastward, and elephant catching, by means of trained females and nooses, is a regular occupation along the edge of the Dooars. The right of elephant catching is annually farmed out in the district, as in Assam, to the highest bidder, and as the elephants during the rains are often in Bhutan territory, some of the hunters take advantage of having purchased permission from the Bhutan authorities to poach in British territory. My friend Mr. Knyvett, the police officer in charge of the district, had received information that this poaching was going on, and in August, 1886, he took measures to stop it. A letter describing his adventures on this occasion is so interesting that I transcribe it here.

“ Our suspicions were aroused last year that the elephants, professedly captured in Bhutan, really belonged to British forests. It was possible,

of course, that along such a boundary as ours is there should be tracts of forest and valleys in which the elephants might be noosed. But in the nature of things such places must be few and far between, and hardly capable of yielding the continually increasing number which were being led out. The time selected for hunting operations was during the height of the rains, and this was suspicious, as at this time of year the police outposts are withdrawn, and the Dooars during that time are considered most unhealthy for natives and deadly as far as Europeans are concerned. Then there had been much enquiry lately to get more passes from the Bhutan Government, and they, ignoring the fact that they had already leased the whole of their Dooar jungles to one man, accepted subsequent tenders from others and granted leases two or three times over. This awkward matter was arranged by the parties interested, which was also a most suspicious fact.

“All doubts, however, were set at rest by information we received a few days before we started for Buxa. An old Phandait (nooser), with a face like Judas Iscariot and similar motives, came in and betrayed his quondam employers and put me in possession of full information of what had been going on for two years. Fourteen elephants had already this season been taken out of British Government forests, and three parties were at that time actually at work. Mr. Dalton, Deputy Commissioner of the Division, and I decided to take up the case ourselves to prevent anything like escape by bribery, which of course in such a case would be freely resorted to, or by hard swearing and false witnesses if bribery failed.

“Accordingly, on September 14th, we started with Major Gordon, Superintendent of Cooch Behar, for the *Pana nuddee* about fourteen miles west of Buxa, and reached the elephant catchers' camp at sunset. It was situated on a small spit of land between two rivers with perpendicular hills like walls at the back, on Bhutanese ground. The party had captured five elephants and taken them out to graze, and in bringing them home it was apparent that they would have to cross a point which lay on British territory; so we waited for them here and soon arrested them. There was a faint show of resistance at first, but as soon as the fact had been digested that the Sahibs were out, and there was no hope of any kind except in unconditional surrender, they gave in, and by night-fall we had the whole party, mahouts, koonkees (tame females used for catching the wild) and newly caught elephants safely in custody, and before going to sleep we recorded the full confession of the principal man. One old snarer only held out, and with that inimitable ease which in such case a Bengali only possesses, swore roundly that all the captures had been made on Bhutan territory, and actually pointed out one or two hills to mark the spots where his story might be verified. However, he gave in by two the following morning.

“On the 10th we made another excursion to a place about ten miles to the east of Buxa. The nest was empty, but we got all the local evidence we wanted, and started homewards with the knowledge that five more wild elephants were on their way to a certain place a day's journey off, and would in a short time become Government property. This was the day

we were lost in the jungle; I think I sent you an account of our adventures. We had been from 9.30 a.m. till 12.30 a.m. on pad elephants and did not get to our camp till 2.30 a.m. Well, to make a long story short, we have in all seized thirteen elephants up to date, and have information of eleven more, which sooner or later must fall into our hands. That makes twenty-four! Not a bad haul for Government, as the men who caught them may be fined at the rate of 500 rupees for each elephant, so that we deserve well of Government. But it's all in the way of duty, and I've no doubt they will abolish us or cut down our pay to-morrow if it suited them. The Government and its sins, and their effects on us, the working bees of the service, is one of the burning questions of the day."

This long digression well illustrates the energy and activity of some of the ill-paid police officers on the Northern frontier, whose service is spent in a climate so unhealthy that only the toughest of them are able to carry on their work without frequent attacks of fever, whilst their constant endeavours to check and punish the almost universal corruption of their native subordinates meet with but little success.

I will revert to my own story. We found the shepherds established in little temporary bamboo huts in a small marshy open spot in the jungle. Their sheep, which were guarded by large dogs, were lying in groups close to the huts for safety, as tigers or leopards were in the close vicinity and had killed four sheep within a day or two. Whilst creeping through the jungle in search of plants, we came on the fresh tracks of what was either a small tiger or a very large leopard, and found the remains of two of the sheep. This life, in a constant state of wet, harassed by wild animals, and without any food except the milk of the ewes and Indian corn carried up from Pashiteng, must be very trying, but the children of these hardy Nepalese, clad in very scanty woollen jackets, and always barefooted among the broken stubs of the bamboos, seemed as happy and healthy as children could be, and I cannot help thinking that their savage life is preferable to the life of children bred in the slums of large English cities.

We explored the path for some little way along the ridge, but the drizzling rain which came on and the density of the bush made it impossible to see where we were going. As the shepherds said that the nearest inhabited place was many hours distant through dense forest of the same character as that we had passed through, we soon returned to camp, much disappointed with the results of our exploration. No doubt if a few thousand acres of this hill-top were cleared, it would, in a few years, become good pasture for sheep and cattle, like the top of Tonglo. The evening was very wet, but the night was clear and cold; we slept very comfortably in our tent, and the men, though they had no blankets and only very bad water for cooking, seemed very happy in the morning. I got a few moths at the candles before going to sleep but hardly any differing from those caught on Tonglo and far fewer of them.

In the morning we started before seven with the intention of getting back to Laba at any rate, and to Rississum if possible. The descent was much easier than the ascent, as the path was now more open and there were no delays in getting the ponies over the bad places; as there was

nothing to detain us on the road except an occasional shot at a wood partridge or a pigeon, we made good way, and passed our previous camp long before breakfast. The coolies also, having exhausted their food, and knowing that there was nothing to eat nearer than Laba, marched splendidly, and when we stopped to breakfast in the fine open oak forest of Punkasari they were nearly all up. Having made a splendid breakfast on a box of biscuits and a tin of delicious cooked tongue, we went on like giants refreshed, and, walking steadily, reached Laba at half-past three; the last hour it rained in torrents, and the track was like a wet ditch full of leaves and mud, which would soon have destroyed the soles of the feet of any but these Himalayan mountaineers. After I had halted for an hour to drink tea and change my clothes in the hut at Laba, the coolies, who had come up, said that they could go on to Rississum, and we got there at dark without anyone falling out. This march of about twenty-one miles, of which fifteen was very bad travelling, does not seem much on paper, but it took us eleven and the coolies twelve hours of steady going with only two or three halts. I should advise anyone following our steps to camp the first night on Punkasari, which would divide the distance very fairly, and allow time to get into camp on the Rishi-la without fatigue.

Next day we went on to Kalimpong. I caught the rare female of *Lethe bhairava* in the Dumsong forest, and Prestage shot one of the red and black hornbills which are not uncommon in this forest. But the road to Kalimpong is not a good one for collecting at that time of year. I noticed that the *Tenas hecabe*, which were very abundant, were much smaller and less strongly marked than those taken in the Tista valley, 4,000 feet lower. On August 21st we left Kalimpong at half-past six and walked down to the Tista bridge, where I left Prestage, intending to return myself to Darjeeling *via* Mongpo. The day was sunny and intensely hot in the valley. One of my ponies, who had cast two shoes, was too tender on his feet to ride, and I reserved the other for the long ascent in the afternoon. The journey of nine miles along the river-side was very trying, owing to the heat, and whenever we came to shady places we wetted our heads to cool them a little. When I left the valley of the Tista at the point where the Ryeng river comes in from the west, I soon found that landslips had made it nearly impossible. After dragging my ponies through dense bush to avoid a dangerous place, I found a landslip which could not be avoided by any detour, so I was obliged to send the syces back with them to go up a side path which leads to Gielle tea plantation far up on the hillside, and go on myself without them. In one place only a few inches of earth were left of the path, on the side of a perpendicular bank, which we crossed in fear and trembling lest it should slip under our weight, and then we got on to the débris which had rushed down from the upper valley during the great rains of June. After a mile of this we came to the river, which luckily was not so high as usual, or it would have been impassable. The bridge being washed away, we had to make one, and here the pluck and handiness of my Nepalese bearer, Coolman, were well brought out. The longest bamboos we could find were only just long enough to span the torrent, and sagged down so much in the middle that the water rushed over them. Coolman with some risk managed to drag

himself along them through the water to the other side, and then we piled up stones to support a handrail. The whole structure was so shaky that I should not have ventured to cross it if Coolman had not already done so, and even with bare feet I found it very difficult. One of the coolies also got over with his load, but the others refused to do so seeing how dangerous the crossing was. Coolman stripped again and went back. I waded out as far as I could to support the bridge on the lower side and he carried the loads over successfully, one by one, much to my admiration. It is impossible to live and work with men like these Nepalese without feeling for them a respect which one never has for Hindus.

After we were all safely over the stream, I rested a couple of hours in the shade by the river before beginning the long hot ascent to Mongpo. I watched the flight of the great gorgeous butterflies which came up and down the stream, sailing in and out of the foliage as if searching for suitable roosting-places for the night. I have never been able to understand how these large insects manage to protect themselves during the torrential rains which so frequently occur. When there is no wind, the undersides of large leaves no doubt give shelter, but when every leaf is in a state of violent agitation, many of the butterflies must be almost drowned; in fact, they soon lose their freshness, so that, of a dozen which one catches, not more than one or two are absolutely perfect. The road up to Mongpo, a constant ascent of 3,000 feet, was very fatiguing, and the stifling air of the lower half of the road made me think it longer than ever. When after two or three miles I reached the lower groves of cinchona, the sweet scent of the flowers filled the damp hot air, and attracted many butterflies, *Pienda ornithoptera* and *Papilios*, which I was too tired to pursue. Half an hour before dark, a pony, kindly sent down to meet me by Gammie, was welcomed as I had never welcomed a pony before, and the cool of the evening and a good dinner soon made me forget the exhausting labour of the day.

At the Bath meeting of the British Association in 1887 I read a paper on this survey, and when I went down to Calcutta after the dispersal of the embassy I discussed the matter with Sir Richard Temple. But he had already another plan in his head, and I did not succeed in convincing him that the Rishi-la might be made at a comparatively small outlay into the easiest and most direct route between the plains of Bengal and Tibet. As I have not been over the cart road which was subsequently made in order to facilitate the military expedition to Chumbi which was the sequel to our embassy, I cannot compare the two routes.

On reaching Darjeeling I got the news that the Mission was abandoned. The Indian Government had made a bargain with the Chinese, that if the Mission was given up the Chinese Government would at once appoint a commission to delimit the frontier of Northern Burmah which had been a burning question for some time.* Though we were all very much disappointed at the time, yet I am now sure that the Government were right in this action, as by this time the Tibetans had practically declared war by occupying and fortifying a place called Lingtu in Sikkim, which they had never even claimed as their own. This led to the military

* This was the Anglo-Chinese Convention of July 24th, 1886.

expedition to Tibet in 1888, when a force of European and native troops crossed the frontier and, after a few skirmishes with the Tibetans, occupied the Chumbi valley which we certainly should have retained. As, however, the history of this expedition has been fully written and I had no part in it, I will say no more on the subject.

I had an invitation from C. B. Clarke to spend a month with him at Shillong in the Khasia hills, and gladly availed myself of this chance to see a new and most interesting country which has never been better described than in Hooker's *Himalayan Journals*. I therefore packed up all my collections, paid off my servants and settled up my expenses with the Paymaster's Office at Calcutta, which led to some curious correspondence. I had kept vouchers for all the expenses which, under my agreement with the Government, were incurred since my arrival at Calcutta, and I was careful to leave out everything about which there could be any reasonable doubt. But the clerks in the Paymaster's Department seemed to think that they would not be justifying their existence if they did not cut off a little here and a little there, and they took particular objection to a charge for horseshoes and shoeing which had been paid to the Farrier Sergeant of the mountain battery at Darjeeling. I had at last to write a letter pointing out that I was not in the habit of falsifying accounts or attempting to rob the Government, and that if they would not pay the account in full I would take nothing at all but submit the matter to the India Office when I got home. I was told that no one in the service in India would venture to do this, as it would bring them into bad colour with the Paymaster's Department, and that it was quite simple to add on to other items what had been cut off from the disputed ones. Whether the correspondence ever reached the desk of the Paymaster-General or not I cannot say, but I eventually carried my point.

Our mules, after staying three months on the ridge where they were obliged to remain picketed, were sent down to the plains, leaving an immense mass of refuse and manure. A neighbouring tea planter thought that this would make some very useful manure for his plantation and wrote to the officer in charge of the station to know whether he might remove it. This gentleman, who was a bit of a wag, replied officially to say that at present "he had no instruction to dispose of the only tangible results of the late embassy to Tibet." This joke was told everywhere and made poor Macaulay furious; in fact, I believe that he never got over the disappointment and loss of kudos which the failure of his scheme entailed. We parted very amicably, but I never saw him again, and he died in India a few years later.

CHAPTER VIII

A TRIP TO THE SINGALELA RANGE IN THE RAINS, JULY, 1886

Elwes was never the man to waste time that could be turned to profitable account. While the Tibet expedition was waiting at Darjeeling through the rainy season, he determined to make a short collecting trip to the Singalela range. A full journal of this trip was left among his papers and is now printed as it stands. It illustrates both his keen powers of observation and his vigorous descriptive style.

As the high range of hills which divides Sikkim from Nepal on the west has been very little visited in the rainy season, I took advantage of a few days of fine weather, after a month of almost unceasing wet and mist, to visit them. Now that a good pony road has been made as far as Thallut, four good marches from Darjeeling, and comfortable rest houses are erected at the end of each day's journey, no tents or crockery need be taken, and the traveller is sure of a dry and warm shelter at night, however wet the march may be. A few coolies to carry bedding, provisions and clothing, with a Lepcha butterfly catcher and plant collector, were therefore soon ready to start, and favoured by a fine morning, I got away from Darjeeling on July 11th, 1886. The road along the Goom ridge lies at a level of from 6,000 to 7,000 feet for ten miles, most of which is through a dense forest of the usual Sikkim character—oaks, laurels, chestnuts and magnolias, with a dense undergrowth of maling or dwarf bamboo in many places, and a thick scrub of *Rubus* and shrubs in others; the ground is covered with ferns mixed with *Melastomas*, *Begonias* and several beautiful *Arisæmas*, with *Vaccinium*, *Cælogyne*, *Pleione*, and other orchids, ferns and mosses. Many of the birds peculiar to Sikkim frequent this forest, which, being protected by Government, has not been devastated by clearings, woodcutting and burning, as many of the forests at a lower elevation have been.

Butterflies at this season are not conspicuous or numerous, but as I go along I see many specimens of a small *Lethe* which I do not know, flitting along the road and settling on the path, and I am able to take a good series of fresh specimens. *Papilio minercus* is once seen flying over the tree-tops, and single specimens of the lovely *Limenitis Zayla* and *Pieris Horsfieldii* are also taken. The latter insect seems to be peculiar to elevations of 6,000 feet and upwards, whilst its variety *P. Isthiela* (Buttler), as far as I have been able to see, keeps lower down. As usual in the rainy season in Sikkim, mist and rain come on in the afternoon, but I reach Jorpokri bungalow in good time and find lunch ready. In the afternoon I take a fine male of *Athyma jina* which settles on the path in a short gleam of sunshine, and see one or two *Neptis*, probably *N. inara*, settling on the tree-tops. In the evening a few fine moths come to the light, but not so many as usual, owing to the moonlight. Next morning I am off at six. The morning is cloudy, but clears off as I descend the dip of 1,000 feet to the saddle where the ascent of Tonglo begins, giving a beautiful peep

of the snowy mass of Kanchenjunga. The ascent is very steep at first, and only a few *Geometers* settled on the rocks by the roadside to reward my search. As we got higher into the dense forest of dwarf bamboo, the timber in which is mostly destroyed by fire, I had a glimpse of an unknown butterfly, and waiting till one settles on the road, I am delighted to take the delicately marked *Zophæssa Atkinsoni*. Three specimens, however, are all I can get during the day, as the range of this insect seems here to be only from about 8,000 to 9,000 feet.

Turning off the ridge overlooking Nepal, the road now goes for four or five miles through a dense shady forest of smaller trees than on the Goom ridge, the undergrowth of bamboo being generally so dense that it would be quite impenetrable off the path. The beautiful long-tailed blue Magpie, *Urocissa flavirostris*, is seen once or twice; whilst *Trochilopteron*, *Leiothrix*, *Minla* of several kinds, and other peculiar Himalayan birds occasionally appear in small parties. Only one of our party has a gun, and he confines his attention to the green pigeons, which are fairly abundant. The red Monal pheasant or Tragopan (*Ceriornis satyra*) is also found here at 7,000 to 9,000 feet, but it is so shy and difficult to see that only in the early morning may it sometimes be shot on the path, or, when its loud wailing cry is heard at daylight, followed into the gloomy recesses of the forest.

As I ascend to 8,500 or 9,000 feet I come to a very small break in the forest, where some *Potentillas* and other herbaceous plants are growing on a bank, and the sun now becoming warm, I begin to get my butterfly net into use. *Zophæssa jalaurida* and *Lethe maitrya* are the two first insects I take. Both of them, strange to say, were first taken by Mr. de Nicéville together on the Jalauri pass in the Simla hills; though very abundant on the Singalela range from Tonglo to Sandakphu at 9,000 to 12,000 feet, they are seldom or never seen in collections made at Darjeeling. They both fly rapidly, on cloudy as well as sunny days, settling on bamboo leaves on the path and on rocks, where they apparently roost at night and may often be bottled without difficulty like moths. Now a splendid green *Papilio Krishna* settles on a bramble flower, and is secured by a rapid sweep of the net, though it is not now in perfect condition. Sinchul, the hill close above Darjeeling, seems the best locality for this grand insect, which has been abundant this season in May and June, while the female, which I have never seen in any collection in Europe or India, has been taken this year on Tendong by Mr. Moller's native collectors. *Argynnis Childreni* also appears, but flies too fast to be caught, as well as a few *Neope putala*; these have very much the same habits as the other *Satyridæ*, which seem to be almost the only butterflies in any number flying between 8,000 and 11,000 feet, in the outer hills at least. Continuing the ascent, which at last becomes steep but everywhere quite easy for ponies, we at last, at a little over 10,000 feet, come out on the top of Tonglo, where *Rhododendrons*, *Birches*, *Viburnum*, *Mountain Ash* and some *Araliaceæ* are the most noticeable trees. We find a nice little bungalow close to a small marshy flat covered with *Iris Clarkei* which at this season is in full flower. *Arisæma Griffithi*, whose great purple and flesh-coloured spathes are now over, and other *Aroids* and herbaceous plants cover the ground,

which in many places is swampy or covered with bamboo scrub. The coolies begin to come in, as heavy rain comes on, and in a couple of hours a comfortable dinner is ready by a warm fire of rhododendron wood; for though at this season the nights are never cold, and the sun in the day oppressively hot when it shines through the mist, which almost always rises from the valleys by 10 or 11 a.m., yet a fire after dark is always comfortable. As it gets dark, the moths begin to come into the verandah in some numbers, and for an hour or so, before the moon rises, I have enough to do, to net, bottle and pin the numerous and beautiful species which occur here. Many of them are of the same genera as our English moths, but in every genus, as is the case also among the birds and plants, there are one or two more species of surpassing beauty, and some of the *Bombyces* and *Geometers* are among these. As they have never been systematically collected here or at other high elevations in Sikkim, I preserve all I can get on this and succeeding nights, and as a rule I find that on wet dark nights I get a large number, whilst on clear moonlight nights very few come to the light.

On the following morning we start as soon as possible for Sandakphu, a march of fourteen or fifteen miles entailing descents which probably exceed 2,000 and ascents which exceed 4,000 feet. This march should not be attempted in winter unless the coolies are started at the latest by eight o'clock, as the last ascent of 500 feet to the bungalow is very trying in cold frosty weather, and the road, though fairly good, is up and down all the way. After a couple of miles along the spur, which rises again beyond Tonglo, the road descends along the east side of a steep mountain covered with a dense dripping forest. Along the side of the road I collect the seeds of the beautiful and distinct *Primula imperialis*, which flowers in March when snow and frost often prevail. As we descend to the low saddle about five miles from the bungalow an occasional spike of the giant lily may be found in the dense tangled forest, whilst *Polygonatum*, *Roscoeæ*, *Pleione humilis*, *Vaccinium ferus* and many other beautiful plants cover the trees. It must not be supposed, however, that flowers ever make a great show in these Sikkim forests. Except when the Rhododendrons, which are now all over, flower, there are but few conspicuous or showy forest plants, though at all seasons some curious and beautiful flowers can be found. Butterflies also on this range are very few in species, and in the whole of this march of sixteen miles I saw not a single specimen of the *Lycænidae* and only one little black Hesperid. *Lethes*, *Zophæssas*, *Neope*, are the only visible butterflies of the forest, though as we ascend to the more open hills, at about 14,000 feet, a few *Coliás Fieldi*, a single *Raphicera Moorei*, and an occasional *Pieris canidia* are taken. The run of the Himalayan mole now and then crosses the path, but not a single mammal of any kind is seen, though a few Goral, or Himalayan chamois, and an occasional bear, are to be found on this range when the shepherds, who at this season occupy the best pastures, are absent. The curious cat-bear (*Ailurus fulgens*) also inhabits the forest at 7,000 to 10,000 feet, and is sometimes shot or snared by the native shikaris.

The birds which frequent this range are a mixture of those curious

Himalayan genera which frequent the bamboo jungle at 9,000 to 12,000 feet, as *Ixulus*, *Minla*, *Proparus*, *Trochalopteron*, *Suthora*, etc., with European genera such as *Certhia*, *Sitta*, *Parus Nipalensis*, *P. Æmodius*, *P. dichrous* and other tits. Quietly riding along the road I see a small party of that curious bird, *Heteromorpha unicolor*, and a pair of the rare and delicate *Suthora fulvifrons* are creeping amongst the bamboos in company with the extraordinary scimitar-billed *Xiphirhynchus superciliaris*; the two first with bills of remarkable shortness, and the latter with the longest bill of any Passerine bird found in India, though all three frequent the same sort of ground and seem to live on the same food. After ascending to 11,000 feet we come on the first stunted silver firs, *Abies Webbiana*, the only conifer which is seen on this ridge. A short descent of 500 feet then brings us to a saddle where a small patch of ground is covered with a curious and to me unknown dwarf *Roscœa*, whose roots I hope to introduce into English gardens. Another dwarf arum with huge flowers is scattered among the herbage and will, I hope, accompany the *Roscœa*, together with a large-flowered Fritillary and a remarkable *Trillium*, the only representative of its genus in the Himalaya. A stiff climb up to Sandakphu lands us on a charming fir-clad knoll, from which on the Sikkim side you look down, when the mist allows you, on a great valley filled above with virgin forest of firs, and gradually descending into the same kind of vegetation through which we have been ascending. On the Nepal side a broken country of forest-clad hills, with their lower spurs cleared by cultivation, is unknown to European travellers; beyond there is, when clear, a grand view of the finest and highest range of mountains in the world, extending from distant Everest in the north-west, Kanchenjunga right in front of us, and far away to the north and north-east by the many snowy peaks of Donkia and Kanchenjau, gradually lowering down to the here comparatively trifling elevation of 17,000 feet in the eastern range of Cho-la. But for this we must wait for one of those rare mornings which allow this unique view to be seen in all its glory. As I saw it on a frosty night by the light of the full moon in January, 1881, I do not think there can be any view to surpass it. And though on this occasion we only got a partial view above the sea of clouds which invariably accumulate during the night in the hot valleys of Sikkim, yet the sight was alone well worth a journey of double the distance, and must be left to those more skilled in word-painting than myself to describe.

The coolies drop in by degrees, tired with their long march, but only one seemed the worse for it, and he, a half-clad, half-starved Nepalese boy, is soon recovered by a warm night's rest, and a dose of that invaluable medicine, Chlorodine. The night as usual is wet but not cold, and the wind which blows softly from the north-west in the morning has nothing sharp or biting in it.

Allowing our men a day's halt, I ride on along the ridge to the next mountain-top on this range, Sabargam, about the same elevation as Sandakphu, and eight or nine miles distant from it. The road lies alternately over open glades of pasture land covered with *Potentillas* and other sub-Alpine plants, a grazing ground for small flocks of horned Nepalese sheep, whose wild shepherds hut themselves in temporary sheds of

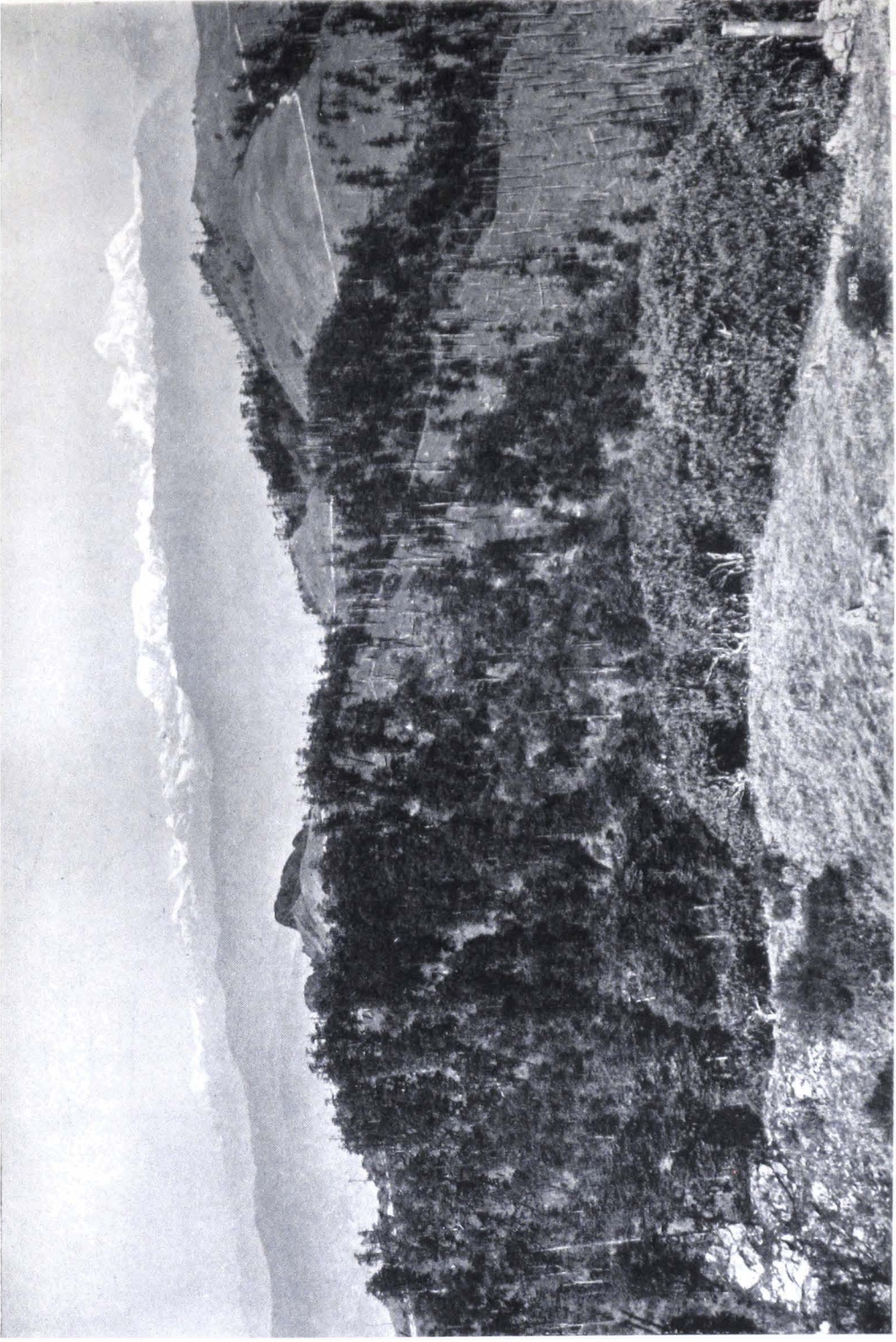


FIG. 5.—KANCHENJUNGA FROM THE SINGALELA RANGE.

bamboo, and then through forests of *Abies Webbiana*. A striking contrast this to the dense sub-tropical vegetation of the last two days, but yet there is nothing Alpine about the scenery except the snowy panorama to the north, and there are few or no truly Alpine plants such as Saxifrages, Sedums, Primulas, Gentians or Pedicularis, which form such a wealth of floral beauty on the higher mountains of the interior. No Alpine butterflies fly over these pastures and, except for an occasional *Argynnis lathonia*, and a number of the fine black and white *Satyrus padma* on the skirts of the pinewoods, I hardly see a butterfly all day. A few small *Geometers* occasionally flit across the path, but birds and animals are scarce, and the tap of the pied woodpecker, *Picus cathpharius*, the croak of the curious *Conostoma æmodium*, and the Sikkim nutcracker, *Nucifraga humispila*, and the chirp of the beautiful black and yellow *Tarsiger chrysæus* or rosy finch, *Propasser thura*, are almost the only sounds which meet the ear. *Meconopsis Wallichii*, perhaps the most beautiful herbaceous plant in the world, as I think, is, however, in great profusion and was at 11,000 to 12,000 feet more forward in flower than at Tonglo and lower elevations. Imagine a large rosette of leaves clothed with long golden hairs, which, when covered with raindrops, glisten in the sunshine, running up into a branching spike of golden green buds covered with similar hairs, and opening from the top downwards into large poppy-like flowers, normally of a bright pale purple, whose centre is filled with a mass of golden anthers. In this locality these flowers vary in colour from pale lilac to a deep claret red, and with their congeners *Meconopsis nepalensis* and *M. simplicifolia*, both found in Sikkim in other localities, are the greatest ornaments of those few English gardens where they thrive. The shape of the fir trees also attracts attention, for they are unique among those of all the pine forests that I have seen, in the numbers of tree-ferns and shrubs growing on them as epiphytes and in the extraordinary contortions of form which their giant trunks assume. They are such trees as Gustave Doré imagined and tried to draw, but never saw in nature, and though, owing to forest fires, they are already in many cases dead or dying, and no young seedlings seem to be coming on to replace them, they are worthy of the attention of any lover of nature. Imagine a gnarled trunk five or six feet in diameter covered with long waving moss and buried in ferns and vacciniums, and branching sometimes into four or five great trees, twisted at all angles from an upright course, and bearing on their branches, or on the half-rotten crevices of their trunks, large maples, aralias, or mountain ash, and sometimes all these on the same tree. I presume that the strange forms assumed by those trees are largely owing to their growth being so smothered by the epiphytes which the damp climate allows to grow; and the strange absence of conifers in the outer hills of Sikkim must be attributed to the same cause, as first pointed out by Sir J. Hooker. A good deal of Aconite grows on this ridge, from 10,000 feet upwards, and is considered poisonous to sheep, cattle and horses at some seasons of the year. The sheep are all muzzled with little bamboo muzzles when passing over or along this ridge in spring, but at this season, probably owing to the abundance of other herbage, animals do not appear to touch the plant.

The road continues for eight or ten miles beyond Sabargam, passing another rest house at Phallut. Instead of returning by the Tonglo road an agreeable and interesting route may be taken to Darjeeling by continuing along the ridge to the Islumbo pass, so called in Hooker's *Himalayan Journals*, but now known as the Chiabunjun or Singalela pass, which descends by a steep track, passable for ponies in the dry season, to the monasteries of Pemiongchi and Sanga Chelling, and so to Darjeeling, either by crossing the Little Rangit and going along the high forest-clad ridge between it and the Tista and descending by Namchi, or by the route described by Hooker along the Little Rangit valley. As, however, our plans did not allow this, and I had previously made a trip in the reverse direction, I returned from Sabargam to Sandakphu, rain coming on in the afternoon. The weather during our trip was either unusually fine, or the amount of rainfall on this range was not so great as at Darjeeling, for we never during the seven days of our stay on Singalela had heavy rain till late in the afternoon, and the nights were only partially wet, giving us on two occasions fine though not cloudless views of Everest and Kanchenjunga.

The return journey to Tonglo need not be particularly described, though several fine plants and insects not observed on the outward route were obtained. Among them I may mention a very fine yellow Gentian-like plant, three or four feet high, with flowers as large as a small teacup, and a curious large-flowered *Chirita* or allied plant, found high on Tonglo. Abundance of the beautiful delicate little *Pleione Hookeri* grows on the rhododendrons and other trees at about 10,000 feet for some miles on the road; and two of our prettiest garden shrubs in England, *Leycesteria formosa* and *Hypericum patulum*, were both abundant on the east side of Tonglo at 9,000 feet.

On ascending the high bare ridge about two miles north of Tonglo, on one of the days of our stay there, I was delighted to see one of the finest and most unique butterflies in the world, *Teinopalpus imperialis*, generally known among Darjeeling collectors as the Sinchul butterfly. As I do not think its habits have been described, I will say a few words about it. The genus is monotypic among the *Papilionidæ*, and the insect is a splendid mixture of green and gold with long pointed tails on the hind wing. It appears to be confined to the forest-clad tops of the outer hills of Sikkim, having, to my knowledge, only been taken on Sinchul, Tonglo, and Tendong at from 6,000 to 10,000 feet. The male flies on sunny mornings in June and July, with a very strong sailing and somewhat jerky flight, between nine and eleven o'clock, and settles occasionally on stones or trees, generally out of reach of a net; but, being bold, it may often be attracted within reach by a bait. The female, however, which probably remains in the dense forest at the tops of the trees, is hardly ever seen, and as far as I know, only six or seven specimens have ever been taken, though very high prices are offered by collectors. Indeed, to take a female of the "Sinchul wallah" is looked on by the numerous professional butterfly catchers in Sikkim as the height of success. The food plant and larva, formerly unknown, has now been discovered by Knyvett, who found the larva feeding on *Daphne nipalensis*.

The three nights of our stay in Tonglo on the way back were even more productive of moths than at first, and yielded a rich and varied collection, some of the insects being of large size and splendid colouring. The heat, however, of the sun, even at this elevation, is so great, and the absence of cold winds at night so marked in the rainy season, that the climate is well suited to nocturnal insects. A curious red flying squirrel (*Pteromys magnificus*), two feet in length, was brought in by one of the forest guards during our stay here, giving another of the numerous instances of the prevalence of tropical forms at high elevations in Sikkim. The trees at 6,000 to 7,000 feet are now becoming gay with the flowers of a large yellow epiphytical *Roscœa*, which I believe to be *Lutea*. There is another much smaller plant of the same character growing with it, or perhaps 1,000 feet lower down, called also *R. Lutea* by some; flowering a month earlier, it has now bright red berries enclosed by blue capsules, and differs in this respect so much from *Roscœa* that it must, I think, be placed in another genus.

The absence of any catalogue of the Sikkim monocotyledonous plants, however, makes it impossible to name them with accuracy except at Kew, though the approaching completion of the *Flora Indica* will soon, it is to be hoped, enable all the beautiful *Scitamineæ*, Orchids and Aroids of these hills to be named as certainly as those orders which have already been described in that invaluable work. The return journey to Darjeeling was marked by no incident of importance. A splendid fresh female of *Papilio muciercus* was captured on the road at about 8,000 feet, showing that there are two broods of this fine forest insect. A single male of the lovely and very local *Raphicera satricus* was also taken at about the same level. On the whole, I think that I never enjoyed a more pleasant or profitable week's excursion in any part of the world with so little fatigue or inconvenience.

Some of the new Lepidoptera taken by me on this trip were described in the *Proceedings* of the Zoological Society for 1887; some in a catalogue of the Lepidoptera of Sikkim in the *Transactions* of the Entomological Society for 1888, pp. 269-465; and a large number of moths in a list of the *Heterocera* of Sikkim which Mr. Duthrie and I commenced in the *Journal* of the Bombay Natural History Society. Sir George Hampson described the greater part of the moths in *The Fauna of British India*; and the collection which I afterwards disposed of to Lord Rothschild contained the types of about 350 species which were added to the Indian list of my collection.

CHAPTER IX

THE KHASIA HILLS, 1886

I HAD a rather trying journey from Darjeeling to Gowhatty in Assam, partly by steamer, partly by rail, and partly on horseback. On arriving there I found that I could go by tonga to Shillong sixty miles off, and by starting at daybreak do the journey in the day. The tonga appeared with a pair of weak half-starved ponies and my baggage went in a bullock cart. Though these ponies were changed at very short stages, and I think there were as many as ten relays in the sixty miles, they were quite incapable of going out of a walk. When the ascent was at all steep, they could only be kept going at all by continual thrashing. A Bengali is generally a brute to animals which are not his own property, but these wretches were themselves suffering from malaria and treated their miserable beasts so badly that one died on the road. I had to walk at least a quarter of the way, and only reached Shillong after a most tiring day of fourteen hours through a very hot, malarious and unpleasant country. Shortly afterwards, when I was dining with the Commissioner of Assam, his wife asked me what I thought of the tonga service, which had only recently been started. I said that I thought it was the worst I had ever seen in any country and that the state of the ponies was disgraceful. This did not please my host at all, but it appeared that during the rainy season the road was so unhealthy that only very low-class natives would do the work and the difficulty of getting fodder for the horses was very great.

I soon found Shillong to be very unlike any place I had previously seen in India. The bungalows were scattered about a tract of open undulating country at the foot of a range of hills which rise to about 6,400 feet on the north side of the station. There is nothing whatever in the vegetation or scenery to remind one of the tropics. Scattered pine-trees and grass or brushwood-covered slopes reminded one far more of some parts of the upper Engadine near St. Moritz, whilst the aspect of the little marshy spots among the hills, and the vegetation which clothes the sides of the little streams, recall the Highlands of Scotland. But this resemblance is only superficial, for when one examines the plants one sees that, though a number of genera and species which are characteristic of much higher elevation in the Himalayas occur, yet there is a variety and a wealth of vegetation which one would not expect from a hasty glance over the country. The station of Shillong did not exist when Sir Joseph Hooker visited these hills in 1850. Cherrapunji was then the only European station in the hills, but was deserted about twenty years ago in consequence of the excessively heavy rainfall. At Shillong, which is only twenty-five miles distant, the rainfall is comparatively light, only about ninety inches, and the climate seemed to me to be drier, cooler and less muggy at this season than at Darjeeling. Though rain or mist occurred on most days during the fortnight I remained in the neighbourhood, yet there was also a good deal of sunshine, and ground leeches are unknown

here on the plateau. The geology and vegetation of the Khasia hills have been so well described by Sir Joseph Hooker in his *Himalayan Journals* that I need not go into details. But though he botanised in these hills with a large staff of collectors for several months, he did not exhaust the wonderful riches of the vegetation. Mr. Clarke, who was then the best botanist in India, had resided there for some time and collected diligently during the whole of his numerous excursions into the hills, but he found new plants on several occasions during our rambles.

As regards butterflies, my first impression was that the locality was a poor one, and though this impression was somewhat modified later, I must say that at this season, which is perhaps not so favourable as a month or two later, the number of species of butterflies which I found abundant was very small. During my ramble round the station the most remarkable species I took was *Argynnis rudra*, which, though distinguished by slight differences from the European *A. laodice*, is found nowhere else in India, and represents a group whose range is from East Prussia through Siberia to Japan. Other species which I took were characteristic of the North-Western rather than of the Eastern Himalaya; whilst only one or two of the insects common here are found in abundance in Sikkim. With regard to birds, they were so few in numbers and variety that they might almost be said to have no characteristic *facies*. I never was in any locality in India, and in very few in Europe, where birds were so scarce as in the hills round Shillong at this season. You might walk for six or seven miles without seeing as many species of birds, and these were merely common species such as Mynahs, Bulbuls, Pipits and Crows. I made enquiries for natives who might be useful in my collecting, but, though two or three were brought to me, it was evident that they had little or no knowledge of the subject, and being unable to speak Hindustani they were useless. A certain Royan Sing from the village of Maoflong, who turned up on the next day, was, according to his own account, an accomplished collector of plants, birds and insects. But I soon found that he valued himself and his accomplishments so highly that I could do nothing with him; though I got from him a few butterflies of sorts which I did not see myself. In the afternoon Clarke returned from Jowai and kindly asked me to take up my quarters in his house. Among other visits, we paid one to Mr. Mann, who was the chief officer of the Forest Department in Assam, and lived there during the rainy season in a charming bungalow a mile from Shillong. His garden was one of the best kept and richest that I saw in India, and contained numerous native and exotic trees, shrubs, orchids and herbaceous plants. A fine red *Salvia* was very showy, and many interesting species of Balsams, Begonias and *Hedychium* were flowering, but, except for a new species of Balsam from Upper Assam, *Impatiens Manni*, which has variegated leaves and the habit of a *Sonerila*, I saw nothing in flower that was very striking from a horticultural point of view. Mr. Mann, a Hanoverian by birth, was a distinguished forest officer and botanist and had 2,500 square miles of forest under his direction in various parts of Assam. He showed us a beautiful album of coloured drawings of the Khasia orchids which are extremely numerous. Sir Joseph Hooker says that fully 250 species occur in the

Khasia hills, where they form perhaps the largest natural order of plants, and he doubts whether in any other part of the globe the species of orchids outnumber those of any other natural order or form so large a proportion of the flora. Balsams are next in relative abundance; over twenty-five species occur, of which many are of great beauty, and two of them, *Impatiens salicifolia* and *I. Chinensis*, were then very showy and abundant about Shillong.

In the evening Clarke showed me some of the very numerous plants which he had collected during the last twenty years in Assam, and which already nearly filled a good-sized room. He had, during his service in the Education Department of Bengal, been one of the most hard-working and distinguished botanists who ever came to India, and being blessed with an extraordinary constitution and wonderful activity for a man of his age, had botanised over a great extent of country. The number of sheets of plants collected by him amounted to over 50,000, many of them found in the most remote parts of Chota Nagpur, Sikkim, Kashmir, the Naga hills and Manipur. And as during the whole of his career he had been in the habit of laying in and ticketing all his plants when fresh with his own hands, adding sketches and dissections of the most important species before drying them, it may be supposed that his herbarium, which has since been most generously presented to Kew, is of immense value.

On September 14th it rained all the morning, but in the afternoon we walked out to a place called the Farm, four miles from Shillong and 800 feet above it. The road lay through open pine-woods and over uncultivated down-like hills. There was nothing tropical or even Indian in the scenery or vegetation, and though perhaps the species of plants observed belong to tropical genera, the most conspicuous features were not tropical, and many European genera and even species, such as *Spiræa*, *Lamium* and *Agrimonia*, were noticed. Among the coarse grass numerous plants of *Osbeckia crinita* and a pretty pink *Melastoma*, were flowering, together with a blue *Cyanotis*, a small *Arisæma*, *A. Leschenaulti*, and some terrestrial orchids.

At the Farm there was a nice little bungalow formerly occupied by a gardener, who attempted to form a Government nursery and vegetable garden. Owing to bad management, unsuitable soil and other difficulties, which so often mar the success of well-intentioned but badly organised Government schemes in India, the garden was abandoned, and the bungalow used as a dak bungalow.

Next morning about eight we went along a path leading up to Shillong Peak, as it was then called—a rounded knoll clothed on one side by a small but very dense patch of primæval forest, at a higher elevation than any other in the Khasia hills. It is about 5,000 feet above the sea and commands a wide view over rolling downs and rounded hills which fall somewhat steeply to the north and stretch away in the far distance towards the Jaintia hills on the east and the southern edge of the plateau on the south. I was not fortunate on this or any other occasion in seeing the wonderful view of the Himalayan range which is described with so much detail by Sir Joseph Hooker. Mist or cloud always obstructed the distant

view, but I could see the North Cachar hills at a distance of seventy miles or more. According to Sir J. Hooker, the visible horizon of the observer from this point encloses an area of fully 30,000 square miles, which is as great as that of Ireland. It extends from the Tippera hills on the south, 100 miles distant, and the delta of the Ganges 120 miles away on the south-west, over the Garo hills and the Assam valley to the Himalayas on the north and north-east. Some of the peaks in this range, which occupy 60 degrees of the horizon and extend over 250 miles, are visible at a distance of 220 miles from Shillong. But though the view is such an extraordinarily wide one, I do not think it could compare in grandeur or interest with many much more restricted views which are constantly before one in Sikkim.

The vegetation of these elevated downs is very peculiar and unlike anything I have seen in the Himalayas; it is composed of coarse wiry grasses, which do not form a turf, but are mingled with numerous showy herbaceous plants and shrubs in the hollows. A *Primula*, which in Sikkim is only found at 10,000 to 12,000 feet, occurs in wet places. Numerous terrestrial orchids, of which *Habenaria pectinata*, *Platanthera Manni*, *Satyrium Nepalense* and *Aceras angustifolia* are the commonest, three or four showy Balsams, an *Anthericum*, a dwarf *Roscœa* like *R. purpurea*, a splendid yellow-flowered plant allied to *Pedicularis* (*Centranthera grandiflora*), and many others were gathered. Numerous small butterflies, *Terias*, *Cœla*, *T. Verrata*, *Lycilna maka*, *L. dipora* and *L. chenelli*, with small *Satyridæ* such as *Yphthima nareda* and *Y. sakra*, were flying about the downs. Three large species of fritillaries, *Argynnis Childreni*, *A. rudra* and *A. niphe*, were constantly seen driving along before the wind which generally blows up there; but birds, with the exception of a few pipits, grass warblers and green pigeons which came in flocks to feed in the adjacent patch of forest, were wonderfully scarce.

I soon discovered, however, that in the little wood on the Peak and in the wooded glens which descend from the ridge towards Shillong, there were very many rare and interesting forest-loving species of birds, insects and plants; and though it was very difficult to penetrate on account of the want of paths, I stuck to this ground as the best place for collecting during my stay at Shillong. The trees in these little woods and glens are not, as a rule, large, and consist mainly of evergreen species of oak, laurel, magnolia, *Aralia*, wild cinnamon and others, many of which are densely covered with *Cœlogyne*, *Pleione* and other orchids and climbing plants. The undergrowth is a dense thicket of *Bœhmeria* and other nettles. I noticed a dwarf bamboo which had recently seeded and died down, a climbing yellow-flowered *Dicentra Thalictrifolia*, and on the skirts of the woods were numerous trees of rhododendron and of *Daphne Wallichii* whose sweet-scented white flowers were now in perfection. Many curious herbaceous plants also occur on the skirt of the woods, such as *Lilium giganteum*, the tall blue-flowered *Delphinium altissimum*, the curious red-berried *Pentapanax Pseudo-ginseng*, and a graceful rue, *Thalictrum Javanicum*.

In the depths of the shady ravines numerous rare ferns were found with species of *Polygonatum*, *Paris polyphylla*, and other *Liliaceæ*, whilst

growing among the rotten débris of decayed wood we found a leafless *Monotrope*, and a single plant, new to science, of one of those beautiful-leaved terrestrial orchids (*Anæctochilus Elwesi* C. B. Clarke) which are the admiration and despair of English gardeners on account of the difficulty of growing them.

I have been somewhat particular in describing the vegetation of this peak, because it was not visited till later in the season by Sir Joseph Hooker, who does not seem to have botanised in these deep glens as carefully as in some parts of the hills, and also because the vegetation of the highest and most undisturbed spots in the whole of the range is always of particular interest and importance from a naturalist's point of view. The companionship of such an accomplished botanist as Mr. Clarke, whose knowledge of the local flora was so accurate that I could always learn the name of every plant of interest at once, naturally inclined me to pay more attention to the plants than I had lately done since I became specially interested in the butterflies. Though it is difficult, not to say impossible, to collect everything, yet even a superficial knowledge of several branches of natural history often leads to the correct appreciation of difficult points in each of them, and here it was highly interesting to see that the presence of butterflies, found at higher elevations in Sikkim and elsewhere only found in the North-West Himalaya, was accompanied by the appearance of some plants having the same distribution.

I am quite unable to account for the fact, of which several cases are also quoted by Sir J. Hooker, by any difference between the climate of the Khasia hills and that of Sikkim. The situation of the Khasias, which are surrounded on both sides by the hot tropical valleys of Assam and Sylhet, and which are not exposed to the influence of the high snowy range of the Himalaya as Sikkim is, would lead one to expect more tropical rather than more temperate forms of animal and vegetable life at similar elevations, but all that I observed on the plateau of the Khasias is distinctly to the contrary. I am unable to compare exactly the mean temperature of Shillong peak with that of a similar elevation in the outer hills of Sikkim, but I certainly found the climate more bracing, less muggy and much more windy. Probably the absence of the dense forest which covers the Sikkim hills up to 11,000 or 12,000 feet, and the comparative absence of radiation, cause the climate to be more favourable to the upward extension of tropical forms, which is more marked in the outer than in the inner ranges nearer the snow; for in the neighbourhood of Kohima, a station in the Naga hills about 180 miles north-east of Shillong, where the forest is much heavier than on the Khasia plateau, the vegetation more closely resembles that of Sikkim. A letter on this subject from Clarke to Sir J. Hooker published in the *Journal* of the Linnean Society for 1886, p. 128, is so interesting in its bearing on this subject that I shall quote some passages from it here. Writing from Kohima on October 30th, 1885, Mr. Clarke says:

“ I arrived here ten days ago. The station is 4,750 feet altitude, and Jakpho distant ten miles, is 9,980. Having heard that the vegetation here was totally unlike that of the Khasia hills, I thought there must be a great harvest of new species to be got here, but Colonel Robertson, who knows both Kohima and

Darjeeling, warned me that I should find Kohima to be very much like Darjeeling over again. This I find to be so. Nearly all the plants which grow both in Sikkim and Khasia appear to grow here (the place is exceedingly rich botanically). Besides these, there is a large percentage of Sikkim plants not known in Khasia, and a small percentage of Khasia plants not known in Sikkim, as well as a small percentage of new species. Also the country here, above 5,000 feet, being nearly all jungle (the open grass only in small patches), the Sikkim plants altogether predominate in numbers of individuals and make Kohima resemble Darjeeling and not Shillong. In marching upon Kohima for miles together the road was so like that from Darjeeling to Mongpo that I could not have been sure I was not in Sikkim, and the vegetation from Kohima to the top of Jakpho closely resembles that from the little Rangit to the top of Tonglo. I understand that thirty miles south of Kohima I shall enter open grass and the Khasia flora, and that the change from jungle to grass is sudden. It is also to be recollected that the highest point in the Khasia hills is under 6,800 feet, and that therefore we could hardly expect Khasia plants between 7,000 and 9,980 feet here. Still it is remarkable that we are on one range of hills here with Khasia not 100 miles off, while Darjeeling is not only 200 miles off, with the whole Brahmaputra valley between, but Shillong comes almost in a line between here and Darjeeling; yet the whole character of Kohima is totally unlike Khasia and very much like Darjeeling. The country here may be divided much as you divide Sikkim, into, first, the region of cultivation 2,000 to 5,000 feet, second, low level jungle below 2,000 feet, third, the upper level jungle from 5,000 to 8,800 feet and, fourth, the small peak of Jakpho, 8,500 to 9,500 feet, where a sub-Alpine flora with rhododendrons just comes in. The rocks here are much as in Sikkim but more disintegrated. The upper levels (above 5,000 feet) may be about as steep as the slopes in Sikkim at 5,000 to 6,000 feet, but the cultivated regions at 2,000 to 5,000 feet are much less steep, more open valleys with evidently richer soil than in Sikkim. The land is all terraced and irrigated and covered with a heavy crop of strong growing rice. It looks like the margin of the plain of North Italy near the lakes. There is also the common hill rice as in Sikkim. The Naga hills are as Sikkim, but with a vastly ameliorated climate, warmer, drier, with much less rain. The Nagas are now very much what the Khasias were when you were among them, but the population here is much larger than in Khasia and Sikkim."

After describing some points in the botany which I need not quote, Mr. Clarke goes on to say:

"I had a vague idea that I could in a mere passing visit collect a nearly complete set of the Kohima species in flower in October, but if for no other reason I cannot do this for want of paper. Transport here is exceedingly difficult, the approach to Kohima is admitted to be the worst 'line' in India, the sixty-four miles through the Nambre swamp forests often take the Government convoys ten to twenty days, and the road is decorated with broken carts and the bones of bullocks, and sanded sometimes with Government grain. In the richer soil and warmer climate of Kohima, many plants grow unusually large. One plant here is the Kohima thistle, which is abundant and grows fifteen to twenty feet—I am told in places twenty-five feet high. It is, I believe, only a form of the Sikkim *Cnicus*, like our European *Cnicus eriophorus* with yellow flowers. This is in fact a very rich country, and not a little place like Sikkim or Khasia; there must be 200 miles of it nearly all equally good."

This description of Kohima shows that the soil and the presence of forest have a much greater influence on the vegetation than the mere elevation or distance.

Besides the butterflies which I have mentioned as frequenting the open downs, I found on this and subsequent occasions some forest-loving species of great interest on the skirts of the wood at the peak. The one which gave me most pleasure was a large dark grey species of *Delias* with yellow blotches on the underside, *Delias ithiela* Butler. This insect was originally described by mistake as occurring at Penang, and is a dark form of a common Himalayan butterfly, *Delias horsfieldii*, which occurs from Kulu in the north-west as far as Sikkim. It may probably be the same as *D. belladonna*, a species which occurs in China and East Tibet, but is so variable that until now I had been unable to separate the different forms of it which occur at various elevations in Sikkim, most abundantly by the side of streams in deep tropical gorges where it sits on wet sand or stone, but sometimes in the forest from 6,000 to 8,000 feet. The female, which is so rare that it was unknown to the describer, I had never been able to find in Sikkim, but here on the skirts of this little wood I found both sexes fairly abundant, though very different in their habits, as in their habitat, from the Sikkim insect. Here they emerge from the dense foliage of the tree-tops and sail about with a gentle soaring motion in the sun, continuing their flight even when mist and rain come on, and frequently settling on the blossoms of a *Dipsacus* and of a white-flowered shrub, *Viburnum coriaceum*, which attracted them. Though they are somewhat shy, I was enabled by patiently watching these flowers to catch a good series of this beautiful insect. I saw them also in and near similar patches of forest in other parts of the hills above 4,000 feet.*

Another insect which I was quite unprepared to find there was more rare. It is the same as, or almost identical with, *Lethe maitrya*, a glossy dark brown Satyrid which was first discovered in the North-West Himalayas at over 9,000 feet elevation, and afterwards found abundantly by me on the Tonglo range in Sikkim at 9,000 to 12,000 feet. Here it occurred as low as 5,000 feet but must be rare, as I only took four or five specimens and no one else has recorded its existence on the Khasias. A few large and beautiful *Papilios* were occasionally seen hovering over the tree-tops in this wood, and flying before the wind over the ridge, whilst *Danais tytia*, a species which occurs in the North-West Himalayas and Japan, was also not uncommon. On a piece of marshy ground between the station and the farm I also took one or two specimens of a Clouded Yellow, *Colias Fieldii*, which, though peculiar to the Himalayas, and even common there both in the north-west and in Sikkim, frequents much higher elevations than it does at Shillong, and is typical of one of the most Arctic forms of insect life, of which some species occur in the highest latitudes. A similar straggler is found in the form of *Colias milghiriensis*, a near ally of our English Pale Clouded Yellow, on the tops of the hills of Southern India, but nowhere in the country between there and the North-West Himalayas. Though the species varies extremely over the greater part of its wide range from England to Japan, and has been divided into many supposed species, yet none of its forms seems to be so well

* I published an account of this butterfly and its varieties in the *Annals and Magazine of Natural History* for February, 1886.

marked as this isolated race in the mountains of Southern India, whilst on the other hand the *C. Fieldii* of Khasia is absolutely indistinguishable from the Himalayan insect.

Another walk in the neighbourhood of the farm was to the so-called Elephant Falls, in a pretty gorge about a mile from the bungalow where a stream, which after heavy rains is of fair size, falls over rocks into a deep dark pool, overhung by steep banks covered with pines and a common form of evergreen oak (*Quercus Griffithi*). In some marshy ground below these falls there grew in abundance two species of Grass of Parnassus, a genus which reminds one of similar spots in the Highlands. One of them, *Parnassia Wightiana*, is a lovely plant with large white fringed petals. I gathered the seeds and sent them to Kew, for the cool orchid house there. In this neighbourhood, as everywhere on the plateau of the Khasias, one remarks groups of upright stones, sometimes of very large size, arranged in a line of five or seven or more, with the tallest in the centre, and smaller ones on each side, and having one or two large altar-like stone tables in front of them. These monuments, which have been described at length by Mr. Clarke, were not, according to his views, for sacrificial purposes, but simply family monuments erected to the memory of deceased persons. Some of them are of great size, as much as thirty feet in height, but the majority of them are from six to ten feet, and they are found scattered about the country, remote from habitations, as well as in the vicinity of villages. At Nurtiung in the Jaintia hills there is a remarkable collection of them, forming a veritable Stonehenge, but as far as I have seen, they bear no inscriptions and therefore give no clue to the history of their erection.

I spent three or four days in collecting near the Shillong Peak, and constantly discovered plants new to me, some of which were very striking, but my collection of butterflies increased but slowly, and not having received my gun and baggage from Gowhatty, I had no means of identifying the few birds I saw. On September 7th, I returned with Clarke to Shillong, and the next day visited what are called the Bishops' Falls, which are in a deep gorge about three miles from the station. They consist of one fall of about 200 feet, which, though the body of water is not large, is very pretty, and of a lesser fall below it. Below the junction of the two streams which unite here and form the Umiang river, there seems to be a larger and finer fall, but owing to the precipitous nature of the rocks and the dense jungle which grows on the bottom of the gorge, this part of it seems inaccessible. The heat when the sun came out was considerable, and the vegetation much more tropical than on the plateau 1,000 feet above. The ravine was full of immense, smooth and apparently water-worn blocks of conglomerate, piled together and overgrown with long coarse grass and bushes. Of butterflies I saw several species of *Hesperidæ* and a few large day-flying moths of the genus *Euschema*, and a fine large blue and black *Adolias* which I could not catch. The most striking plant was an immense red-flowered *Hedychium*,* which does not seem to have been described, and a species of *Codonopsis*, a blue-flowered

* This was described by Elwes as *H. Elwesi* and was introduced later. It is closely allied to, not identical with, *H. Greeni* (*Botanical Magazine*).

trailing plant. In the dry sandy pasture at the top of the rocks were numbers of a beautiful herbaceous plant with large blue gentian-like flowers, *Exacum tetragonum*. The only birds I saw here were a few shrikes, bulbuls, swallows and mynahs, with a vulture or two soaring overhead. On the next day I rode for about ten miles on the Gowhatty road as far as the bridge over the Khiri river, which is about 2,000 feet below Shillong. The first four or five miles lay over the plateau which is there better wooded than in most parts, but the woods consist of pines and bushes rather than of true forest trees. Then the road turns round the shoulder of the hill into the Umiang valley and winds down the side of this for five or six miles. The day being fine and hot, I saw more butterflies there than anywhere else near Shillong, many of a decidedly tropical character, including several *Papilios*, *Euplœas* and *Lycœnidæ*, but nowhere in anything like the abundance or variety that one would expect. Towards the lower part of the descent the vegetation in shady gullies was of an almost tropical character with figs, tree-ferns and large climbing *Mucunas*; but at the bottom the road comes out into the great stretch of bare, grass-covered downs which I described on the journey up from Gowhatty. There, by the side of little ravines, I found two pretty blues, *Thecla nissa* and *Hypolycœna Grotei*, both of which occur in Sikkim, but less commonly.

The valley of the Umiang looked like good collecting ground, but owing to the want of paths I could not explore it far, and found the long coarse grass very difficult to get through. The scarcity of paths in all parts of the Khasia hills is very annoying to the naturalist. It seems to be caused by the scarcity of cattle, for though the country appears to be better adapted for them than some parts of the Himalayas, they are kept in small numbers and seemingly are of very little use. The breed is small and not badly shaped, some hornless and of a red colour like small polled Norfolk cattle. They seem to be more beefy and better adapted for slaughter than the ordinary Bengal breed, but give very little milk, which is not, however, used by the Khasia people. The cattle are also but little employed for draught, most of the cultivation being done by hand. It is said that the long period of dry cold weather makes the grass very coarse, but I noticed that it was much shorter and of better quality where it had been regularly fed down, and I think that with some care and judgment both cattle and horses might be bred with success in these hills. The few ponies that are kept all come from Bhutan, Manipur, or the plains, and the natives apparently have no idea of breeding them, though the demand among planters and others in Assam is considerable. Sheep have been tried near Shillong but were said to have thriven badly on account of the innumerable caterpillars which cover the grass at certain seasons, but I could not learn that any serious attempt had been made in the way of pastoral farming by anyone with adequate experience. An enormous quantity of grass goes to waste annually, which, if converted into silage when young, would make very fair winter fodder; as this system has been proved highly successful in the plains of India, it might well be tried.

On September 11th my baggage was still on the road from Gowhatty, but we determined to wait no longer and started for a week's excursion to Nunklow, which is about thirty-six miles from Shillong on the old road

from Gowhatty to Cherra. Clarke had ordered coolies who are not always easy to procure at this season and who receive high pay, eight annas a day, for carrying much lighter loads than in Sikkim. They did not get off till past ten o'clock, and as the first day's march to Syeng is about sixteen miles, they were rather late in arriving. The first ten miles of the road is rather uninteresting, over open grassy country with many small ravines but no high hills, and only scattered fir trees here and there. The villages are few and far between and only small patches are cultivated with potatoes, Indian corn and *Coix* (Job's tears), a poor hard grain which grows in a thin crop at 4,000 to 6,000 feet and is eaten by the poorer Khasia people. Turning off the main road to Cherra about ten miles from Shillong, we crossed a rocky hill and descended into a wide marshy flat, two or three miles across, where the path is in some places wet and bad, but always passable for ponies. On the other side of this there is an ascent of about 500 feet to the village of Syeng, at the entrance to which the road passes along the upper side of one of the so-called sacred groves, which are preserved in a state of nature near most of the villages on the plateau; these are almost the only bits of real primæval forest left in the country. Then passing through one of the square stone-built enclosures with seats all round it, which are found at the entrance to many Khasia villages and used as resting-places by loaded coolies, we entered the scattered and very picturesque but dirty village of Syeng, below which a small and rather dilapidated bungalow afforded us shelter for the night.

The wood at Syeng seemed richer in birds than any I had yet seen; it was mostly composed of oaks, laurels and *Castanopsis*, and many of the trees were laden with ferns and orchids, *Hedychiums* and other epiphytes. Ivy was also growing on some of them, which, though botanically identical with the European ivy, *H. helix*, was of different habit. The people at Syeng, who were idling about their dirty hovels, most of which had a large cesspool at the very door, did not seem to be much used to the presence of Europeans; but they supplied us with firewood, and, after making a large fire and getting the bungalow swept out, we made ourselves comfortable for the night. A few moths came to the lamp in the evening, but I did not find any place where I stayed in the Khasia at all comparable to Darjeeling for moth collecting at night, and I only procured about a hundred species by day and night during the month I spent in these hills. In the morning I went to the wood before breakfast and collected a few butterflies, but it was too early and too wet to do much. I found the lovely green *Ilerda androcles*, which is so common in Sikkim, and a Large Blue of the *Argiolus* group which was new to me, abundant along the hedges of *Prinsepia*, which, according to Sir J. Hooker, is only found at 8,000 feet in Sikkim. Mr. Clarke's habit of breakfasting before starting, which I believe was also adopted by Sir Joseph Hooker, is perhaps better adapted for botanical collecting than my own plan, which was, whenever possible, to halt for breakfast on the march. It is not every man who, after a long residence in India, can eat a hearty breakfast early in the morning, and by doing so one misses the two or three morning hours which of all others are the best for collecting birds. But Clarke in many respects was one of the most remarkable men in India, and at fifty-five

years of age was able to walk through the longest and hottest marches and to climb over the most difficult ground from morning till night without apparently feeling hunger, thirst or fatigue. And this he did in the most unhealthy climates and in the same clothes as he would wear in Europe; even scorning to wear a solar topee or to use an umbrella for protection against the sun. A really fever-proof constitution like his is a blessing given to few, and it enabled him to get through an amount of work that would have killed many other people.*

From Syeng to Myrung was a short march of about nine miles over an undulating country of grass or rocky hills and winding shallow valleys with very little cultivation and few inhabitants. I saw but little in the way of birds, insects or plants, which I had not seen before, and a wood which I explored on the way, though it seemed likely ground, was equally barren of novelty. The character of the streams in these hills is peculiar. They generally flow in a deep narrow stony bed overgrown on both sides by a dense bush of shrubs and coarse herbaceous plants, with occasional peaty marshes full of a peculiar vegetation in which *Eriocaulon*, *Parnassias* and many curious grasses are found. The water is rather peaty in places, but clear and sweet; but I observed hardly any fish, frogs or newts in it. Mammalia also seemed extremely scarce in these hills at this elevation, and, excepting squirrels, I hardly saw an animal during the whole of my stay; though in the low valleys and along the foot of the hills wild elephants, tigers and monkeys are found, they do not seem to ascend the plateau.

Myrung is prettily situated on a ridge overlooking a broad flat valley, and has a good bungalow above the village and close to the edge of the wood, which is of larger extent than usual, though steep and difficult to penetrate. We found in it some good terrestrial orchids, a large white-flowered *Habenaria* and a curious white leafless parasite with the habit of *Monotropa*. The birds that I observed were more numerous and varied, but all of them common Sikkim species, excepting the *Sibia gracilis*, which is peculiar to this range and extends to Cachar. On the road a little way from Myrung we came on a group of Khasias with bows and arrows, who had assembled to shoot at a mark, which appears to be a regular custom on certain days. Their bows were short and stiff and do not carry very far, but they are good shots up to thirty or forty yards. The arrows are four-feathered and iron-pointed, but without barbs. In the tribal wars which were of constant occurrence before we occupied the hills, bows and arrows were the principal weapon, but, now that peace has become universal and the people are becoming more civilised, they will no doubt go out of use. At Myrung there is a little church built by the native Christians, who reside there as in many other Khasia and Jaintra villages. These converts had been made by a Welsh Mission, which had been established in the hills for many years and seems to have been remarkably successful. This was partly owing to the character and habits of the people, who are superstitious, like all hill-men, but have no religion of their own, and partly owing to the material as well as moral advantages which the converts derived from giving up first the excessive

* Twenty years afterwards he died at Kew, regretted by all who knew him, from the effect of a long bicycle ride on a very hot day.

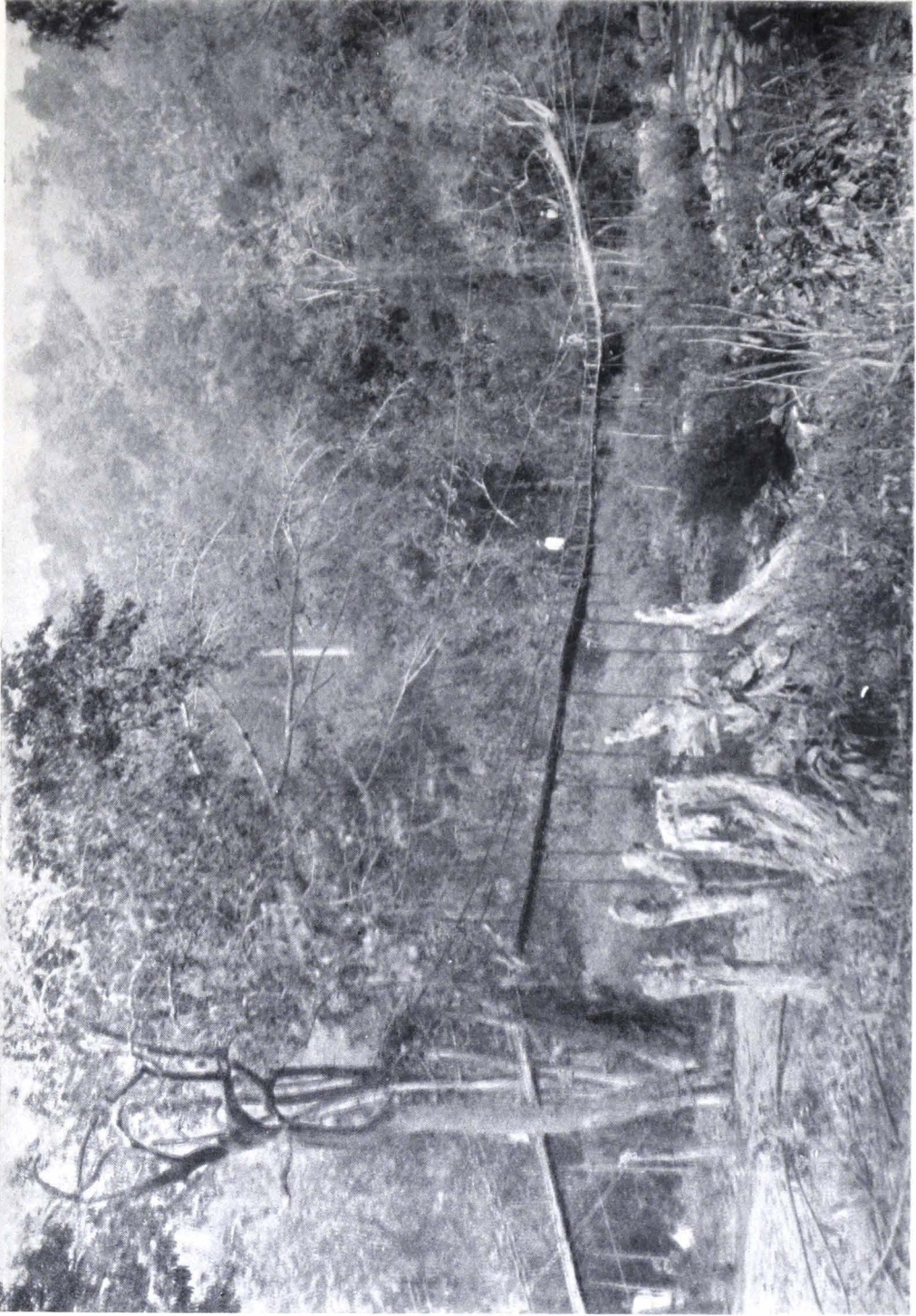


FIG. 6.—A CANE BRIDGE IN THE KHASIA HILLS, IN THE DRY SEASON.

use of betel, which is enjoined by the missionaries, and secondly the taking of omens by means of breaking eggs, a practice which is carried to such an extent among the unconverted Khasias as to entail heavy expenditure. The extent to which the habit of chewing betel is carried by these people is extraordinary. No man, woman or child ever stirs without a bag containing the materials, betel-nut, lime, fresh pepper leaves and tobacco. The roads are covered with the husks of the nut and stained with the red saliva which it produces, and even children are said to chew to such an extent that it costs from one to two rupees a month. Though my acquaintance with the Khasias was but limited, I cannot say I ever liked them. They are, no doubt, much improved since Sir J. Hooker's time, but they have not the nice quiet manners and desire to please shown by the Lepchas of Sikkim. There are a few among them who make good and faithful servants, but they incline to be independent and sometimes insolent.

On September 13th we left Myrung about nine and went on quickly to Nurmai, about six miles, over a country much like that of the previous day. Shortly before reaching the village there was another church and a small wood in which I found some fine orchids and that curious root parasite, *Balanophora*, which grows like a round, pinkish hard fungus in little clusters under the dense shade, and has neither leaves, stem, nor flowers which could be recognised as such except by a botanist. A large plant of *Dendrobium chrysanthum* was in flower, and a *Hedychium* with green and white flowers which I had found in Bhutan (*H. albovirens* C. B. Clarke). In this wood was a large horned owl which was persistently mobbed by bulbuls and other small birds; I also saw a small tailless wren-like bird, probably *Pncæpyga pusilla*, creeping amongst the roots. Beyond Nurmai the road gradually descends, and the character of the country changes, rice fields become more numerous, but the cultivation is confined to the narrow swampy valleys between the hills. I also saw a small patch or two of *Caladium esculentum*, which is grown for the food afforded by its large fleshy roots. In the same swamps *Arundina bambusifolia* and *Hedychium coronarium* were abundant at 4,000 to 5,000 feet. On the road we passed a collection of three or four hundred natives who were holding a market on a bare knoll away from any village, but the products for sale were few and of inferior quality, consisting principally of betel, salt, stinking dry fish from the plains, coarse plantains, potatoes too small for export, maize and caladium roots. The majority of the people were dirty and ill-dressed and the women extremely plain. There seemed to be some considerable variation in their type of countenance, for which I did not know them well enough to account, as it takes some time to appreciate the distinctive facial characteristics of a new race; for this reason travellers should never select individuals for photographing or drawing until they know them pretty well. Three or four miles further on we came to the bungalow at Nunklow, which like others on that road was but little used, and much out of repair. It was infested with fleas and mosquitoes, which we had not found elsewhere. The water in the tank close by was very bad and unwholesome, and many people had been ill from drinking it, so it was necessary to send a mile away to get good

water. The situation is hotter and more unhealthy than that of other villages on the plateau, and though it lies close to the edge of the forest on the north slope of the hills, and is a good place for collecting, it is not at all a pleasant residence.

As it was still early I walked two or three miles down the old Gowhatty road which descends steeply just beyond the bungalow, and soon came into a wooded glen which has a thoroughly tropical vegetation. A fine tree fern, *Cyathea spinulosa* Hook, *Pandanus*, *Areca triandra* and other plants which are not found anywhere above Nunklow, here formed a conspicuous part of the vegetation, but pines on all the more open knolls and ridges were also numerous, and became larger as one descended, giving a very peculiar aspect to this otherwise tropical jungle. There I also saw that splendid butterfly, *Thaumantis diores*, a large blue and black insect which haunts the densest undergrowth and flits along amongst the bushes in a way which makes it rather difficult to catch. Besides this and a species of *Nep'tis* new to me, I saw little, and I returned to the top of the hill before dark, getting on the way some fine plants which I thought might interest Clarke, who had not been there at that season before. *Chirita pumila*, *C. acuminata*, a huge white *Hedychium* with flower-spikes two feet long, and a fine mass of *Dendrobium* were amongst them.

Nunklow was one of the first posts occupied by our troops in the Khasia hills, and was the scene of a bloody massacre in 1829, when Lieutenants Burlton and Bedingfield with about fifty sepoy were surprised and murdered by a treacherous band of Khasias who had previously been on good terms with them. This led to the whole of the hills being annexed, and the power of the native chiefs broken by degrees, but a long period of harassing war was required before the country was thoroughly pacified. Though it is now many years since there has been any trouble in these hills, there was a serious outbreak in the Jaintra hills which join them on the east as recently as 1862.

On September 14th we breakfasted early, and set off for the bridge over the Khiri river (erroneously called Borpani in Hooker's *Himalayan Journals*). This lies about six miles down the old Assam road, and is at least 2,000 feet below Nunklow. The morning was hot but soon became cloudy, and about noon turned out very wet. Clarke had always had bad weather during his visits here, and thought the place must be as much wetter as it certainly was hotter and more unhealthy than Shillong. The look and smell of the jungle towards the bottom of the descent gave one the impression of a most feverish place, and it is considered most dangerous to sleep down there at any time between March and November. Partly on this account and partly because of the new road being open, this route to Gowhatty was then little used, and the country for some distance seemed very nearly deserted, though a few jhooms were seen in the forest; it is said that villages formerly existed on the low grass-covered hills on the other side of the Khiri which have to be crossed before the final descent into Assam. Near the bottom of the descent I heard the curious cry of the great howling monkeys, a large flock of which were feeding in the trees; they rushed off in a great fright when I surprised them, though they managed to keep very much out of sight in the dense

foliage as they swung from tree to tree. The path, though still good and paved with stones on the steeper parts, was much overgrown with high grass and covered with moss and weeds. A most beautiful species of *Æschynanthus* with large crimson and black spotted flowers was common on the trees, and Clarke found so much to collect that we soon parted company. Near the bottom of the hill I found a beautiful pink and white orchid-like flower which is developed at the root of a ginger-like plant, *Kæmpferia sp.*, but the flowers of this family are mostly fugacious and difficult to preserve, and are not much in favour with gardeners at home.

A well-built iron suspension-bridge crossed the river, which is large and very rapid, boiling down over immense boulders between rocky banks covered with vegetation. Here in a rather inaccessible spot under the bridge I found a beautiful little orchid with fibrous roots and large white flower, which was unknown to Clarke but turned out to be *Thunia Bensonia*. That and *Dendrobium densiflorum*, two of the most favourite plants of our orchid houses, were in full beauty, but I was much disappointed with the number and variety of butterflies which I caught. With the exception of a few common *Papilios* such as *P. philoxenus* and *P. Paris*, a single *Neope bhadra*, a few small *Lycænidaæ* and *Hesperidæ*, I got nothing worth speaking of that day, and the heavy rain which came on prevented me from remaining long in this beautiful though unhealthy spot. Birds also were scarce and, strange as it may seem in a country which seems so favourable, I did not see a single species of woodpecker in the Khasias, whilst in Sikkim a day never passed without my seeing four or five kinds. Bulbuls, small wax-bills, king crows and barbets, all of common species, were the most abundant, but having no gun I did not pay much attention to them. Clarke came in late very wet and heavily laden with plants, which it took him some hours to lay in and ticket, a duty which he religiously performed every night. As it was again very wet in the morning, and we did not see much prospect of good weather, we started back to Myrung. On arriving there it was windy and cloudy but seemed to be clear again on the north side of the hills. The rainfall is evidently very partial and local in this district. It is often raining in torrents at Cherra, and all along the south side of the hills, when it is fine and bright at Shillong; and sometimes, though not often, the reverse is the case.

I went out again in the Myrung wood and found some curious ground orchids, among them the great yellow *Cyrtopodium* of Darjeeling in fruit, and a couple of green and yellow veined *Anæctochilus*, which here, as is usually the case, grow very sparsely and singly among decayed wood. This wood must be very rich in plants, but is difficult to get about in owing to its steepness and the want of paths. I saw some large buzzard-like hawks with white breasts, which were apparently breeding, and the big purple fruit pigeon, *Carpophaga insignis*, also a whinchat-like bird with white throat and black tail which frequents the grass and was new to me; but still not half the birds one would expect in such a fine country. Our coolies being lightly loaded, marched well and halted but little, getting over about two and a half miles an hour with ease on these good paths; they are used to much harder work in carrying potatoes down to Cherra.

We passed numerous parties all loaded in this way, and carrying sacks of sixty to a hundred pounds weight by a plaited cane strap which rests on the forehead. I collected a few roots and bulbs of all the best plants I saw on the return march to Shillong; they were not yet dry enough to send to England, and had to be put in a garden till after the rains, as packing green and growing plants almost always results in their death.

On September 15th we went from Myrung to Maoflong, which is a large village on the other side of Syeng, but we did not stop, and though the day was fine I saw but little on the road to detain me in the way of insects or plants. A pair of lazy white-headed and white-tailed eagles, apparently *Haliaetus leucomphus*, which breeds in Assam, were flying round, and when I got to a small marsh a couple of miles from Maoflong, Clarke's boy showed me the place where that rare and beautiful plant, *Primula Smithiana*, in which I was much interested, was found. This splendid plant grows as much as three feet high with whorls of flowers like those of *P. japonica*, but yellow in colour instead of crimson. All the early attempts to introduce it to Europe by means of seed failed, but in 1881 Gammie's native collector brought a packet with many other seeds from the mountains of Western Bhutan. These I distributed among some of the best gardens in Europe, but only one plant was raised by the late Mr. Anderson Henry of Edinburgh, who sent it when in flower to Sir J. Hooker at Kew. It produced a numerous progeny of seedlings for which, I believe, a large sum was paid. It did not, however, prove very easy to grow in Europe, and I now saw that the plant was semi-aquatic, at least during some part of the year, as the marsh in which it was growing, though dry during the winter, was then very wet, and the long fleshy roots were growing in black mud and sometimes quite under water. The flowering season is in April and May.

Now here is a good illustration of the difficulty of agreement between botanists of the highest repute and experience in dealing with the nomenclature of allied plants having a wide geographical distribution. For the history of this *Primula* is as follows. Wallich had described *Primula prolifera* from the Khasia hills. Then Junghuhn had described *Primula imperialis* from Java, where it was found growing on volcanoes at 9,000 to 10,000 feet. In 1882 Hooker in the *Flora of British India* united the Khasia and Java plants as one species, *P. prolifera*. Two years later, in the *Botanical Magazine*, plate 6732, Hooker figured the plant raised by Anderson Henry from my seed as *P. prolifera*. He himself had gathered it years before in Sikkim, though he had not recognised it by that name. Twenty years after, Craib described a plant which he had collected as *Primula Smithiana*. He noted that it differed conspicuously from *P. prolifera* in having a dense coating of yellow meal over the inflorescence and the flowers. Finally, in 1914, Professor Bayley Balfour found that my *Primula* was, after all, identical with Craib's and not with *P. prolifera*. "It should be, I think," he wrote, "a good garden plant of the Candelabra section and, if Hooker had only recognised it, might have borne your name instead of the perhaps more beautiful but certainly more difficult *Primula* associated with it." However, so far as I know, the plant soon died out in cultivation here, as many of these Asiatic Alpine plants do. When Trinominalism comes to be a practice accepted by botanists as it has been by ornithologists—as I think it must be eventually—here is a case in point.

CHAPTER X

NORTH AMERICA, 1888

IN the autumn of 1887 Godman went to spend the winter in Mexico, where he was then employing collectors of birds and insects, to increase his knowledge of the natural history of Central America on which, in company with his lifelong friend Osbert Salvin, he was then preparing the great work of his life. He invited me and Mrs. Elwes to join him, which we very willingly did, as I had never visited America before and as we were able to leave our children in the best of charge. We started on February 4th, 1888, in the Cunard s.s. *Etruria* for New York, and landed after a calm winter passage on February 12th. New York was full of half-melted snow, but the bright sunshine and clear air free from smoke made our short stay there not disagreeable.

After some arguing I arranged at Messrs. Cook's office what was then known as a round trip ticket, covering something like 8,000 miles of railway at a cost of about forty-five pounds for each ticket, to which had to be added the extra cost of Pullman cars averaging about five dollars each for every twenty-four hours' journey. Sleeping cars were then as good and as comfortable as they are now, but in the south and west there were no dining cars and we provided ourselves with a well-stocked tea-basket which proved of the greatest use, not only to ourselves but to our fellow passengers. We stopped a day at Reading, Pennsylvania, where I visited Mr. Herman Strecker, whose large collection of butterflies was very interesting. In those days the American system was universal in all hotels, and as the cost of rooms and the choice of anything you liked to order from a most varied and excellent bill of fare was from three to five dollars a day in the best hotels, we did not find travelling nearly so costly as it has now become. We then went on to Philadelphia, where we visited Wanamaker's great store, which had all the counters arranged in concentric circles connected by tubes with the cashiers of the different departments, above whom sat the manager in a central office from which he could see all over the whole of the vast store, in which every kind of goods were sold at what now seem fabulously low prices.

We then went on to Pittsburgh, where we visited the Rev. Mr. Holland, who was then forming a great collection for the University. In the hotel everything was heated by natural gas, and the hotel manager showed us the most interesting kitchen where this gas was the only source of heat.

From Pittsburgh we took the Sunset Express train to New Orleans and were able to secure what is called the Parlour, where by paying for three tickets two passengers can have a room all to themselves.

After passing through Cincinnati we crossed the Kentucky river by a bridge then said to be the highest railway bridge but one in the United States, and in the afternoon were stopped in a wild forest covered country at a small station called Glen Mary, Tennessee, where there had been a fall of roof in the tunnel, which had to be repaired before the train could pass. Whilst waiting here a shooting affray took place in a saloon close

by where we were sitting, and a dead negro, who was a notorious ruffian, was dragged out into the street, where the body lay. No one seemed to think much of this, as we were told that seven men had been shot in this little place during the last year or so. A Northern judge who was in the cars told us the history of the Morehead County family feuds, which had developed to such an extent that after thousands had been killed the State Militia were called out to put an end to the desperate faction fight by abolishing Morehead County altogether, as there were no people to be found who were not implicated on one side or the other. When I read *Huckleberry Finn*, I hardly believed that the story of the fights described by Mark Twain in that wonderful book was really based on facts, but what I saw now, and in a later visit to the Alleghany Mountains, convinced me.

Late that night the tunnel was made passable and we got through safely to Chattanooga, where, having missed connections to New Orleans, we had to stay a day in that muddy and rowdy town. We passed the time by a visit to the top of Lookout Mountain, whence we had a wonderful view over a vast extent of forest-covered mountain country in which parts of five different States are included, and which was the scene of much hard fighting in the American Civil War. Though spring had not yet clothed these beautiful forests in green, yet the weather was quite mild and balmy as compared with the frost and snow we had left in New England, and when we got to New Orleans the change of scenery and climate was very marked indeed.

Before reaching New Orleans we had to pass on a trestle bridge twenty-three miles long which crosses the inland sea of Lake Pontchartrain, and through gloomy marshy forests of deciduous cypress covered with masses of the Spanish moss (*Tillandsia usneoides*) which covers the trees in many parts of Louisiana.

We found good quarters in the old St. Charles Hotel, then celebrated as the best hotel in the Southern States, and Mrs. Elwes was much annoyed by finding a notice in our bedroom, "Beware of hotel thieves, coloured laundresses and bugs." When we sat down to lunch, our first leisurely meal since leaving Pittsburgh, the coloured waiter was inclined to be cheeky, seeing that we were Britishers and new to the country, and said that we must hurry up with our meal as he wanted the table for others. I had previously made the acquaintance of the proprietor, an old-time Southern "Colonel," and went to ask him whether his guests were usually so treated by the waiters. He was very angry and at once came back to the dining-room with me and called for the head-waiter. When the culprit was pointed out he told the head-waiter: "Fire that fellow at once, and if you bring any more like him into my house I will fire the lot of you."

Though I came to know the ways of coloured waiters later, I never liked their attitude, which among the younger generation at least is usually a mixture of servility and bumptiousness, the former when they think their tip depends on it, the latter when they think you are a stranger who is not acquainted with their position. I have been served by many coloured races in Asia and America and prefer them all to the American negro. Chinamen are, in my judgment, by far the best servants in the United

States, and if properly treated become honest and faithful servants, though their ways are difficult to understand. What will be the future of the coloured races in the United States is a very difficult and thorny problem. But it seemed to me both on my first and subsequent visits that in many parts of the Mississippi valley the climate is much better suited to negroes than to white men, and that the mixture of the two races is bad for both.

We stayed only a short time in New Orleans, which, in 1888, was a very different town to what I found in 1919, and on February 23rd set off on our long railway journey to Mexico. The part of Texas which we passed through seemed better settled, by a better class of people—many of them Germans—than Louisiana, and San Antonio was quite a superior town with a very cosmopolitan population of thirty thousand. The streets were full of smart buggies and good stores and the hotel very comfortable. When we left the next day, the train was delayed for some time by a terrible railway accident caused by the breaking down of one of the light iron bridges over a deep river gorge. When we got to the place we had to leave the train and walk past the wreck of a train, which had preceded us by a very short time, in which most of the passengers had been killed or seriously injured; we saw the bodies lying by the track and a pile of dead horses not far off. The number of wrecks, as they are called, on the American railways, especially in the South and West, was at that time and for years afterwards very great, partly owing to the carelessness of the railway employees, and partly to the number of wooden bridges, which soon become rotten or are washed out by sudden floods.

Whilst waiting for the train which came to meet us on the other side of the river, I gathered the bulbs of a pretty little white-flowered *Amaryllis Cooperia* which I keep to this day; but the vegetation of the great plains and of the Canyon of the Rio Grande river, which we passed through in the night by bright moonlight, was at this season very poor. The next day we picked up the coffin of a man who had been shot at a little store close to one of the stations, so that I saw more dead men on this journey than I have ever seen before or since. At El Paso we reached the junction of the Mexican railway and transferred our baggage to another train after passing the Mexican custom house on the other side of the Rio Grande.

Next morning we breakfasted in an old railway-car in the station at Chihuahua, where three weeks before the train had been held up by brigands, who then, as now, were very numerous in the wild country to the west of the line.

The country is rocky and desolate for a long distance, and we were not tempted to accept the invitation of an English ranch owner to stay at his ranch near Santa Rosalia. On the next day we reached the summit of the line at about 8,000 feet near Zacatecas, where there are great silver mines, and on the fourth day from El Paso arrived at the city of Mexico. We found tolerable quarters in the Café Anglais, as there was no good modern hotel in the town at that time. I need not say much about this place, which we left on March 7th in order to meet Godman at Orizaba. It has often been described by better pens than mine, and though in a temperate climate at 6,000 feet above sea-level, it was at that time, owing

mainly to bad drainage, a most unhealthy city. The old Mexican railway to Vera Cruz, constructed and managed by an English company, after passing through the great plantations of Agave which supply Mexico with its favourite—but to me very unpleasant—drink, known as Pulque, descends beyond Esperanza to the “Tierra templada,” where we escaped from the aridity and dust of the “Tierra fria” in which the city of Mexico stands. Here we stopped in the town of Orizaba at a clean hotel kept by a civil young German lady who did her best for us, and here we enjoyed for a few days the charming sub-tropical climate with its wealth of flowers, fruits, birds and insects. Godman, however, had been detained in another part of the country and could not meet us so soon as we expected.

At Orizaba I first had an idea of the extremely rich flora of sub-tropical America, which was quite new and strange to me. Flowering shrubs, orchids, Tillandsias and other epiphytes were very numerous, and I collected quite a number of butterflies, most of which belonged to the great family of *Hesperiidæ* or skippers. There were some fine coffee plantations, mostly belonging to English and German planters, who were thriving and hospitable, and if there was only a fairly civilised Government in Mexico this part of the country would no doubt attract many foreigners to settle in it. But the Mexicans of the well-to-do land-owning class as a rule are but half civilised themselves, and the labouring classes are Indians or half-castes and are badly treated in many parts of the country by the governing race. Americans have invested largely in the country in mines, but were not at all popular with the Mexicans; and though Godman was a man who ought to have been exceptionally well received and treated, and who spoke Spanish fairly well, we never received, either when with him or alone, any real hospitality from the Mexicans.

On market days at Orizaba a great many Indians came in to sell their produce, and much fruit including good oranges, fair pineapples, bad bananas, and that excellent fruit the avocado, which is now becoming popular in California and Florida. Food, as a rule, in Mexico was very poor and little varied. Flat maize cakes called tortillas are the staple bread of the country and occupy a great deal of the women's time in making. Omelettes with tomatoes, and black beans cooked in lard, are also universal articles of diet; whilst coffee, chocolate and pulque are the usual beverages. Sheep are almost unknown, and dried beef and salt fish are about the only other articles of food commonly found in the country towns.

We stayed at Orizaba collecting plants and butterflies until March 21st, and then, hearing that Godman had arrived at Jalapa, went down by rail to Vera Cruz, a most untempting seaport, from which we were glad to escape before daylight next morning. There was a railway as far as Paso de San Juan, and there we went on by a tramcar drawn by four mules to Jalapa, an ascent of nearly 4,000 feet from Vera Cruz, which took eleven hours. Though the vegetation showed that the country was quite tropical in climate, it became quite cold when we ascended into the mist, which turned later into heavy rain, and this extreme variation of elevation and climate is very characteristic of the country.

At Jalapa we found Godman in a very fair hotel, and enjoyed two or

three charming days in the lovely environs of this town, which is not far from the snow-capped peak of the volcano Orizaba, 17,000 feet in height. The country round Jalapa is a mixture of luxuriant open pasture-land and beautiful woods in which the oaks and liquidambar trees were the most conspicuous and beautiful. We visited an Englishman named Brooks who had a large and very thriving coffee plantation at Cuantepec, about two hours' ride from Jalapa, and we could not help contrasting the cleanliness and comfort of Mrs. Brooks' house with the dirty and slovenly state in which most Mexicans, even of the wealthy class, habitually live and seem to be quite contented, though noxious insects of many kinds are common and in some parts of the country very numerous. From Jalapa we arranged to ride by a very beautiful hilly route to Orizaba, our baggage being carried by three Indian porters.

The first night we had an introduction to a hacienda belonging to a wealthy Mexican at Tusamapam, where we expected hospitality but found none. If it had not been for the German manager of the sugar factory we might have had to sleep in an Indian hut, as the major domo in the absence of the proprietor was very surly. Eventually, however, we got a bare unfurnished room with a bedstead, and Godman slept in another whence the fighting-cocks of the establishment were turned out for his reception, and where he was able to sling the hammock in which he usually slept in Mexico. After some delay we got a table and an Indian woman cooked us a chicken with rice, an omelette and some frigoles, or black beans cooked in lard, without which no Mexican repast is complete.

Next morning, after inspecting the very extensive sugar factory, where a coarse brown sugar is made, we started in the rain and descended into the barranca of the Rio Grande, where the vegetation was especially beautiful. After crossing the river on a balsa or raft and swimming the horses over, we ascended to some Indian huts, and breakfasted in a shed, after crossing a tributary of the Rio Grande in the same fashion. The scenery and vegetation during the whole day were very beautiful. In the afternoon we reached another Indian village called Pincos, where we expected to get lodged by the proprietor of the village shop, which was little better than a drinking place. As the man could not read the letter we brought to him, we waited till his wife came home, and eventually got a shelter for the night in a newly built hut fourteen feet square, where we managed to pass the night under very different conditions to what one would expect on a well-travelled road in a long settled country.

The scenery of the next day's journey, however, repaid us for all discomfort and the flowers and ferns were very varied and beautiful. The snowy peak of Orizaba, constantly visible out of these deep semi-tropical valleys, reminded me somewhat of the Tista valley in Sikkim, though the latter is far more striking and stupendous. At midday we arrived at the much cleaner and pleasanter village of San Bartolo, where, in the village shop or inn, usually combined in one in Mexico, we got an unusually good meal of omelette with green peas and chillies, with chicken and rice to follow, and topped up with rice stewed in milk and sugar. Tortillas made of a black variety of maize, though not pleasant to look at, are good to eat when fresh and hot.

Both Godman and I agreed in thinking that San Bartolo would be an excellent centre for a naturalist to make a long stay at. Though many collectors have visited this part of Mexico, the variety and number of different birds, plants and insects seem so great that novelties are even now constantly discovered, almost always by foreigners, as Mexicans, like the Spaniards, very rarely have any taste for or interest in natural history.

Returning to El Paso in the beginning of May we passed again through a wide tract of desert country covered with sage-brush, cactus and other desert types of vegetation, which continue until the San Gorgonio Pass in Southern California is crossed. Here at an elevation of 2,000 to 3,000 feet, overlooked on one side by the snowy San Jacinto mountains, and on the other by the still loftier and more wooded San Bernardino range, we came on the first large tract of cultivation I had seen since leaving Central Mexico in the shape of immense fields of barley, grown without water and now nearly ripe. Much of this is cut for hay, which seems to be a more profitable way of using it than for grain. When we got to Beaumont, the first of the new settlements for which Southern California is remarkable in the history of American progress was reached.

Town lots here, as in many other Californian settlements, run back from the railway right to the foothills, and are held by land speculators at a price which seemed to me ridiculous in comparison with their real agricultural value. For though a great deal of land is capable of growing much more barley, alfalfa and fruit than a stranger would suppose possible, yet it is mostly of such a light and sandy nature that water is indispensable in average seasons, and water is so costly that I do not see how it can pay to bring it to much of this land. The climate of South California is charming in winter, and enables men to live in a way that would be impossible in the Northern and Eastern States, yet even climate may be purchased at too dear a price, as I believe some of the settlers and speculators have already discovered. The story goes that a real estate man, when trying to sell to a New Englander a tract of this country, expatiated on its many virtues and finally declared that the only things necessary to make it a terrestrial paradise were good society and water. "Is that all you want?" said the Eastern man. "Why, that is all they want in hell!"—a saying which is about as expressive as General Sherman's well-known opinion about Texas.

Here in San Bernardino county, where I stayed ten or twelve days, we had our first rambles among the Californian flowers, many of which were already so familiar to me in English gardens. Among the crowd of annuals, herbaceous plants and shrubs which we gathered in and about San Bernardino, I should select the following as most conspicuous and beautiful; and though we can grow some of them better in England than in the Eastern States, yet we cannot have them in anything like their native beauty. *Yucca Whipplei* is quite a superb plant, by far the finest of its genus as far as I know. It comes to perfection on the plains and foothills, attaining an elevation of at least 4,000 feet, and producing in some cases a flower stem twelve to fifteen feet high, of which at least two-thirds is covered with dense branches of creamy-white or sometimes

greenish-white flowers. These vary much in size, in the length, breadth and shape of the perianth segments, but in all cases form a pyramid of surpassing beauty. The plant is well worthy of greenhouse culture where it cannot be grown to perfection out of doors; it seems to grow finest on dry sunny hillsides where perfect drainage carries off all moisture from its thick wiry roots. *Calochortus splendens* was extremely abundant in some parts of the San Bernardino valley, especially about Beaumont, where it is a common weed in the sandy barley fields. The only other species we saw in South California was *Calochortus Kennedyi*, a handsome orange-coloured species very distinct from any other I know, but this is much more rare and local and grows on the borders of the Mohave desert in much dryer and hotter places than *Calochortus splendens*. Of the herbaceous perennials common about San Bernardino at the season I thought *Pentstemon speciosus* the most beautiful; and a *Decentra* and an *Anemonopsis* the most curious. Sage-brush and greasewood cover the lower hills, forming a dense and almost impenetrable scrub. Pines are now only found below 4,000 feet in sparse and stunted groups on steep rocky places or in deep ravines, though I should suppose that the hills had once been covered with coniferous forest to a much lower level than at present. We made one excursion to the pine forest above San Bernardino which is accessible by a waggon-road in two places at least, and found two shrubs of great beauty in flower: *Styrax Californicum*, which grows in shady banks in ravines at 2,000 to 4,000 feet, and *Cornus Nuttalli* at 4,000 to 5,000 feet, but the latter was here not so large, floriferous or abundant as in the higher, moister and cooler forests of the Yosemite region. The *Cornus* should succeed well in England though I have never seen it in flower there.

The main object of our excursion to these forests was to see the Snow Plant (*Sarcodes sanguinea*) in flower, and we were fortunate enough to procure splendid specimens of this very remarkable plant. It does not flower, as its name would imply, in or immediately after the melting snow, as this had been off the ground at least six weeks before we saw it in May, and even then most of the plants were not in full flower. I took some pains to examine the root to see if it was, as reported, really parasitic on the roots of the yellow and sugar pines, *P. ponderosa* and *P. Lambertiana*, under which it always grows. I could, however, trace no connection. The root-stock of the plant is a thick fleshy mass of closely packed roots and clayey soil, often as big as a child's head, but though I dug deeply round the mass and washed out the soil as much as possible after lifting it, I could trace no direct connection with the pine-roots, though I believe that decaying pine-roots may act as a host or *nidus* on which the seed germinates. I usually found the plant growing in small but scattered groups, but never numerous in one place and having the appearance of having grown from seeds. Sometimes two or three stems, but generally only one stem, were produced by each root, and the length of these stems was from ten to twenty inches, of which one-half or less was underground, the subterranean portion being of a rather paler colour than the inflorescence, which was six or eight inches long and two or three inches in diameter. The colour is a very bright flesh or cherry colour, the edges of the bracts,

which at first envelop and afterwards twist round the pedicel of each flower, being paler than the rest. We made drawings and photographs of the plant and preserved specimens in spirit, to enable a good coloured figure of the plant to be published. I doubt the possibility of cultivating this fine plant, but I think that roots dug up and transported with care two or three weeks before the flowering season would produce perfect flowers if kept moist and cool. It was too early to form any idea of the herbaceous flora of these fine forests, as the vegetation was backward in comparison with that at similar elevations farther north, but it appeared to be rich and varied.

Lilium Humboldti was already in bud in the gorges at 2,000 to 3,000 feet, but I saw no form of *Washingtonianum* so far south, and though I searched carefully for *Lilium Parryi* in the original place where it was discovered near the San Gorgonio Pass, I could find no plants large enough to be identified, as they have been mostly dug up by bulb collectors. The only place, however, where it was known to occur in abundance is a bit of marshy ground in deep black peaty soil, and as this has been partially drained the plant may have suffered in consequence. It is a rarity, and I hope the bulb gatherers and potato growers will not exterminate it.

I was a little disappointed with the variety and beauty of the annuals in California of which I had heard and at home seen so much. But we did not visit the coast, where, perhaps, they are more abundant, and the season for some of them was rather gone by. Of the orange groves, vineyards, peach and apricot orchards of California I need say nothing. Are they not known to everyone by their produce if not in reality? One thing I would, however, urge upon Californian fruit-growers, and that is, to make their delicious dried apricots and peaches known in England, where they are never seen and would be thoroughly appreciated; and to turn their attention rather to making fine light wines than sherry and port, which are not so much drunk or liked as formerly. The country which can succeed in imitating the wines of Bordeaux and the Rhine in bouquet and flavour, and which can produce light table wines as wholesome, as digestible and as nourishing as those are, when natural and unadulterated, is certain to have an unlimited demand at a good price; whilst the heavier, stronger and sweeter wines such as are produced by Portugal, Spain and Australia can probably be grown cheaper and better in other countries than California.*

* The Californian fruit-growers have since done what Mr. Elwes recommended forty years ago, though Prohibition has put an end to the Californian wine industry.—ED.

CHAPTER XI

SPORT IN BELGIUM AND BRITTANY, 1891-1899

IN 1891 Mr. E. N. Buxton, who was a member of the Société de Bouillon, an old-established shooting syndicate in Belgium, offered to resign his membership in my favour if agreeable to the members, and I was duly elected.

The Club was comprised of twenty members, mostly Belgian officers and noblemen, who for many years past had met twice a year at Bouillon in the Ardennes, to shoot over a large tract of forest which they rented partly from the State, partly from a commune and partly from a private landowner. The rules of the Club made it obligatory to subscribe for the term of their lease, which was renewable every nine years; and to conform to certain rules which experience had proved necessary to ensure safety to the guns and beaters, and to maintain a footing of friendly equality among men of various nationality and age. The President was a very keen old sportsman and he, with the Secretary, the Comte de la Faille, made the arrangements for the sport, and gave all the necessary orders to the keepers, of whom there were five. The Club met every year in the third week of November and the second week of January at Bouillon, where the Hotel de la Poste was reserved for the three days that the battues lasted; though it was an old-fashioned country inn, we had most comfortable quarters and excellent cooking.

On my first visit I was received in a most friendly manner, and soon found that the French that I had learnt in Brussels as a boy enabled me to make myself quite at home with them. I must say that a keener lot of sportsmen could not be found in any country. No weather ever stopped them, though the winter in the Ardennes is both cold and wet. Breakfast was on the table at six every morning, and the carriages which conveyed the guns to the rendezvous, often six or eight miles off, started at 6.45 a.m., and if anyone was not ready he had to come on as he could. Lots were drawn for places at breakfast every day, and though hot soup and coffee were provided at lunch for both guns and beaters, every one ordered and took out for himself whatever he liked best.

The *modus operandi* was as follows:

The guns, usually ten or twelve in number, for there were always several absentees among the members, were posted in the rides at from sixty to one hundred yards apart, according to the size of the beat and the thickness of the covert; and the game was driven by a line of from thirty to forty beaters towards the guns. The game consisted of a few red deer, which nearly always went back and were rarely killed, a considerable number of wild pigs, and a good many roe, with a sprinkling of hares, pheasants, hazel grouse and foxes. Each gun carried a rifle, and usually a gun loaded with heavy shot for roe, but we seldom fired at anything smaller than roe, until the beat was nearly over, for fear of turning back pigs and deer. Some of the members were remarkably good and quick shots with a rifle, but it is a very difficult thing to make sure of one's

shot when an animal is passing through brushwood or trees, and firing was strictly prohibited unless the game was at a certain angle before or behind one, on account of the danger to the other guns. I soon found that it was necessary to be much more warmly clothed than at home, for the beats were long, and one often had to keep still for half an hour at a time in the snow, keeping a sharp look-out and sitting as quietly as possible. For many of the wild boars in the forest were very cunning, and knew perfectly well that there was danger in front. They would come quietly ahead of the beaters and, if they heard or saw anything suspicious, either turn back or make a rush past the line in the thickest covert they could find. The forest consisted mostly of beech and oak standards with underwood cut every twenty or twenty-four years, with patches of spruce plantations or of young Scots pine in some places. The ground was mostly undulating, or with steep slopes overlooking the banks of the Semois, a very winding stream which bounded the forest on one side; some of these slopes were the most favourite lying places for the wild pigs, though there was never any certainty whether or where you would find them. On one occasion I arrived at Bouillon a day before time, and as there was no wind, and a good covering of snow on the ground, I went round some of the best beats by myself to see if I could estimate by their tracks the probable number of wild pigs on the ground. I am confident that on that occasion there were at least six lots, some of which contained ten to fifteen or more, and a good many smaller parties and single boars. According to the reports of the keepers and beaters, on the next day seventy or eighty pigs at least were seen, but if I recollect right only seven were killed, and this was more than the average. Roe were much more generally distributed, and easier to drive and to kill, as you can generally kill them with shot up to thirty yards. But the number of shots fired in the day rarely amounted to a hundred among the whole party, and there were many days on which some of the guns did not fire at all. Now this sort of shooting, in which you have nothing to do but to sit still and look out sharp, for hours together perhaps without a shot, may seem slow and monotonous, and I often thought I could have had much more fun by hunting the pigs with dogs. Yet there was a charm about it that I cannot explain, unless it was the constant expectation that you were going to have a big boar right on the top of you.

I may describe one or two incidents which are very firmly fixed in my memory, because they were red-letter days to me. On my second visit to Bouillon in January, I was posted on a level timber road winding along a slope on the banks of the Semois. I knew that game was on foot because I had heard shots on the extreme left. I heard a rustle in the bushes about twenty yards in front and saw two small pigs trotting along in the brushwood. It was too thick to use the rifle, and I thought them near enough to kill with buck-shot. I fired, and I suppose I touched an old boar who must have been close behind, for he instantly charged straight at me. I had a 500-bore Henry rifle on a rest in front of me, but he came so quick that I had not time to raise it to my shoulder before he was almost on me. As I fired he stumbled close past me, but recovered himself instantly and disappeared in the brushwood behind me. It was

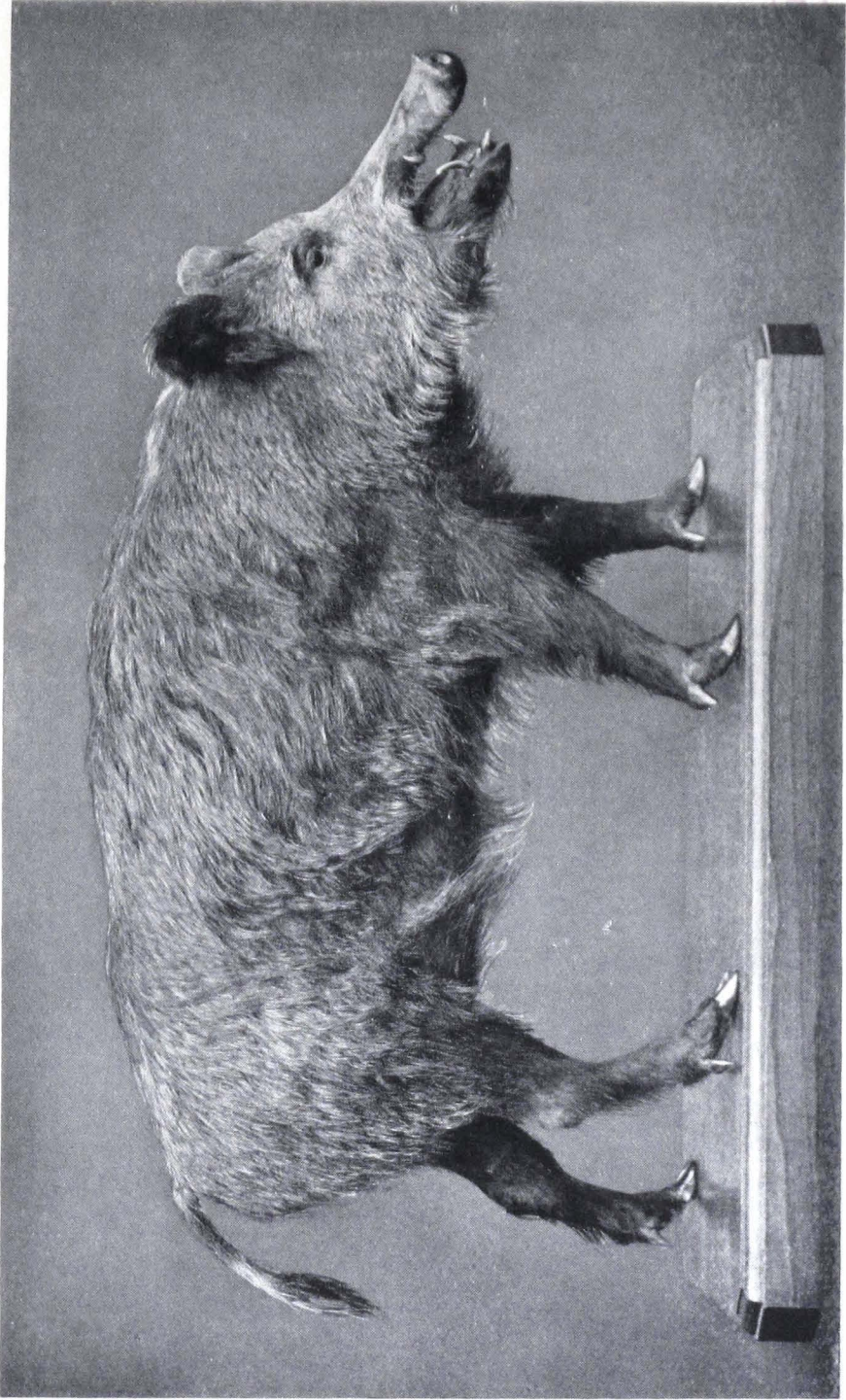


FIG. 7.—A BELGIAN BOAR.

against the rules to follow a wounded beast until the beat was over, on account of the risk from other people's shots; but, when the beaters came up, I followed his tracks about forty yards down to a shallow rivulet which he had passed through, going, as shown by the tracks, like a wounded animal but without any blood. Just beyond the water I found what appeared to be a bit of brain on a bush and thought it impossible he could go far. But as he had gone into the next beat, I could not go on without disturbing it, and I told the keepers and beaters to look out sharp, as the boar might not be dead. But when they came up at the end of the beat, nothing had been seen of him. I asked the President to let me have one of the men with a dog to follow the trail, but I could see that no one thought that I had really hit him, and I got some friendly chaff when I left the party at lunch. The dog was a sort of lurcher and his owner had the credit of being a skilful poacher. We were able to follow the track about 150 yards up a slope from the rivulet, and there I found the biggest boar that had been killed that season, stone dead, with a bullet-hole in the back part of his skull, from which some brain protruded. In all my experience I have never known any animal go so far with such a wound. As he was my first boar in Belgium and had a very good coat and tusks, I had him stuffed in Brussels and he now stands in my hall.

An even more exciting encounter than this occurred three or four years after, when we were down a favourite beat for pigs known as la Forêt. I was posted in the middle of the line of guns about half-way down a long slope under tall beech trees, with little or no underwood, so that one could see the ground clear for 300 yards in front, where thick brushwood began. I sat against a tree as still as a post, watching and listening to the sound of the beaters, who could be heard half a mile away, until I saw a herd of at least twenty-five pigs, mostly sows and yearlings, come slowly out of the thicket, and stand listening and looking to see if the coast was clear. Luckily the wind was right, and in a short time the whole lot came trotting on in full view straight to my post. I had a .303 magazine rifle firing ten shots without reloading, and determined to let them come close up before opening fire, and get as many as possible. I got three down in no time, but by that time they had seen me and turned towards my next neighbour on the left, so that I could not fire again without risk to him. If they had gone on past the line, I might have got three or four more behind me, but they went close past him and then turned up the line, where two more were killed by other guns. My neighbour, who was not a member of the Club, but an officer of the Forest Service who had been asked as a guest and who had never seen wild pigs so close before, lost his head completely and never fired a shot. But as one of my pigs crawled on and died at his feet he was intensely delighted, thinking that he had really killed it himself. I thought it was a pity to spoil his pleasure by claiming it myself, so I said nothing about it till the story leaked out through a man who was with him and was certain that the forester had not fired at all.

On the best day I ever had at Bouillon I killed three pigs, two roe and a fox, but I have known eleven pigs and twenty-eight roe killed in a day. On one occasion the Prince de Cröy, who was one of the best shots in

the Club, killed four pigs out of one band with four successive bullets as they rushed past him across a road about ten yards wide. It often happened that two or even three different men fired successively at the same animal. In these cases it was the duty of the Secretary to examine the various claimants as to the position in which the animal had been standing or running when they fired, and then to examine the body, and see by what bullet it had been killed, awarding the game to the man who finally killed it. A good deal of argument sometimes arose, but only one or two of the members were jealous; and as a register of all the shots fired and the number of animals killed was noted after each drive, the individual skill of the members was pretty well known.

In these short winter days we always began at daylight and went on till dark, stopping in the middle of the day to lunch in the forest round a fire which was lighted. The keepers, though not bad fellows, did not seem to me to have nearly so much woodcraft or knowledge of the number of animals in their particular beats as German keepers usually have. Their business seemed to be mainly that of watching to keep off the numerous poachers who exist here and who do a good deal of snaring as well as shooting when they get the chance.

After leaving Bouillon I often returned through Paris and went on to Brittany, where a friend of mine, the late W. H. Pope, used to keep his gunning punt at a little village called Sarzeau on the Mer de Morbihan. There I spent a week or ten days in what is thought, by the few men who really understand the art of punting, to be the most exciting of all kinds of small game shooting. Pope was a remarkably strong and hardy fellow who had for years been in the habit of punting on the English and Scotch coasts; but, finding the number of geese and widgeon rapidly decreasing and the number of gunners too great, he had made his winter headquarters in Brittany for some years. We used to live in three rooms of an old château on the shore of the great land-locked expanse of salt water known as the Mer de Morbihan, which is frequented in winter by immense flocks of Brent geese and widgeon. Here, at first, we had the sport pretty much to ourselves, the only local gunners being fishermen, who went out in little flat-bottomed coracles with long muskets loaded with large shot, and by waiting about in the likely places used to get a shot or two nearly every tide when the weather was not too rough, though they seldom picked up more than two or three birds at a shot. At first they interfered a good deal with our sport by firing and putting up the fowl which we were trying to approach, but we gradually made friends of them, and succeeded in convincing them that they would get more fowl by waiting till we had fired a shot, and then by helping to retrieve the cripples, which were often numerous. Pope never cared to fire unless he was near enough to kill a good many at a shot, and he was indefatigable in his endeavours to make record shots. He had a double-handed punt with a gun weighing about 160 pounds, which carried one and a half pounds of shot, and usually preferred to make the final approach himself, leaving me to fire the shot when he thought the favourable moment had occurred.

We used to go out as a rule, whenever the weather allowed, about two hours before low water, and sculled the punt to a likely spot, where we

waited till a patch of mud was exposed by the tide, when it was soon covered with hungry widgeon and geese. The numbers were extraordinary; in fact, the flocks were as a rule far too large to approach closely, because they covered such a wide area of water that the outside ducks saw the sides of the punt, before we had got near enough to the centre. By daylight we rarely got near enough to the packs of widgeon to make a heavy shot, but just as it got dark in the evening, and just before daybreak, we generally managed to get within sixty yards, which was about the most deadly distance with this gun. Then if all went well one might kill forty or fifty or more at a shot. As soon as the gun was fired we sat up in the punt, and sculled to where they lay in the water, some dead, others only winged, which we had to shoot with a small gun. It was astonishing how quickly these cripples disappeared in all directions among the mud-banks and the channels which intersected them. One had to be very careful, when the tide was falling and darkness coming on, not to get aground on the mud, which might entail remaining there for four or five hours till the tide rose high enough to float the punt again.

Pope knew the channels and passages in the various mud banks so well from long experience that he would take no more risk than necessary, and though the expanse of ground was very large, we only got weather-bound on one or two occasions. A gunning punt lies so low in the water and is so bad a sea-boat that she is very easily swamped if the wind gets up enough to raise a sea in the deeper channels. In such cases we had to go ashore and take shelter on one of the islands till the water got smoother, or perhaps haul up the punt on the shore and walk home.

Punting is dangerous work unless one is very careful, and it is best carried on from the shelter of a yacht or sailing-boat large enough to board when bad weather sets in. One winter we hired a large fishing-boat and went for a cruise down the coast outside the Mer de Morbihan, but we found no other place where the fowl were so numerous, and the waters so well suited to punting. On this occasion we had a French friend on board, the owner of the château where we lodged, who was anxious to see a little of the sport. One evening we were sitting on deck after dusk in a harbour that Pope had not explored, and did not know his way about in, as he did at Sarzeau. Widgeon were whistling and meowing in swarms all around the yacht, but it was too dark, as I thought, to do any good until the moon rose; and when our friend proposed to try a shot I told him I would not go. But Pope said they were so close that he could not lose the yacht and he determined to try a shot. So they started, and in a very few minutes I heard a shot 300 or 400 yards away. The tide was running pretty strongly and must have taken them down faster in the dark than they thought, for the sounds of rowing got fainter and fainter and soon I could hear them no longer. I hailed and fired several shots to let them know where the boat was, but, as they told me afterwards, the channel turned, and whenever they rowed towards us the boat stuck in the mud. Luckily, though dark, it was quite calm, and as I could do nothing to help them I left a sailor on watch with orders to keep a good light burning and went to bed. Six hours later when the moon rose they came back very cold and tired, without a single duck, having lost their way in the

mist which hung over the water, directly after firing. Pope was very angry with himself, but when we had put our French friend to bed and had had a hot breakfast it was just getting light enough to start out again. He came out with me for a daylight cruise, during which we had no less than four shots at Brent geese. The great charm and interest of this kind of sport lie in its extreme uncertainty, for unless the weather is good and the birds hungry and settled to their feed, it is very little use expecting a really heavy shot.

The best season we had was the hard winter of 1893-4, when, even in Brittany, the sea froze in shallow places, and the water freezing on the bows of the punt made it difficult to keep the elevation of the gun correct. I found that whatever amount of clothes I put on it was impossible to keep warm in the punt when one was lying waiting, but neither of us was the worse for it; and the flocks of mallard and teal, which were frozen out of their usual fresh-water haunts and came to feed on the saltings and doze, were much easier to approach than the widgeon or geese. In that winter Pope killed over 2,000 head in about eight weeks between the first week in December and the middle of February. Once he picked up fifty-four geese after a single shot, losing many more in the dark.

The best shot I ever made was a flying one, a very rare chance when shooting with a punt gun. It happened in this way. We had gone out early in the afternoon and were lying in an open channel among the mud-banks, waiting for the first appearance of the mud as the tide fell. Great flocks of hungry widgeon were settled, or flying all round us; the gun was loaded and we were ready to set up to the first favourable chance. A flock of perhaps 500 widgeon came flying across our bows at perhaps sixty or seventy yards off, and, as they crossed, a great black-backed gull stooped at them and drove them down to within perhaps fifteen feet of the water. Seeing my chance I depressed the stock of the gun with my left hand and pulled the lanyard with my right, just at the right moment, and cut a hole through the thickest part of the flock as they dipped. A cloud of birds fell and we picked up about forty, besides losing a number of winged birds. However, as usual, the majority were retrieved by the fishermen, whose coracles were not far off, and who could follow the cripples over the shallows where we had not enough water to float.

It was very difficult to judge distance when lying down with one's eyes only just above the gunwale of the punt. Often it seemed that the ducks were much closer than they really were, and the continual noise which is kept up by a flock of widgeon, in the dusk, often sounded quite close, when it was 200 or 300 yards off. The ducks were often swimming away from the punt as fast as we were able to advance when lying down and using the set poles in shallow water. When one had to scull with one hand over the side of the punt, it was frightfully hard work. But Pope had a right arm of iron, and the patience of Job, and would not willingly let me fire unless the chance seemed good enough. Often, just as we were getting up the birds jumped, disturbed by a shot in the neighbourhood, or lifted off the mud by the rising tide; and often at night if there was haze on the water we could not make out the ducks at all, and were obliged to shoot

in the direction where the sound seemed to indicate that they were thickest. The Brent geese were much more day feeders than the widgeon, and we often got shots by laying the punt among the seaweed, in a position where the geese would come past on the tide. But such shots rarely killed more than three or four, as, though the geese seemed thick on the water, it is only when they are crowded on a small patch of mud that you can really make a heavy shot.

This form of shooting is now hardly known to English sportsmen, though in the days of Hawker and Folkard it was followed as a means of living by many fishermen on the south and east coasts. I have often thought that if an electric motor could be devised, sufficiently noiseless and light enough to be adapted to a gunning punt, great sport might still be had. But there are few places in the world where it could have such a good chance as on the Mer de Morbihan.

CHAPTER XII

SPORT IN NORWAY, 1891-1911: ELK, BEAR AND REINDEER

IN 1891 I made my first trip to Norway, mainly on the advice of Mr. E. N. Buxton, whose delightful book, *Short Stalks*, had first opened my eyes to the comparatively new sport of elk hunting. A few Englishmen had discovered the possibilities of the chase of this splendid beast, which, owing to the close time which had been established, had become comparatively common in the two provinces or "amts" of North and South Trondhjem. Though I missed the best period, which was between about 1880 and 1890, I was fortunate in finding a magnificent tract of country, which at that time had only been hunted by the natives, and was quite unspoilt by tourists. I first went over in June and made the acquaintance of Peter Norbye, a well-to-do farmer who lived at Selbo about thirty miles from Trondhjem, and who for several years afterwards was my companion and guide in the district. On his advice and with his help I rented from the peasant farmers the whole of the elk hunting-rights in the valley of Tydal, which extended from Selbo right up to the high fjelds on the Swedish frontier. According to the Norwegian law each proprietor has the right to kill one elk, or, in the case of very large farms, two elks, during the season, which then lasted only from September 1st till September 30th in South Trondhjem, and for ten days later in North Trondhjem.

We drove up the Tydal valley, forty-eight kilometres, to the principal centre at Ostby and there met a number of the farmers, who agreed to let me the whole of the rights, forty-two in number, for three years at the price of 1,200 kroner, and I must say that they carried out their part of the bargain most honourably, and did everything in their power to make our tenancy agreeable and successful. Besides the rights at Tydal, I also took a number in the parish of Selbo, so that if we were driven down by snow from the upper valley there might be ample room for a large party in the lower-lying fjelds and forest.

My late friend, William Cripps, agreed to go shares with me, and about the middle of August we set out with our wives and children, making a party of ten, with a handyman as servant. I succeeded in getting two setters smuggled over in one of the Hull steamers, so that we might have some ryper shooting before the elk hunting began, and we arrived at Lovoen, which is a large farm in upper Tydal, a week after starting. Here we made our headquarters for a time in a large comfortable farmhouse belonging to Lars Lovoen, an elderly farmer who rented an immense tract of fjeld from an institute in Trondhjem, and had a good deal of barter with the Lapps who pastured their reindeer in the higher mountains, and whose headquarters are at Roros, thirty miles to the south-east.

We had an excellent Norwegian cook, and lived well and comfortably at Lovoen, which is about 2,000 feet above sea-level and near the limit of forest. The sport during August consisted of excellent trout fishing and fair ryper shooting, and the surroundings were delightful. There

was great variety of other game besides ryper, and the bag, though small, was extremely varied. I remember one day on which we began by beating the woods up to the edge of the fjeld, where capercaillie, black game and hjerpe or hazel grouse were found. On reaching the high fjeld, we divided into two parties, and shot ryper with the help of the dogs, picking up a few snipe and odd woodcock, and golden plover in the course of the walk. After lunch we went still higher and found a good many fjeld ryper or ptarmigan on the rocky top of Blaahommen, a mountain about 4,000 feet high, where I also found a small party of dottrel. On the way back, we got two or three ducks and teal on the edge of a marshy lake, so that eleven kinds of game were included in the bag in one day. We found tracks of elk up to at least 3,000 feet, and on more than one occasion came quite close to elk which were lying in small thickets of birch, far out on the fjeld and above the forest, which here reached to a little over 2,000 feet. This year was one of those which occur at varying intervals, in which the lemmings increase and multiply to such an extent that they are forced to migrate in immense numbers to lower ground in search of food, and in consequence there were great numbers of rough-legged buzzards and other birds of prey. Snowy owls, which feed largely on lemmings, had bred in the district, and I obtained from the Lapps four young snowy owls of which we succeeded in bringing three home alive to England, where they lived for some time in Lord Lilford's aviaries. In order to supply the owls with food on the voyage, I had 200 live lemmings put in boxes, but they fought so desperately with each other that most of them were killed before we got on board the steamer. The fearless nature of these little animals is very striking, for they seem to have no idea of danger, and will stand squeaking in your path without trying to get away. When they come to a lake or river they go straight into the water, and I have seen thousands at a time trying to swim across a large lake, where most of them were drowned. The water in some places was so much contaminated by the number of dead lemmings that we could not drink it, and the grass was in places almost destroyed. But in the following years we saw few or none, and though much has been written by Scandinavian naturalists about these animals, I do not think their wonderful increase in numbers at long intervals has ever been fully explained.

About the natural history of Norway, what struck me most was the scarcity of birds on the lakes and marshes. A few black-throated divers, mergansers, scoters and sandpipers were almost all that I saw on Tydal, where snipe, woodcock and ducks generally were very scarce in September. I do not think I shot a duck or teal in the three seasons I was there. Geese were occasionally seen flying south, but I never saw any breeding. There are, however, some lakes on the Swedish frontier near Noroli in North Trondhjem where grey geese are said to breed in great numbers, as they do on the island of Smolen, where my cousin, Patrick Musters of Annesley, has had great sport with them. There were also very few birds of prey. In the lemming year rough-legged buzzards and snowy owls bred on the fjelds, but in other years kestrels and an occasional eagle were almost the only ones. Owls I never saw, though once or twice I heard the cry

of the great eagle owl at night. Woodpeckers were also very scarce in the forest, and I only once saw and shot the great black woodpecker in Namdalen. One of the most familiar birds was the Siberian jay, which is as tame and inquisitive here as everywhere in the northern forests. Cross-bills and finches were scarce; magpies were everywhere common and much tamer than in England. Ravens were seen and heard almost every day, whilst tits, pipits and wagtails were the commonest small birds.

As regards mammalia there was also a great scarcity. I never saw a glutton, lynx or marten, though they all exist in the district. Blue foxes were fairly common on the high fjeld but not often seen. Hares were not at all plentiful. Squirrels, much darker in colour than in England, were also scarce. One of the most interesting animals which still occurs in a very few places in South Norway is the beaver, which, thanks to the representations of my friend Professor Collett of Christiania (Oslo), is now strictly preserved. He has published an excellent account of their habits.

At this time I had no knowledge of the habits of elk, and the farmers of Upper Tydal were not experienced hunters, so as we heard that the lower lying forests were more easy to hunt than the high ground, which I afterwards found is not the case, we returned to Selbo for the 1st September, which was the opening day. I started out in a carriage with Peter Norbye at daylight for my first day's elk hunting, which was to be at a farm six miles away, where the farmer told us that elk were often feeding almost among his cows. And this proved to be true, for in a very short time we found a barren cow-elk and a two-year-old bull feeding on a ridge not far off, and watched them as the cows with their herd passed along below them not 100 yards off, only stopping their browse on the young mountain-ash, which at this season is their favourite food, for a few minutes till the herd had gone by. By making a short circuit, we succeeded in getting within thirty yards of the elk, which, however, I could only see parts of among the thick bushes, and as meat was the main object on this occasion, I fired and wounded the cow. Peter slipped his dog, which was young and inexperienced, and soon came back to us, and we followed the tracks of the cow in a manner which I now know to be futile. But fortune often favours the inexperienced hunter, and as after two or three hours' tracking we found that she was going round and round, it was suggested that the farmer's son, who was with us, should show me a ford in the river much used by elk, and leave me there whilst he followed up the track with Peter.

I had not been waiting more than half an hour when I heard a shot not far off, and almost at once the elk appeared at the edge of the forest and came trotting over the clattering stones of the ford. I had a very easy shot at fifty yards and killed her dead, to the great delight of the farmer, who, like most of his kind, preferred a fat cow weighing perhaps 600 or 700 pounds, to the finest bull-elk in Norway. After butchering the elk and drinking coffee at the farm, where the people were—as I have always found them—friendly and hospitable, we drove home in triumph, and I began to think that elk hunting was an easier form of sport than I had supposed. The next day we arranged with the ladies to meet us

for a picnic on the shore of a lake called Slindvand, in the forest, and started with the boys very early to an island in another much larger lake, Sorungen, where elk were said to be often lying. About ten o'clock we got to where a boat was kept, and rowed up-wind to the island, where we posted ourselves at various spots where the elk might take the water when disturbed. The Norwegians then started with their dogs to drive the forest which covered the island. Sure enough, the elk were there, and in a very short time an elk came down to the shore near where two of the boys were watching. A regular fusillade ensued, and, though the slayer of the elk remained in dispute, a fine cow was slain in the water. We had, in chaff, assured the ladies that we would bring them meat for the picnic, and as they reached the landing-place our boat came in with the dead elk in tow.

As a proof of the wonderful nose which some of the elk-dogs possess, I may say that one which was lying half asleep in the boat wined the elk when we got the right wind about two miles away; and I have known another dog lead me up to fresh tracks on a good scenting day which he had wined at least 400 yards away.

We now began to think that elk hunting was mere sport for boys, and that if they could be got as easily as this the number of rights we had acquired would not suffice for the whole month. But before another week had passed, many often wet and weary hours had been spent in tracking through the deep woods and marshes which surrounded these lakes. With no result but tumbles over the fallen and slippery logs, and firing two or three fruitless shots at the stern of disturbed elk vanishing in the forest, we began to think that it was not so easy as it seemed.

And looking backward with the knowledge afterwards gained in these and other hunting grounds, I am confident that the system followed by the hunters of Selbo was utterly wrong, and that even if the big bulls, which we fondly hoped to find, had been at that season in the forest, and not as they actually were on the fjeld miles away above timber line, we should, by following tracks however fresh, have disturbed many more than we ever saw; and we had little chance of getting the cunning old bulls even if we had seen them. Every now and then, of course, if you work carefully up wind, especially in rough and windy weather with a keen-nosed dog in a leash, in forest where elk exist, you may come on one feeding in the early morning or evening before he sees or hears you, and you may get a shot at fairly close range, such as Norwegian hunters love, and kill him or her as the case may be. But this is not scientific elk hunting, which I afterwards learnt from a Lapp of whom I shall have much to say later.

As we were three in number, each of whom had engaged a hunter with his dogs, and did not want to separate at first, we imagined that by carefully selecting positions on ridges between two lakes or posting ourselves at favourite fords, and sending the hunters miles round to beat the forest down-wind, we might succeed in driving elk as the Swedes and Russians do. But though on one occasion Cripps did have a good bull come close past him which he wounded and lost, and I got a cow which on a

dead still day walked up to within ten yards of me to meet her fate, yet we found that the habits of elk do not allow them to be driven with any sort of certainty, and that they nearly always turn and go up-wind when they know they are hunted, so that the most carefully planned drives generally fail.

And though we persevered for the whole month and went over an immense tract of country, sleeping on various farms, and occasionally camping out for a night in the saeters* in order to be nearer to our best ground, the result of the first year was not very successful as regards elk, and no big heads were brought home.

But I had become so enamoured of the country, and had got on so well with the people, and generally enjoyed myself so much, that I went back the next year keener than ever, and this time spent much more time in the higher valley at Graesli, Aune, Lovoen and Stuedal, the last farm towards the Swedish frontier. This year I had some good days after reindeer, of which a few escapes or wanderers from the Lapps or Swedish herds were to be found on the higher mountains. Though not perhaps as wild or wary as genuine wild reindeer, they had to be treated and approached with every bit as much precaution, and one never knew till you got them whether they had been marked in youth or not. I heard that a very big stag had been seen near the top of Oifjeld, a mountain about 5,000 feet high, six or seven miles east of Ostby. So I started one morning alone on a pony with a rifle and shot-gun, a setter and a lad to lead him, intending to look for ryper if the reindeer were not there. I reached the highest saeter on the mountain about eleven, after ten miles' ride, tied up my pony and setter and left my gun, and after ascending to near the summit made out some deer feeding in a very easy place to stalk them in. When I got near enough to spy them well I saw one stag with a very good head indeed, and several others not so good though quite shootable. But the big one always kept on the far side of the others out of shot, and though I crawled about on the frozen snow until my fingers had lost sensation, and waited a long time to get in at him, I was at last obliged to kill the best of the others before they went off for good. Reindeer on such ground generally feed along much faster than red deer, and rarely remain long in one place when not lying down, so that in broken ground you may very soon lose them. However, my stag was very fat, and after gralloching him and tying my handkerchief to his horns to keep the ravens and foxes off, I went back to the saeter and sent the lad back to Ostby to get a sledge to get the deer home that night. I then lunched, took out the setter and had three or four hours' very pleasant ryper shooting before the lad returned with a man and a cart from Ostby. They then unharnessed the pony, packed a light sledge on his back, and started for the place where I told him the reindeer lay about 4 p.m. I went back to Aune, where we were going to sleep, arriving about seven, and the man arrived with the reindeer at twelve at night, having then five miles to go back to his home. I asked him how much I was to pay him for the job and he said four kroners. I merely mention this to show

* A saeter is a wooden hut where hay is stored and cattle are taken to graze for a few weeks in summer

the honesty and willingness to oblige strangers of the Norwegian peasants, in districts where they have not been spoilt by tourists or, what is even worse, by rich sportsmen. I never during my three years in Selbo and Tydal had a single case of overcharging or the slightest attempt to infringe the bargain which I had made with the farmers of the valley for their sporting-rights. At the same time, I must say that I owed a great deal of this to the presence and advice of Peter Norbye, who, like all farmers, was keen at a bargain, and told me that the people would respect us all the more if we were the same. On my first attempt to buy a sheep for meat the farmer brought one too lean for my taste, and when I turned it on its back to feel the breast and said it would not do, he was surprised that an Englishman should know how to handle sheep. He fetched another for which he asked twelve kroner, but was satisfied with the ten I offered; after that we always agreed about price. For our lodgings and as much milk, cream and cheese as we wanted we paid one kroner per head per day, and as we wanted little more but groceries it was a wonderfully cheap trip.

I have never in any country found a rural population for whom I have such a high respect and liking as for the Norwegian farmers of the inland districts. In all affairs of local government, which they manage almost entirely for themselves, honesty, economy and good sense seem to be practised to an extent which no other country can show; and when we consider how poor that country is, how hard and difficult life is for the farmers in the remote inland districts, I must say that I know no people who can equal them in real civilisation. But they are people who must be treated with the respect that is due to them, for though their government is highly democratic, they are aristocratic in many of their ideas and feelings and intensely patriotic and self-reliant as well. I remember having a long discussion one day with Peter Norbye, who was considered a radical in the district, as to the extension of the parliamentary franchise which was then proposed. He said that "Husmen"—who are a sort of sub-tenants on the large farms, often almost indistinguishable from the actual proprietors in manners and appearance—had no right to votes, and that he would vote against this innovation though his party were advocating it. On another occasion, when the question of the separation of Norway from Sweden became a burning question in Norwegian politics, I asked him why he, who had so much intercourse with Swedes and so many friends in Jemtland, could no longer live in union with them. He replied that the Swedes always treated them as an inferior nation, but that if it came to a fight the Norwegians would show that they were as good as the Swedes. I asked how the small population of Norway could resist the power of Sweden, if it came to blows, and he said that they had done it before, and if the Swedes invaded Norway they would meet the same fate as had befallen the Swedish army which invaded Trondhjem and had been attacked and routed in the snow on their way back in winter. And as he pointed out to me not many miles away the place where this had actually happened, this usually quiet and peaceable-looking man fired up, and his eyes glared in a way that showed me how deep his feeling was.

But now they have separated without bloodshed or ill-feeling in a way that is almost, if not quite, unique in history, and I believe that if an enemy was to attack Sweden the Norwegians would be just as ready to fight on their side as when the two countries were united.

During my second year in Tydal I had often heard of the hunting exploits of a certain Ole Larsen, a Swede from the frontier district of Jemtland, who had the reputation of killing elk with or without leave or right wherever he found them. As the local hunters did not seem to be able to find the big bulls which were often reported as having been seen or tracked in the valley, a letter was written to Ole Larsen inviting him to come and help us. One very wet evening we were sitting after dinner before a roaring fire at Aune about the middle of September, when a very thin, poorly dressed and badly shod individual, who had more the appearance of a clerk out of work than of a mighty hunter, came in dripping with rain and accompanied by a couple of wolfish looking grey elk-hounds, and carrying a rusty old breech-loader which did not look as if it had been cleaned for years. As he sat to dry himself before the fire and eat his supper, I asked him, through Peter, if he ever cleaned his rifle. He replied that if the cartridge would go into the breech, and he could see down the barrel, the bullet would go right enough, and we learnt by degrees that this was quite true, for, during the week I hunted with him, we got four elk of which two fell to his rifle, and if he got up to the elk first, I believe he would not have waited even for the King of Sweden to shoot first. Ole Larsen was, if the truth was told, a desperate poacher, and at the time was wanted in his own country on various charges, but he taught me the art of hunting with loose dogs, the system commonly adopted in Sweden, though illegal in Norway at present, and so well described by Mr. E. N. Buxton in *Short Stalks* that I will not say much about it. I very soon found that I was too old, too slow, and not half tough enough to follow loose dogs to the end in such a country as this. And though, no doubt, it is a most deadly way of killing elk, for a young man in first-class condition who is not afraid to sleep in his wet clothes in the forest if the chase leads him too far from home; yet it has the great drawback that, when the dogs have brought an elk to bay, it has to be killed regardless of age or sex, in order to blood the dogs, which are said to become slack if, after bringing an elk to bay, the hunter does not come up and shoot it. Old bull elk which have not been disturbed and have not winded the hunter will often stand after a very short run, as I found out soon afterwards; but if the hunter comes up down-wind, or if the elk breaks bay from any other cause, they will often go for very long distances, and if the day is windy and the country rough, the hunter sometimes loses his dog altogether.

Peter Norbye told me that he formerly had a dog which would stay with an elk all night, and that on one occasion, when he had been run out of hearing, and had had to sleep in the forest, he heard his dog in the still night baying the elk, and was able himself to get up and kill the elk at daybreak. It is a more exciting sport than hunting with a dog in a leash, but too hard work for most men, and nothing like so scientific as the method adopted by the best hunters, who never under any circum-

stances slip their dog, which remains absolutely mute even when the elk is in sight a few yards off.

We had some awful weather at this time and a heavy fall of snow took place, which melted as it fell, and made the rivers impassable in many places. The day after this snow I started late with Larsen and his dogs, sending a pony with food and blankets on to a saeter called Skarpdal, four or five hours' walk from Aune, to which we intended to hunt our way. Neither of us had been to this saeter before, but there was a pony track which led up the valley, and I thought that with the help of the excellent map, than which no better exists in any country for showing the features of the district, we should be able to find it. About three in the afternoon, when we were more than half-way, following the tracks of the pony in the slushy snow, we came on fresh tracks of four elk, which led up to a thicket of birch above timber line. If I had been alone or with a dog used to hunting in leash, I dare say I could have got up to them, but Larsen seemed to think that the covert was too thick to get a shot in. As soon as his dogs got wind of the elk, he slipped them. Off they dashed, and in three minutes appeared close to a big bull which had separated from the others. He ran and I ran, and the farther we went the farther I was left behind, but in a mile or two the elk stood, and Larsen crept up and shot him, a twenty-two pointer with small points, looking like a head that was going back. I ran up as quick as I could, and when we had gralloched the elk, and Larsen had refreshed himself with a double handful of warm blood, which he drank with as much gusto as if it had been whisky, we began to think we should hardly reach the saeter before dark. For though we followed the pony's track as long as we could see it in the melting snow, the path was quite hidden, and when it got dark, though we had forded the three streams which I knew we had to cross, I could see no light, nor had the least idea how to find the way. Larsen, however, opened the breech of his rifle and blew a note through the barrel which sounded something like that of a hunting-horn, saying that if his other dog, which had gone on with the pony, could hear it, he would bark. Sure enough, in a little while we could just hear a distant bay, and stumbled on in that direction as best we could. At last I fired a shot, and got an answering hail from the saeter, of which we at last saw the light on the hillside half a mile off. When at last we got close to it, we found another stream so swollen by the melting snows that without the help of the pony, which the lad brought out to help us, I do not think I could have crossed in the dark. And never was warmth and shelter more welcome than that saeter afforded after a long hard day in the snow; after fresh elk kidney and liver for supper we slept as well as possible, instead, as I expected, of having to bivouac under a tree in the snow.

Next day I hunted my way back to Aune without seeing any tracks worth following, but I had a lucky shot on the day following. It happened in this way. I had hunted over the top of the hill on the other side of the river, and in the afternoon slipped one dog in hope of his finding an elk which had been moving about in the early morning, but which had gone down into the forest. The dog went off and found him, but we could not

hear the bay, as the wind had become strong. After an hour or two, as it was getting late, and the dog was still absent, I determined to go home. As we were picking our way through a windfall, I heard a stick crack in the forest, and unslung my rifle in a hurry. I was just in time to see the brushwood move as an elk trotted through it, and I had a glimpse only of horns which looked pretty good. Holding well forward, I got a snapshot, as he passed across a slight opening only partly in sight, and fired. The elk ran on, and as the dog came up on his track we ran on, and found him dead with a bullet through his heart, a hundred yards below in a thicket. This was a fair bull of about five years old with ten points, and the best I had hitherto killed. Such chances rarely occur, but it taught me to make a rule which I have always adhered to since, which is that, however hopeless things might seem, I would never let anyone else carry my rifle, as stalkers so often do in Scotland.

As I was unable to talk to Larsen, and the local men seemed jealous of his success, I let him go soon after, and returned home on October 1st without having got any more bulls, though I hunted over a lot of good ground and got two more elk.

The following season I returned to the same valley with Sir Frederick Carrington, who was at home on leave, and Mr. Staniland, and we had a fairly successful season in Tydal, though our sport was a good deal interfered with by the number of reindeer which were scattered over the upper part of the valley. It appeared that during the preceding winter a large herd in Sweden had been broken up and stampeded by some cause, and had crossed the fjelds into Norway followed only by one of the Lapp herders, who arrived half dead from exposure at Stuedal. Many of these deer were never recovered, and the Norwegian farmers, finding that they were pulling down the little hay-stacks which are put up at any little forest meadow where there is enough grass to be worth cutting, began to hunt them, and disturbed our ground so much that we had to give it up.

On one occasion I found two fine reindeer stags in a lovely valley between Stuedal and Roros lying under a rock on the shore of a little mountain lake. I stalked them successfully, but they bolted at the last moment and I fired a snapshot at one of them as they rushed round the rock. Running forward I came in sight of the shore, and got another shot at a stag running along it. He at once turned into the water, and I killed him with a second shot twenty yards from the bank. Peter waded in and pulled him out, a splendid stag with white head and neck and in very prime condition. After gralloching him I went back to the rock to see what had become of the other one, and found him also dead, close to where I had fired. We lived on the meat of these stags for a fortnight, and though I am not a great meat eater, I have never tasted anything to equal thin slices of really fat reindeer toasted or grilled, and eaten with cranberries and hot flat brod. It is often said that one's appreciation of what one eats in camp or when in the wilds is due to appetite, but I brought a haunch of one of these deer home, and tried it against a perfect haunch of fallow buck at a dinner-party at Colesborne; when the unanimous opinion was that the reindeer was much the more delicate and tender meat of the two. What one generally gets as reindeer meat in Norwegian

towns is poor stuff in comparison, usually killed too early or too late in the season and more or less smoked to make it keep.

On my next visit to Norway, in 1895, I was fortunate enough to obtain, from the late Sir Henry Pottinger, the right of hunting in the district of Mo, a hundred miles north of Namsos in North Trondhjem amt, which I believe was then perhaps the best ground for elk in Norway. It was the private property of the late Mr. Collett, whose timber-felling operations had now been closed. As his farm tenants were not hunters, and there were no Lapps on the ground, the elk which Sir Henry had carefully nursed for some years were less disturbed than in any place I have shot over. I had the immense advantage during the season of the company and advice of Elias Eliassen, a Lapp who had been used to going with Sir Henry Pottinger, and for whom I soon acquired a respect, liking and esteem which I have never had for any man of his class in any other country. Elias was a poor man, owning no reindeer, who made his living by working in the woods, trapping and fishing. Though he spoke very little English when I first knew him, he picked it up very quickly, and whenever he did not quite understand, he asked me to repeat my words slowly. He was the most perfect master of what I may truly call the science of finding and approaching elk with a leash dog. No Norwegian that I ever went with could compare with him for knowledge of the animals' habits or for patience and freedom from excitement in critical moments. He was absolutely honest, sober and truthful, clean in his habits and a perfect gentleman in character. I think that he also acquired a liking for me, and when he accompanied my son to Tydal fifteen years later, Elias, though an elderly man and a stranger in the district, was successful in taking my son's wife up to the two best bull elk which were killed that year in the district, after the ground had been unsuccessfully worked by the local hunters. I learnt so much from Elias about the elk and my month's hunting at Mo was so successful, that I was afterwards induced to write a paper on the "Present Conditions and Habits of the Elk in Norway," in the *Proceedings* of the Zoological Society for 1903, pp. 133-157. In this paper I brought together many interesting observations from various sources, which were then unknown to zoologists, and figured several heads of special interest.

Most Norwegian hunters get so excited when in sight of elk that they are always hurrying you to shoot. They do not seem to realise that you can see and hear as well as, or often better than, they can, and that as you have no dog to distract your attention you are more likely to see the elk first. Elias, however, after the first day left me entirely to myself, and if he saw anything first said nothing but only motioned me to go first. The result of this was that in the course of twenty days' hunting together during the month of September we found thirty cows, fifteen calves and seventeen bulls, of which some were not good enough to shoot. Two I left to my friend Byng, and ten I seriously hunted, the result being that I shot at and got seven of them, and one dry cow on the first day, which I shot to try a new rifle and please the farmer on whose land she was. I could certainly have killed at least eight or ten more cows if I had wanted them.

I attribute this great success partly to the nature of the ground, which was often open enough to enable you to see elk at a distance and stalk them without the use of the dog, secondly, to Elias's skill and intimate knowledge of the ground and habits of the elk, and lastly to the principle which he always acted on of going very slowly when near elk, of never following tracks without making constant casts on both sides to give the dog the wind of any likely places where the elk might have turned back. Elias always said that it was better to spend three or four hours in approaching an elk in such a way and at such a time as to enable you to see him before he saw or heard you, than to spend the time in running after disturbed beasts, or looking for fresh ones; and sometimes when we had got near what he believed to be a good bull on very still days, or in very thick forest, he would suggest leaving it and coming back the next day.

I must not omit to mention Pasop, the dog with Elias. This was Sir Henry Pottinger's and my favourite dog among many that we had tried, and I believe he had been at the death of about forty elk in the course of six or seven seasons. Elias had the greatest possible regard for him and never when in or near the forest, or where elk might be, allowed him to be loose, as he considered it to be ruinous to a dog used for elk hunting to be slipped, or to have the chance of running an elk. Pasop was, like his master, very deliberate in his actions, and though he could wind an elk as far as and as certainly as any dog, did not want to rush and strain when the scent was hot, as most elk dogs do. He was keen enough but not too keen, and when an elk was killed used to take very little notice of the body and never seemed to care about the blood and offal with which the hunters usually reward their dogs after a kill. Whilst the butchering was going on—and Elias was far cleaner and more methodical in this work than any hunter I have had—Pasop would, after a titbit or two, lie quietly down and go to sleep as though it was an everyday occurrence. Until I knew the dog well I often thought he was slack, but Elias knew very well when he was near elk; and though Pasop would on rare occasions take notice of and perhaps go a little way on the scent of a fox, he did not, as many good dogs do, draw up to capercaillie or ryper. I never had him on the fresh track of a bear, but I do not think he had ever been entered to or seen one.

As Sir Henry Pottinger in his most interesting book, *Flood, Fell and Forest* (Arnold, 1905), has given so good an idea of the method he followed, I will only describe two days which are specially interesting.

The first was on September 22nd, when we had spent the night after a blank day in a hut built near the south end of Storvand, a lake seven or eight miles long, surrounded by steep hills clothed with birch and pines up to about 600 feet above the water. The night was so wet and stormy, and the roof leaked so much, that after a rather broken sleep I was ready to start before daybreak, and as the wind was blowing up the lakes we took the boat intending to row to the far end, and hunt our way back up-wind. Rowing quietly along the shore in the dull misty morning, I spied a bull lying close to the shore about 150 yards off, and slipped my rifle out of the cover, signing to the men to row gently on without speaking. The bull rose and gazed at the boat, and as I saw he would not stand long,

I took a careful aim at his chest as he stood facing me. I either shot too low or underestimated the distance, for he immediately jumped round and disappeared in the thicket. We landed and found blood on the tracks which led straight up the steep hillside, and out into a very broken and rugged country covered with rocks, long heather, little swamps and patches of pines and birch thickets. For two hours we followed the trail on which the drops of blood became less and less, till they ceased altogether. I now noticed several young pines on which an elk had recently cleaned his horns, and suspected that others were not far off. Pasop soon became as keen as he ever was, though he was never a hard dog to hold, and led us towards a dense thicket which covered both sides of a narrow rocky ridge, where the elk might very likely have waited. As Elias thought it was unwise to follow him into this, we went round down-wind and climbed up to a good spying point from which I could see a lot of country. After a good look we saw a bull elk come out of the covert and lie down on the bank of a little pond a quarter of a mile away, but as his horns seemed smaller than those of the bull I had wounded, and he was not watching his tracks as a wounded one would have done, I suspected that it was a fresh elk. I could easily have approached and shot him, and Elias urged me to do so; but as I did not want to lose my right on this farm, where the laws against killing two on the same ground are strictly kept, I went back to the place where we had left the track, and after a little casting around found that the wounded beast had passed on through the thicket and gone down towards another lake. An hour afterwards we found a new track keeping company with the one we were following, and not distinguishable by their size, so it was clear that our quarry had found a new companion. The tracks soon led straight down to the lake and entered the water together, and we had to go two miles along the shore to cross the river and get to the other side. Following the shore we eventually found the place where the two elk had left the water, and then the tracks separated. It was impossible to tell which was the hunted animal and which the fresh one, so Elias just let Pasop smell them both and take his own choice. As it turned out he chose right, and we could soon see, by the way the elk behaved, that he knew he was being followed, for he stopped more than once on the top of ridges where he could see his back-tracks, and then went on down-wind without ever giving us the chance to see him. About three o'clock we came to a ridge which overlooked a great marshy flat, a mile wide, on the other side of which was a long thick birch wood covering the side of a hill which rose up towards the open field, and beyond which there was no more forest or brushwood for a great distance.

After spying the ground carefully in the direction the tracks led, which pointed towards the up-wind end of the birchwood, which was perhaps a mile long and three or four hundred yards wide, I was sure that he had gone into it, and I was nearly sure that he would turn down-wind when he entered it and that it would be impossible to approach him. I suggested to Elias that I should go along to the down-wind end of the covert, and take my chance of the elk coming out within shot, whilst he followed on the tracks through the covert with Pasop.

Elias, however, thought that an elk which had shown so much cunning and knew he was pursued would not go down-wind, but would, as soon as he heard or winded his pursuer, turn out of the covert over the fjeld, or more probably come out on the lower side and return towards the country he had left in the morning. And he suggested that my best chance was to leave the tracks altogether, go to the down-wind end of the covert, and hunt it carefully up-wind, so as to come on him from the side where he suspected no danger. And so we did, but just before entering the covert I saw half-way up it, and perhaps a hundred yards from the point where we intended to enter it, a slight movement among the birches which I guessed must be caused by an elk's horns.

And so it proved to be, for as soon as we got high enough for Pasop to get the wind, he told us as plainly as if he could speak that an elk was not far off. The covert was divided into strips by little gullies running down the slope, and as we came to the top of each little rise we lay down and spied all the ground most carefully before us, watching the dog all the while, as we knew he would tell us when we got close to the elk. At last Pasop began to stare at a fixed point, and I knew that his nose told him that the elk was not far off. But it was so thick in front, that though I thought I could make out a dark patch between two trees which might be a part of the elk, it did not move at all, and I could not tell what part it was. I waited and waited, hoping that it would move and give me a better chance, but Elias whispered at last that he was certain that it was an elk and that I had better fire at what I could see before it began to get dark. My mark was divided in two by a birch stem perhaps four inches thick, and I judged that this was not thick enough to stop my bullet, so I aimed very carefully and ran up to the place as quickly as possible. I found that the bullet had passed through the birch tree straight into the elk's neck, and he had fallen dead without a struggle, about eight hours after I had first seen and wounded him. He was a fine sixteen-pointer and is now stuffed in my hall, as a memorial of one of the most interesting days I ever had after elk.

Another day I was returning home in a heavy storm of wind and rain after killing a good bull on Brotten Farm, and came by chance on a bull which was standing in a dense thicket. I was not more than forty yards off and thought I could see about where his heart should be. As I was now on another farm where no elk had been killed this year, I chanced the shot, but found by the tracks that the bull had gone off with a cow, and did not seem to be seriously wounded, but it was too late to follow. Next morning we returned to the spot and followed the tracks till we came to a little hill-top covered with spruce, where the elk had stood all night without feeding. Elias searched about and found some fresh dung, from the appearance of which he made sure that the elk was hit in the stomach. We then got on the trail and followed it down-wind for some time through country where he was not likely to stand, judging by the tracks that the bull was following the cow. When we got to more likely ground we made a detour, and saw both bull and cow walking along slowly, the cow always leading and looking back for the bull, who was apparently unable to keep up with her. We managed to cut them off,

and I got a long shot at the bull, the effect of which I could not judge of, as he still kept on, though slowly. A mile further on I caught him up again, and got another shot, after which the cow left the bull and went off at a trot, whilst he turned along the rocky ledge of a steep rocky hill-side covered with scattered trees.

I now found that I could go as fast as he could, but the slope was so steep that I could not get a side shot, and at last took aim at the tail, what Fred Carrington always called the Boer shot. This turned him straight down the steep slippery rocks, which lay at an angle of perhaps forty degrees, and which I was obliged to slide down on my back as I could not stand on the slope. At the bottom the elk stopped and faced me on a flat piece of bog, and when I approached to finish him made an attempt at a charge, the only time I ever saw an elk face his pursuers. I shot him dead as he staggered towards me at fifteen paces, and found that the wonderfully strong and hardy beast had no less than five 500-bore express bullets in various parts of his body, any one of which must have proved mortal.

This was an eighteen-pointer, but the horns were not very wide. It seems to me that an elk which has not developed a wide head in his younger days never gets one, though he may get a great many points as he gets old. The natives think one fresh point on each side is added every year, and in Norway a total of twenty-eight points is very rarely exceeded. There is, however, a shed horn in the house at Mo which has sixteen well-developed points. This is the finest single horn I have ever seen. The widest is one I bought of Herr Bruun, the well-known furrier of Trondhjem, which has eighteen points and is fifty-four inches wide. I have another eighteen-pointer fifty-two inches wide, and these two are the widest from Europe recorded by Ward. Whilst I am on this subject I may say that by far the finest Scandinavian heads are from North Trondhjem amt, those from South Norway being much smaller. The shape and set of Scandinavian heads differ a little from those found in Russia, which, as far as I have seen, usually form a more acute angle; and European heads generally are of a different type and smaller than American moose heads.

The last day of the season was again a very lucky one. There was on the farm of Mo, which we made our headquarters and usually hunted on Saturday or Monday, an elk which was well known by the unusual size of his tracks, and which was supposed to be the very big bull which Colonel Walker and Sir H. Pottinger had hunted on many occasions during previous seasons. I had been after him several times without success, and once when we thought we had him cornered on a ledge high up on the banks of the Salvand and tried to drive him out, he had run back, almost knocking down a driver. But both Elias and Erik, who was the local hunter, believed that he bore a charmed life, as Colonel Walker had wounded him several years ago and Sir H. Pottinger, who did not often miss, had once missed him. I had given up all hopes of getting a shot at him, and had started early to visit a distant part of the farm which we had never been able to reach.

¹⁸⁹¹ Within a mile of the house we found quite fresh tracks of a cow and calf accompanied by a bull, which from the size of the footprints could only

be the big bull of Mo. I could see that Elias was not very keen about trying for him, but as the footprints led straight into a small thick wood which we could hunt up-wind, I determined to have another try for him, and hunted through the wood with extraordinary care and deliberation. After some time we took the tracks out into an open fjeld where there was no covert for miles, and Elias looked at me as much as to say, "I told you so." Half an hour later, whilst pegging away over the bare fjeld to make up for lost time, Pasop became interested in a scent which seemed very sweet to him. But as no tracks were visible, and the ground was utterly bare in the direction of the wind for a long distance, and the country too high, as I thought, for elk at that season, I suggested to Elias that it might be a fox or a stray reindeer that he winded. Many Norse elk-hounds will take up and run a scent of either of these, and I have known them draw up to a capercaillie; but Pasop was not addicted to small game and Elias had the greatest faith in his steadiness. So we spied the ground up-wind with our glasses, and could find no place where even a calf could hide, and after going half a mile, against my own judgment, I wanted to resume our original plan as the morning was getting on. Elias, however, persuaded me to try a little further, and about a mile from the place where Pasop had first got wind I saw the ears of a cow elk lying down behind a big stone. I knew the bull could not be far off, and crawled on alone, keeping the stone between me and the elk's head and spying every bit of fresh ground as it came in view. When about a hundred yards from the elk I saw that her calf was lying by her side, and that I should not much longer be able to keep both their heads covered. When only twenty or thirty yards off, the calf saw me and jumped up, and knowing that the bull, if in sight, would be off at once, I jumped up and came in sight of the top of a little dell full of birch scrub, into which the cow and calf bolted. Then a glimpse of horns showed between the bushes, and I had to take a snapshot as one does at a rabbit among furze bushes. A crash told me that something was down, and there stone dead I found to my great joy the big bull of Mo, which had for so many years defeated the cunning of better hunters than myself.

His head though carrying eighteen points was, however, very disappointing, as the horns had been going back for years, and the body was so thin and so far advanced in the rut that it smelt ranker than any I had ever killed. I cannot be sure that this was the same bull of which so many tales had been told, and whose shed horns, figured in the *Zoological Society's Proceedings*, 1903, p. 142, are the largest I have seen from Scandinavia. But as far as I could learn the big bull of Mo was never seen again, and I much fear that such elk are now no longer living in those parts of Norway.

This was a capital finish to the best season I ever had, but not my last in Elias's company. For, before leaving Norway, I secured a number of excellent rights in upper Namdalen, and arranged that Elias and his brother Thomas should meet me there the following year, at a farm called Linsetmo, where we got comfortable quarters.

When we arrived there at the end of August, 1895, Elias gave us good prospects of sport, but was in despair at the loss of his favourite old Pasop, who had been lost in the winter; and was supposed to have been killed



FIG. 8.—THE AUTHOR SEATED ON AN ELK.

in fighting another dog, though he was not as quarrelsome as many of his sort often are. Elias said he never had had, and never again should have, such a dog, which had been at the death of, I think, forty-seven elk. The young dog he brought was never in really good condition, and failed me on one occasion when we found fresh tracks of a bear. Though I had seen a bear in the previous season, at no great distance, but too late in the evening to hunt him, and though it had always been my greatest wish to kill one, these animals are now so rare in Norway that very few Englishmen of my generation have been lucky enough to get one. Captain Gerrard Ferrand, probably the most successful amateur elk and bear hunter among our countrymen, had always told me that they were the most wandering and the hardest beasts to find, and that, without good dogs that would bring a bear to bay, it was only when snow was lying, and bears could be tracked to their winter dens, that one had any certainty of finding them. The Norwegians are often by no means willing to follow bears alone, but Elias and his brother had both killed them, and told stories of how they had followed a she-bear with two cubs into a cave and shot them in cold blood. On this occasion the scent was too old and the dog not at all keen to follow it. Though he had never seen a bear alive or dead, he had an instinctive fear of bears as I afterwards proved.

I began to think that, like the Emperor of Austria, I should not find the Great Bear my lucky star; for as the story was told me in Styria, the Emperor, though a very keen sportsman, has not been able to shoot one. On one occasion a great magnate in Carinthia had reports from his keepers of a bear being seen on his property. He telegraphed at once to the Emperor to come and shoot. Keepers were posted in every pass by which it was possible for the bear to get out of the glen in which he was, and a cordon of men placed across the entrance to the valley. So sure was the noble sportsman of his game, that he had a dress rehearsal of the hunt the day before the Emperor arrived. Posting himself in the pass where the Emperor was to sit, he gave the signal to see if the different squads of beaters would start simultaneously. Everything went like clock-work; but long before the bear should have been moved, he came. The shot was so tempting that it was impossible to resist, and the bear fell dead almost before the magnitude of the crime was realised. The noble sportsman was in despair; but as only his own jager had seen the too successful shot, they determined to stop the beat, hide the carcass, and say nothing about it. The next day the Emperor arrived, and was conducted to a post a little lower down the pass. The beat went on as arranged, but nothing but deer came by, which were allowed to pass unscathed. Many apologies were made for the perversity of a bear which would not wait to be shot even by an Emperor, and after a drive for deer had been brought off in another valley the royal guest departed. But the head-keeper, who knew that if his stops had done their duty the bear could not have disappeared without leaving some traces, and disgusted at the failure, searched with his dog until he found the concealed body. After a year or two the story leaked out and came to the ears of the Emperor, who determined to have a joke at the expense of his host. At the next

great Court Ball a large pie was prepared in which a small stuffed bear-cub was put in a bed of moss and placed on the Emperor's table, at which the noble sportsman was invited to supper. When the covers were removed the amusement of the royal guests who were in the secret, and the dismay of the culprit, may be imagined; but it is said that he retired amidst roars of laughter and did not appear again at Court for a long time.

But everything comes to him who waits, and my lucky day came at last when, after this season's elk hunting in Namdalen, I was invited by a Norwegian landowner to visit him for a few days, in order to prospect some ground which he offered to let to me for the ensuing season. I took Elias with me, and after three days' hunting without success, which was mainly due to the carelessness of the local hunter who was sent to show us the ground, I determined on September 29th to go out alone with Elias to a valley where a good bull was reported, at some distance from the house. My host said that it was no use our going without his man as we should probably lose our way; to which I replied that, though Elias was a stranger to the district, I preferred to take my chance with him alone. After a three hours' walk, we at last reached the far end of the ground which we proposed to hunt. But the wind was so slight—nothing more than a gentle air from the west—that we hesitated to go into a large thick wood that we knew, from the signs we had seen the day before, was full of elk. Elias suggested trying some higher ground which, if not so certain to hold game, looked much more favourable to approach in on such a day. We made for the east end of a likely looking hill which we afterwards learned was known by the name of Trollfoss Klumpen, which, being interpreted, means Fairy Falls Hill. Crossing the river by an old timber floating dam, we cautiously skirted the edge of the open moor which bordered it, and before entering the birch and pine wood which covered the hill, came on some fresh-looking droppings of a bear. Elias, after turning it over, said quietly, "I think that is not very old;" but as the dog took no notice, we did not yet realise how fresh it really was. A little further on we found more, and began to quarter the ground in the hope of finding elk. The dog began to draw gently, as though he smelt something but did not know what, and for another half-hour we proceeded with the utmost caution. Now Finn was not like many elk-dogs who pull furiously while the game is yet afar off; but he had a good nose, nevertheless, and yet he did not seem at all sure. After a while his tail went down, and Elias, watching him carefully, whispered, "I think he smells wolf or bear."

We crept on yard by yard spying the ground in front of us with the utmost care, until we came to a large old pine tree on a narrow ridge overlooking a deep narrow ravine full of thick bushes, which separated us from the higher part of the hill. Under this pine was a lair which, it was plain to see, had not long been left by a bear, and Finn assumed an air of extreme interest, though his tail, which is usually curled tightly on his back, kept down. Elias also began to walk as if we had an elk within twenty yards, stopping to listen at every few paces. After passing the lair we saw that the dog kept looking intently into the ravine, and when

an elk-dog stares instead of smelling you know the game is near. However, we could neither see nor hear anything, and no tracks were visible. Elias, as usual when very near game, was apparently lost in deep thought, though every sense was, like mine, acutely on the watch. In a whisper he said, "I think we had better go back and get up the hill; he is not in front of us or the dog would smell him." We turned to retreat and, after a few steps, we both thought we heard a slight rustle in the thick bushes with which the hillside was covered. I cocked my rifle and stood ready. In two or three minutes I thought I heard the rustle again, and just then appeared a bit of brown skin on the hillside sixty yards off and above me. A momentary glimpse of something which I knew was not an elk just gave me time to get in a quick though steady shot, which was followed by a loud growl and nothing more. After slipping another cartridge into my favourite old Henry, which I first loaded for a Greek brigand twenty-nine years before, we cautiously approached the place up-wind, as Elias said, "If he is not dead we must not let him know what has hurt him."

As we approached the place, Finn's interest in the affair seemed to diminish as ours increased, and he rather kept to heel than in front. Nothing could be seen except where the bear had apparently rolled over once; but in a little while we found blood, and Elias rubbed Finn's nose in it to encourage him. At first he did not seem to want any bears, but after a while he got more confidence and, until we came to where the bear had started an elk, followed the trail, which every now and then showed a few drops of blood. As soon as he winded the elk tracks, however, his tail went up and we guessed at once that he had changed. Then for about half an hour I had to depend on Elias's native skill in tracking, as the dog wanted to follow the elk, and the ground covered with heather showed the tracks only at intervals. Then we came to where the bear had stopped and bled, and Finn again took the scent. Elias now said he was sure that the bear had not seen or smelt us, and that he thought from the tracks that a leg was injured, but that he might go very far before he stopped. The trail kept going uphill, and through thickets of dwarf willow which were very difficult to get through without pulling the dog off the scent. Whenever we approached a place which looked likely for the bear to stop in, Elias insisted on leaving the tracks and going down-wind of the place, as he said that, in following a bear which is not badly wounded, all depends on his not knowing that he is followed. This made our progress rather slow, and after about two hours, during which our direction was always straight away from home, I called a halt to have a mouthful of food. As I began to eat my lunch, Elias said quietly, "Do not eat it all now; I think you will be more hungry tonight." I got out the map, and saw that in the direction we were going there was no inhabited farm nearer than about twelve miles off, and as we were already more than that from our starting-point, I concluded that if we did not come up with the bear soon, we should have to sleep in an empty saeter or perhaps bivouac under a tree. After ten minutes' halt we went on again, sometimes through marshy strips where the track showed plainly in the long grass, and sometimes through willow scrub where ryper kept getting

up, and at last got up on to a bare fjeld leading up to higher mountains which had already got a slight sprinkling of snow.

I now got out my telescope and had a good look at the ground in front. Whilst doing so, Elias, who had gone a little way off, came running up. "I have seen him, I think we shall get him now," was all he said, and, running down the other side of the ridge with him, I was just in time to see the bear about half a mile off, going slowly down a gully back to the upper edge of the forest from which he had come. We had to go round to avoid a precipice, and when we got down, Elias would not go to the place where we had seen him, but came below and down-wind of it, explaining to me that from the way the bear had turned, and the slow pace at which he went, he was certain he would stop soon; and that we must be sure and see him, if possible, before he saw us. Soon the dog began to smell before him, and we went on very slowly and cautiously in the forest, which was full of rocky ridges and very difficult ground. As we approached a low overhanging cliff with big boulders and bushes at the foot of it, Elias said quietly, "If he wants to stop, that is a likely place." We examined every yard with the glasses before going on. I could see nothing, but Elias said, "Do you see that tuft of grass, it is not moving with the wind like the other grass, it goes backwards and forwards. I think the bear is there, and that is his breath." So we went on till I got about twenty yards off, but could still see nothing. Elias then threw a stone, and the bear growled but did not show. So I sent him to get above the cave in the mouth of which the bear seemed to be lying, and see if he could roll a stone on to him to bolt him. As he went, he took out the little hatchet which he carries in his rucksack to cut up elk with, saying quietly, "It is well to have the axe ready when a bear is near." I saw that, in case I did not kill the bear, he was quite ready to help me. Stones were rolled down, but the bear would not move; so I walked up to within three yards of the cave with my rifle ready, and at last saw the tip of his nose. When I spoke the bear growled, and as he opened his mouth I fired into it, and with a few struggles all was over. After a hearty shake of the hand with my dear little man, to whose experience alone I felt sure I owed my success, we pulled the carcass out and found a full-grown she-bear in beautiful condition, with a very good skin and no signs of having had cubs this year.

Elias opened the carcass and took out the gall, which he said was considered a very good medicine amongst the Lapps, and, after cleaning the inside, we propped it on its back with sticks to cool, as I intended to send a sledge to fetch the body next day. I found that my first shot had struck her high up in the haunch, and crippled her so that she could not travel fast, though she had gone at least six miles, and would no doubt have gone much further if she had seen us. It was then past three o'clock, and we started to make the best of our way home, which we reckoned was about twelve miles off as the crow flies, with a big lake to cross, or else a long way to go round. Luckily we took a good line through the forest and reached the lake just before dark, where I kept firing shots until a man came with a boat to fetch us across.

It was long after dark when I reached my friend's house. He thought

that we had lost our way, and would hardly believe I had got a bear, as no one had ever seen one on the place since he had had it. Next day Elias went up early with a sledge and brought the bear down to the road, and arrived at Stenkjaer about 10 p.m. in triumph, to claim the Government reward of sixty kroner from the Lensmand. Now by the law of Norway this cannot be paid until two claws are cut off, and the Lensmand thought he would get off paying as I should not like to spoil the skin; but Elias was not going to lose his money, and showed me how to take the claws out by the roots so that when they are put in again there is no sign of injury. It appeared that the only other bear which had been brought to Stenkjaer of late years was shot by a German who had been eight years trying to get one, and when he got it he would not allow the claws to be touched. The Lensmand thought he would play the same game with me.

When we weighed the bear two days after its death at Trondhjem, it was 116 kilos without the inside, which they reckoned would make it about 300 pounds in all. This seems to be above the average weight of a she-bear in Norway, and I am told that 400 pounds is considered the full weight of a large he-bear in Scandinavia. This bear was beautifully stuffed for me by Herr Brunn, the well-known furrier of Trondhjem, and is now in my hall in exactly the same position as the first bear I saw stood in.

Elias sold the meat at a good price and one of the hams was cured and smoked in Trondhjem, but when I had it cooked in the winter it was found that the salt had been insufficient and it was unfit to eat.

I always look back on this hunt as the most skilful and interesting of all that I ever took part in, except the elk hunt which I had at Mo. Elephant and tiger hunting may be more exciting, as they are more dangerous, but a really clever Norwegian elk-hound, with a man who has the brains and experience of Elias, beats deer-stalking, and even chamois hunting, hollow.

CHAPTER XIII

NORTH AMERICA, 1895

THE principal object of my third trip to the United States was to visit and report upon the assets of the Canadian Agricultural Company, in which a friend of mine was heavily interested, but which he was unable to inspect in person.

I left England at the end of April, 1895, and passed through New York to Montreal without stopping. A sudden burst of heat, such as often occurs in Canada in spring, had brought out the foliage with great rapidity and the journey through New England to Montreal was a very pleasant one. I had to enquire as to the rates and facilities which the Canadian Pacific Company afforded for conveying live-stock to the coast for shipment, and to transact other business. When this was done I went on to Ottawa to see the Government Experimental Farm, which was ably managed by the late Mr. Saunders, who gave me some useful information as to the prospects of agriculture in Alberta, where most of the Canadian Agricultural Company's farms were situated. This company was formed in England when the Canadian Pacific Railway was first opened to take up land for agriculture and stock-breeding in the Far West; and after various vicissitudes, caused by reckless extravagance, mismanagement, and the conditions of the soil and climate, had succeeded after eight or nine years in getting through a very large capital and into debt as well. In May, 1895, there was a mortgage on the stock to the extent of 80,000 dollars which would be foreclosed in a month or so if the money was not found to pay it off. On paper it looked as if the value of the property was immensely in excess of the mortgage, and what I had to do was to form an opinion and report on the actual value of the stock and plant. There was no time to be lost; so I started next day for Swift Current, a station west of Regina, and arrived there about two days later. This was the principal sheep station belonging to the company, and was one of eleven blocks of land of 10,000 acres each, which had been taken up by the company at various points on the line between Brandon and Calgary. I was met at the depot by a fine old Northumbrian, Mr. Rutherford, who was manager of the station and perhaps at that time the man who knew most about sheep in the whole of the North-West Territory. He drove me to his house and arranged to show me as much as possible of the land and stock. Most of the flock, which consisted of about 8,000 ewes and about 12,000 hogs and wethers, were descended from inferior ewes of merino type imported from Montana and crossed with English rams of many breeds, amongst which Cheviots and Cotswolds seemed to have been the most successful. The first cross was in most cases a very fair mutton sheep, but many of the second crosses were of a very mongrel character. The extreme severity of the winter climate entailed the necessity of providing fodder at times when the snow was too deep to allow the sheep to get at the grass, and the number of coyotes and wolves made it necessary to have the sheep folded at night in wooden sheds

which had been erected at convenient spots. A good deal of land had been ploughed at various times and sown with wheat and oats, but of late years recurrent droughts had made the growing of grain too uncertain, and oats for fodder only were now being grown on a very limited area. In the afternoon Rutherford drove me in his buggy round the 10,000 acre enclosure which had been fenced in by the company, but the greater part of the sheep were pastured on open land belonging to Government which lay behind it at some distance off, and a great part of the hay was also made on land outside the fence, the 10,000 acres being insufficient to support anything like the number of sheep kept there.

I found that the shepherds usually had charge of about 2,000 sheep each, which they watched by day and penned by night, sleeping three or four together in huts and receiving their rations from the farm. Most of them were Canadians or Americans, some English, and I found one from my own county. They were getting from thirty to forty dollars a month and their rations, and were all very anxious to know the future of the company, as they had received no wages for months in some cases and were only kept together by their confidence in Rutherford, whom they knew to be in the same boat as themselves. The lambing season was just commencing and the ewes had to be drafted out as fast as they yeaned to ensure the lambs being properly mothered. Coyotes hung about the neighbourhood and did much damage; and though the ewes were in very fair condition they did not expect to bring up more than about 80 per cent. of the lambs. At the farm was a well-built set of shearing-sheds and drafting-yards, and a lot of machinery and implements which had been brought from England and were in many cases quite unsuited to the country; I heard extraordinary stories of the way in which money had been spent. The wool seemed small in quantity and inferior in quality, and, after reckoning the heavy cost of shearing and transit to market against its low price, did not leave enough to pay the expenses of shepherding and wintering the sheep as it ought to have done. When the flock was first started there had been a fair market in British Columbia for fat sheep, though the cost of transit to the coast by the Canadian Pacific Railway was about a dollar a head; now, however, the importation of Oregon sheep to Victoria had closed this outlet, and shipments had been made to Great Britain with fair success. As, however, the sheep were not fat enough to send to England as mutton until they were two or three years old, and the cost of transit was about twelve shillings a head from Swift Current to Liverpool or London, plus the cost of feeding and insurance, I could not see how there was any sufficient margin of profit, after allowing for the various risks of the business, to make sheep-farming a tempting occupation in this country. It seemed that there was nothing to prevent other people coming in and grazing sheep on the Government land, and that if scab broke out, as was very probable, there was no sufficient law to deal with it, whilst it would be impossible to dip sheep during the severe frost, which here lasts three or four months.

After making enquiries all about from those who had been longest in the country, I found that the climate was getting steadily drier, and in consequence, hay for the winter fodder was scarcer and more expensive

than at first. The losses of sheep during severe blizzards had at times been heavy, and though there was no foot-rot and the grass seemed of a very dry nourishing quality, I could not see how in this country sheep-farming on a large scale was going to compete with Australia or Argentina. The weather whilst I was in this district was dry, bracing and pleasant, with a cold wind at times, bright sun, and slight frost at night. Very little rain falls in summer, and from the observations which had been made, I found that in the last twenty months there had never been enough at once to saturate the ground after the snow melted, whilst the dry air and sun very quickly evaporate any surface moisture.

I went to one or two of the other farms of the Canadian Agricultural Company, and at one, where the hogs were being herded, I arranged to purchase 400 ewe hogs at two and a quarter dollars a head free on board the cars at Swift Current in July; the wool to be shorn at my cost and credited to me. This was an experiment to see how these sheep would do in England. They arrived in August in very fair condition, with a loss of only three during the long journey, and were one of the last lots of sheep which were admitted without being slaughtered. Half of them went to a friend in the Cotswold Hills and did very badly—as I think, from want of management and suitable food; the remainder, which I divided between a grass farm in Essex and Colesborne, did very well. I fattened some on roots, and I think these paid the best. Some I wintered on grass and sold fat in the following summer, and some I bred from. I do not think that, if store sheep were to be again admitted from Canada, as it is possible they may be if store sheep were dear in England, I would care to buy any which had merino blood in them, as the mutton of all these sheep retained the peculiar woolly flavour which merino mutton has, and was not liked either by my own household or by the butchers who bought it. It seems remarkable that this flavour should not be eradicated by two crosses of English blood and a grass feeding in England, but such was the case, the sheep fed on roots having least of this woolly taste.

After seeing all that was necessary at Swift Current I went on to a station called Crane Lake, which was the principal cattle and horse ranch of the Canadian Agricultural Company, but as at this season most of the cattle were on the range at some distance and could not be rounded up for inspection without much trouble, I was unable to estimate their number. I saw the English bulls, some Hereford, some Shorthorn, and some Polled Angus, which had been imported at great cost and had survived three or four winters in the country. The cross with Hereford and Polled Angus were said to be the best beef cattle, but from what I could learn the country was not so suitable for wintering as the more sheltered country near Calgary, where the most successful cattle ranches in the North-West are situated. The horses were of a very mixed type; stallions of various English breeds had been used on native mares without much judgment, and though there was a fair sale for horses of a heavy enough type for ploughing and hauling, yet the lighter, smaller and better bred horses were almost unsaleable in the North-West at this time. The fact was that the breeding of all kinds of stock had been carried on in the

United States during the last fifteen years on such a large scale that the supply was everywhere in excess of the demand; which had been further diminished by the slackness of trade, the scarcity of money, and the substitution of cable-cars for horse-cars in many cities and towns during the last three or four years. At that time the export of horses to Europe had hardly begun, though a few breeders in Montana and other States of the North-West had tried to find a market for the best of their horses in England; but the cost of breaking, handling, railway-carriage and freight swallowed up most of the proceeds. Horses of the cayuse or mustang type were at this time so cheap on the Pacific Coast that I heard of a sale of 5,000 having been made to a firm at Portland, Oregon, for slaughter at five dollars apiece on the range. Whether they were really converted into corned beef or whether the story was only a Western yarn I cannot say; but I was offered my pick of the four-year-olds on a Western ranch, unbroken on the range, at forty dollars apiece, and as these were all got by English thoroughbreds they were of a superior type, of which many would have been fit for hunters in England. I have never seen a country which appears to me so suitable for breeding cavalry horses as this, and notwithstanding the prejudice that many Englishmen have against them, I have found prairie-bred horses as hardy, enduring and sound as any in the world; and if time and patience enough were given to break them and get them into condition, I believe that they would stand far more work and last longer under the hard conditions of warfare than English-bred horses.

I found that Crane Lake, which had been quite a large piece of water when the railway was made, was now, like many of the lakes and streams in the country, rapidly drying up, and I was told that some people who had settled after the opening of the railway had been forced to leave their homesteads owing to the lack of water.

After seeing all that I could at Crane Lake I went on to Calgary, where I had been two years before, and found that agriculture was not at all prosperous in the district, though those ranches which had been properly managed and looked after were still fairly prosperous. Very few of the young Englishmen who had come to this district, and often invested their capital in ranching, had succeeded; many had lost everything and had left the country in despair. Some had struggled on and, having learned by experience, were in a fair way to make a living if not a fortune. A few, mostly Canadians, were in possession of herds which were steadily increasing, and which were turning out annually a large number of good four-year-old bullocks at an average price which then was about forty dollars.

As I wanted to see for myself a few of the principal cattle and sheep ranches near Calgary before making a report on the prospects of the Canadian Agricultural Company, I hired a buggy from the livery stable of a well-known character, Johnny Hamilton. I had already made the acquaintance of this worthy at the hotel, where he and I were always the first down to breakfast, and had sympathised about the difficulty of getting that meal in Calgary at a reasonable hour. He explained to me that the general slackness, apathy and want of go which then pervaded

Calgary were largely caused by the fact that the daily mail trains bound east and west both arrived in the night, and as their hours were very uncertain a number of people were in the habit of sitting up half and sometimes all the night to meet or see friends off. To this and to the fact that many people came into Calgary from their ranches oftener than was necessary, and in consequence neglected their work, he attributed the failure of so many settlers. Johnny Hamilton had driven the Cariboo coach in British Columbia during the days when gold-mining was on the boom, and told me some good Western stories in the flowery language for which Western coach-drivers are often distinguished. For five dollars a day he lent me a buggy with a pair of capital horses, and found me a driver who knew the country; and with this outfit I covered a distance of 270 miles in five days, halting two full days on the journey. Considering that this was all over prairie trails with many coulees to cross, that one of the horses was a cast troop-horse and the other only just caught up from the prairie, I thought this was very good travelling. We used to start as soon as we could in the morning, between six and seven, drive at a trot till about eleven or twelve, halt for two hours at some ranch, feed the horses and then drive another three or four hours. The country was all undulating grassy prairie with scrub-covered hills towards the mountains; in a few places land was being ploughed and sown with oats, but it seemed to be generally admitted that irrigation was necessary to ensure a good crop, and that even then the grain was liable to be spoiled by early autumn frosts except in favoured spots. The most successful and best-managed ranch that I visited was the Pekisko ranch of which Mr. Stimson had for many years been in charge. I spent two very enjoyable days under his hospitable roof and came away with the impression that he was the most capable and energetic ranchman in the district. The struggle between the great ranches which own cattle by the thousand, and the small men who have only a few which take their chance on the free range in company with those of others, seemed to be assuming a more strained character as the number of cattle increased; and the necessity of giving the calves food and shelter during their first winter was now becoming recognised. Older cattle when not too thick on the ground get through the winter with little or no loss, especially in the foothills of the mountains, but it is found that calves must have some shelter and food; wolves and coyotes were troublesome, but Mr. Stimson employed Indians to trap and poison them, and he gave a very favourable character to the Indians in this district, if you knew how to treat them. An Indian and his squaw walked into his sitting-room and squatted on the floor whilst Mrs. Stimson was giving me tea, and made themselves quite at home; and as far as I know there has never been any serious trouble with them in this district, though they no doubt occasionally steal cattle when hungry.

Up to this I had had but little opportunity of collecting, but now as a few warm days had brought some butterflies out, I began to catch a few. The butterflies of the country round Calgary are not numerous in species, but some of them are very interesting, especially the *Colias* or Clouded Yellows, *Fritillaries*, and most of all some *Satyridae* which I was very

anxious to get, because I had described one of them as new in the previous year from three specimens taken near here by Mr. Woolley-Dod. When I had learnt what I wanted to know about the ranching business, I went to stay a day or two with this gentleman at a small ranch he had lately started near Calgary. I found that since my last visit he had bought a small bunch of cattle and was, in company with another Englishman, in a fair way to increase his herd, though making money in this business is a work of time, and there is at first a great deal more hard work than many of the men who try it seem to care for. In his spare time he collected *lepidoptera* and had discovered many new moths, especially *Noctuidæ*, which have been described in the United States. *Eneis alberta* and its near ally *Eneis varuna* were both abundant near his ranch, and, though they fly on the same grassy hills, are quite distinct. Another rare butterfly is abundant on these prairies from the middle to the end of May—*Erebia discoidalis*; it has been found also on the east side of Hudson Bay and in northern and eastern Siberia. Mr. Woolley-Dod has also taken at Morley, a little east of Calgary, a very rare species of *Eneis*, *E. Macouni*, which had hitherto only been found at Nepigon on the north side of Lake Superior, though it probably occurs in other parts of western Canada. During my excursions about Calgary I saw few game birds, and the only nest I took was one of *Buteo hudsonicus* with four eggs, which was on a rocky pinnacle in a valley. The birds of this country are, however, so well known in comparison with the insects, that I did not think it worth while to collect them during such a short stay in the country. It was too early in the season for many flowers to be out, the most conspicuous being an anemone, which resembles the one found all over the Siberian steppes at the same season.

On returning to Calgary I determined to visit Victoria, as I wished to see what prospect there was of a future market for sheep on the coast. The mountains at this season were still very snowy, and at Laggan, where I stopped a short time to see my old companion Bean, I found a single *Pieris*, the only butterfly yet out. The route to the west coast by the Canadian Pacific Railway has been so often described that, beautiful as it is, I need say nothing about it. I reached Victoria on May 22nd, and found an old acquaintance, Mr. Phillipps-Wolley, who was now living there. Victoria enjoys one of the nicest and most English-like climates in North America, and as there were now a good many butterflies about, I enjoyed two or three days' collecting. I also went forty miles up the railway to see the son of a friend in England, who was learning farming here with a settler. A good many English and Canadians were farming with more or less success in Vancouver Island, but the difficulty of clearing any extent of land in such very heavily timbered country makes it a long and costly process to establish a farm. At this time, the general depression which affected all parts of the United States and Canada made prices too low to be remunerative, but I heard that the great boom which had prevailed both in Alaska and the Kootenay district during the last three years had now very much improved the position and prospects of farmers in British Columbia. In a chemist's shop in Victoria I saw the most superb pair of cariboo-horns which I have ever seen; they

were said to have come from Cassiar, and had, if I recollect right, fifty-four points which were of perfect symmetry, a circumstance not usual in reindeer or cariboo. Since that time moose-horns have been brought from Alaska far surpassing any which are found in Canada or elsewhere, but the heavy cost of carrying them from the interior has hitherto made these splendid trophies, some of which measure six feet and upwards, very expensive. It is only the extreme cost and difficulty of travelling which has hitherto kept all but a very few of the most adventurous big-game hunters out of Alaska, but, as besides moose and cariboo there are great numbers of wild sheep (*Ovis Dalli*) in the mountains between Cook's Inlet and the Yukon, and bears are in many places very numerous, it is probable that this will soon be a new hunting-ground for sportsmen as well as fur-traders. I found the Museum at Victoria, under the care of Mr. Fannin, making good progress, though the number of people in British Columbia who take an interest in natural history was still very small, and the insects of the northern part of it were still quite unknown.

I had no time to go up the coast, and was obliged to return to Calgary to see some sheep-farms near there before returning east. Though the grass on the rolling hills north of Calgary seemed as well or better suited for sheep than at Swift Current, and two large flocks had been established there for some years, it seemed to be the general opinion that they did not pay so well as cattle, and certainly required a good deal more attention and care than cattle do. Few people will eat mutton in this country if they can get beef, and there are very few who really understand the management of sheep. The extreme solitude of a shepherd's life and the hardships of winter make it very difficult to find trustworthy shepherds who can keep sober, and the errors of a drunken one may be very serious here in winter both to shepherd and sheep-owner. As time goes on, no doubt sheep will be kept in smaller flocks in enclosures, as part of the stock of a mixed farm; but I feel convinced that Alberta will never be the seat of a sheep-breeding industry of any great importance as compared with Australia, New Zealand or Argentina. After coming to this conclusion, and before making a report, I desired to visit Chicago, the most important market for live-stock in America, to see if there was any outlet for Canadian sheep and cattle there. A railway now connected the Canadian Pacific Railway with Chicago, and I made the journey in about forty-eight hours, passing through a great extent of very flat and uninteresting country in the States of North Dakota, Minnesota and Nebraska. The country was being rapidly settled, at any rate along the lines of railroad, but though a great many small towns which serve as local agricultural centres had sprung up, these seemed to me the least attractive part of the United States I have passed through. Though a vast number of people succeed, by dint of hard work and strict economy, in getting a bare living out of it, there is little to attract in the climate or scenery, and the life of the people seems, as far as one can judge from what one sees and hears, very devoid of social and other enjoyment. The great mixture of races which have immigrated to these north-western plains, amongst whom Scandinavians, Finns and Russians are numerous, must

produce eventually a race of men very different from the inhabitants of New England, the Southern or Rocky Mountain States.

It is very hard for a stranger passing through a country as rapidly as I did to form a correct opinion as to the actual condition of the settlers; many of those you converse with are personally interested in making things appear better than they really are, and little reliance can be placed on the statements of real estate agents, railway agents or settlers themselves, when they smell a possible investor, and until you live amongst the people you can hardly tell how many there are who are fairly prosperous and out of debt. There have been a great many utter failures, mostly among people who came into the country insufficiently supplied with capital, and among those who, having capital, had not enough energy, health, industry and business ability to hold their own in the very hard struggle which every settler in a new country must go through. A great many who had these qualities were still more or less crippled by mortgages; and the position of a heavily mortgaged farmer in America is much worse in a bad season than that of an English farm tenant; because the creditor of the one is a hard man of business whose only object is to keep his debtor in a condition to pay his interest regularly and who will foreclose and sell him up without mercy if he cannot, whilst the English landlord is usually not a strict man of business, and, if he is, does not like to get the reputation of dealing hardly with his tenants. A most interesting account of the actual condition of settlers in the agricultural township of Harrison in Hall County, Nebraska, will be found in a pamphlet published by the Johns Hopkins University Press, Baltimore, in 1893, called *The Condition of the Western Farmer*, by Arthur F. Bentley. This county was selected as a fair example of the land in the State, where not influenced by the proximity of towns, and certainly presents a very unfavourable picture at the time it was written. It gives in detail the number of settlers who have settled on land purchased either from Government, from railway companies, or from settlers who wished to move, and gives minute particulars of their number, length of residence, amount of indebtedness and other facts. It shows that between 1873, when this part of the State began to be settled, to 1892, a period of twenty years, 190 persons purchased and resided in the township, of whom 106 have resold, 10 have moved, and 74 still reside; the duration of ownership has been seven years for those who have sold and twelve years for those who still own. It gives the causes of selling for the 106 as follows:

Owing to prevalent agricultural conditions	-	-	-	14
Sales by those who had bought in hopes of a rise	-	-	-	19
Failure to improve or cultivate the land	-	-	-	9
Involved in other troubles	-	-	-	16
Died	-	-	-	7
To move to better farms	-	-	-	16
To move to cheaper farms	-	-	-	7
To move to towns or villages	-	-	-	18

It gives the average size of the farms at about 175 acres in an area of 24,040 acres, of which 12,960, or 53 per cent., are farmed by the owners, 9,360, or 38 per cent., by tenants, and 1,720, or 7 per cent., not farmed. This will surprise many who think that American farmers are almost always the nominal owners of the land they occupy. The system of renting land seems to be advancing rapidly, and I heard of several cases of persons who made a regular business of land-owning and letting farms on a large scale. Though this is contrary to the ideas and prejudices of the native American, the number of foreign immigrants, mostly with too small capital to acquire land of their own, is now so great that the system is likely to increase. Next we learn from Mr. Bentley's pamphlet that 67 per cent. of the farms in this county are mortgaged; three-fourths of these mortgages being held by companies, the average of debt on each acre being 8.76 dollars and the average debt of each mortgagor 1,517 dollars. By far the greater part of these debts are on lands bought from the railroad companies, of which only three out of nineteen appear to be free, whilst among those who have bought land at second-hand from original settlers only four farms out of thirty-seven are free from mortgage. The general conclusions drawn by Mr. Bentley throw a very lurid light on the subject of emigration, and go far to explain the support which Mr. Bryan received during his presidential campaign. The condition of the agriculturists of the State of Kansas was for some years about this period one of general bankruptcy, and only the unwillingness of the lenders to foreclose mortgages on lands which were absolutely unsaleable averted a general crash. Better seasons, for a time better prices, and the general improvement in the business and manufacturing prosperity of the country, have again raised the hopes of the western farmer, but in the Dakotas, Nebraska and Kansas, I do not think his lot is likely to be a happy one for many years to come.

When I reached Chicago wheat was approaching, if it had not actually touched, a dollar a bushel; the Exchange at Chicago, where gambling in options is carried to a point most detrimental, as I believe, to the interest of producers and consumers everywhere, was in a state of furious excitement, and to a looker-on the operators seemed more like a crowd of madmen than the serious men of business they would like to be thought. Turning with disgust from this gambling-hell, I visited the stock-yards and found, just as I had found elsewhere, that the markets were overstocked, prices very low, and a heavy import duty imposed on Canadian sheep which had the effect (probably intended) of closing the market to Canada. I was then convinced that though the assets of the company in buildings, stock and land were no doubt still worth more than the debt on them, yet the management of such a large and complicated business with a view to ultimate profit sufficient to justify the risk would require the whole time of a very competent and trustworthy man. I therefore advised my friend not to throw good money after bad unless he was prepared to give a lot of time and wait for some years, when agricultural affairs in the Canadian North-West should be more prosperous. A new company was afterwards floated to finance the concern, but I have not heard what has been the result of it; though no doubt the great

boom in mining in the Kootenay district and Alaska has since done a great deal to better the position of farmers and stock-breeders in Western Canada and British Columbia.

Having now concluded my business, I intended to finish my trip by a visit to the forests of the Southern Alleghany mountains of which I had heard much from my friend Professor Charles E. Sargent. He had recommended me to visit Asheville, North Carolina, close to which town Mr. Vanderbilt had lately purchased a large tract of forest, built himself a splendid house, and established a large nursery and garden under the direction of an accomplished professional forester, Mr. Pinchot.* His idea was to bring a tract of natural forest under good management, and instead of allowing it to be burnt, grazed and destroyed, in the reckless way favoured by most American owners of forest, from the State downwards, he endeavoured, by natural reproduction and protection against waste and improper felling, to bring it into a condition of permanent profit. By the time I reached Asheville, in the first week of June, the weather became excessively hot, and the change from the dry, cold and bracing climate of Alberta to a damp, tropical heat of 80° to 90° in the shade was very trying and upset me a bit for two or three days. I found Asheville a new and rising town in a beautiful situation, but not high enough in the mountains to make it suitable for a pleasure resort, as I believe was the hope of those who were booming it. In spring or autumn it might be very charming, but the lack of decent roads and the difficulty of getting good guides and riding-horses at reasonable prices make excursions in these southern highlands still rather too arduous for the ordinary tourist.

I heard many curious stories, which no doubt must be accepted as only partially true, of the way in which Mr. Vanderbilt's attempt to found a great country estate on the model of an English one was thwarted by the settlers, whose desire to get all the profit they could out of the presence of so wealthy a man in their midst seemed curiously mixed with a democratic objection to a man who was so rich that he could afford to spend money on things they had no idea of. There was also no doubt a feeling of hostility among those who had for generations looked on the forest as a feeding-ground for their stock and hogs, as a hunting-ground free to all, and a place from which they had a prescriptive right to take whatever timber they wanted without questions being asked. It appeared that when Mr. Vanderbilt's agents had purchased as much as possible of the land in order to form a block of 30,000 to 40,000 acres, there remained a few bits occupied by whites and negroes who could not prove their titles, or who declined to sell at all; and these men, backed by local lawyers, were encouraged to make their presence as objectionable as possible to Vanderbilt, in order to force him to buy them out at exorbitant prices. Such stories are made the most of, and I cannot say how far they are true, but from what I saw of the class of people who inhabit the mountain forests of North Carolina and East Kentucky, I can well believe

* Mr. Pinchot later became Chief of the Forest Department of the United States, and developed that service into one of the best managed and most successful that exists in any country.

that they would be most difficult and even dangerous under such circumstances.

Mr. Pinchot being away, I was not able to learn so much of the working-plan of the forests in his charge as I had hoped; his assistant, however, showed me some of the forest which was nearest to a state of nature, but it did not seem to me as fine as what I saw later on near Marion. The great feature of these Alleghany forests is the great number of species of deciduous trees which are associated in them. Mr. Sargent has told me of forests in Southern Illinois where no fewer than seventy different deciduous trees grow on a square mile.* Oaks, magnolias, hickories, black walnut and maples, are the most valuable timber trees, but there are many others of great beauty and some utility. Except in certain parts of North-Eastern Asia such as Manchuria, Amurland and Korea—with the flora of which the Alleghany mountain forests have a great deal more affinity than their geographical position would lead one to suppose—there is no country out of the tropics where such a wonderful variety exists, the usual feature of the forests of the north temperate zone being the presence of one or more species of trees associated in great masses of the same kind. A beech forest in Denmark or Prussia, an oak forest in Hungary or Bulgaria, or a chestnut forest in Italy, I had seen, but never a forest with such infinite variety as this, in a temperate climate. The shrubs and herbaceous plants are also very varied and beautiful; in some places *Kalmia latifolia* was the prevalent under-shrub, forming lovely masses of pink flowers. *Cypripedium* and other terrestrial orchids, *Trillium*, Solomon's Seal and other pretty herbaceous plants mostly known in English gardens were not so common here as they are in some more northern States. Notwithstanding the great heat, I was still too early for butterflies, which, excepting the *Hesperidæ*, or Skippers, were not yet abundant, and I failed to see the magnificent *Argynnis diana* which a month or so later is the pride of this district. I was also unable to visit the locality where that rare and very lovely little plant *Shortia galacifolia* grows.†

After three or four days at Asheville I went on by rail to a place called Marion, from whence I intended to visit the mountains known as the Blue Ridge. Marion was a primitive little forest town or village where I found a lodging in a boarding-house, and shared a meal of fried chicken, corn bread, hominy and pork, with some typically Southern boarders who were curious to know my business. I hired a buggy the next day for a thirty-five miles drive through some of the most lovely forests I have ever seen; here and there were small clearings with farms where maize and tobacco seemed to be the principal crops. In the valleys and on the hillsides alike the soil seemed excessively rich, but the slovenly and neglected state of most of the farms did not indicate much prosperity among the farmers, and in some places corn was being hoed by bare-footed and rather sickly-looking women, such as I have never seen working in the fields in other parts of the States. The people of these mountains are a very peculiar race, quite unlike the Americans of the

* In 1904 I visited the remains of this forest, which has been fully described by Professor Ridgeway.

† *Shortia* is also found in Japan and Formosa (see p. 241).

Northern or Western States, and seem to have remained in much the same condition as when these mountains were first settled more than a century ago. The more energetic no doubt have emigrated or gone to the towns, and those who remain do not encourage strangers to settle amongst them. I was told that they will not allow negroes to come into many parts of the mountains, and have established a boundary over which no nigger dares to set his foot on pain of being shot.

About midday, after a long ascent through virgin forest over a very rough and bad road, we reached some open meadows where I caught, amongst other butterflies, a Clouded Yellow, *Colias chrysotheme*, which though very common in the Western and Southern States, I had not expected to find here. We came to a log house where my driver said we could get dinner, and an old man with bare feet, who was in the house, invited me to sit down in the porch and wash my hands at the pump. After a little while his son, also bare-footed and with a great half-healed scar on his forehead, came home and sat down by me without a word. The driver afterwards told me that he was the only survivor of three brothers, the others having been killed in a family feud which still went on, and of which the scar was the latest evidence. At intervals three little boys rode up on horses which they hitched to a rail; they washed their hands and sat down to wait for dinner. At last a tall gaunt woman came out and guessed that the stranger looked hungry; which he was. We all went in and sat down before a bare wooden table, on which was a great wooden dish of boiled pork and another of Indian corn mush; a pitcher of milk and another of water, and a jar of molasses, completed the menu. We all helped ourselves with our own spoons, and fell to with a good appetite. The rather suspicious reception which I had received was gradually changed as they learned that I was a Britisher, and when they discovered that I was also a "bug-sharp," which in American means an entomologist, they realised that I was perfectly harmless. The old man tried hard to sell me a mica mine which he owned, and the produce of which was being cut into square sheets for sale by the women of the house. He informed me that the three boys were his grandsons, and, as their father had been killed in the feud, he had got them appointed mail carriers at fifteen dollars a month each. I asked if there were many letters to carry; he said very few, but hinted that as a prominent politician in the county his influence was sufficient to get over that fact. When, however, he discovered that I was interested in "sang," which is the local name for the valuable root ginseng—which used to be largely exported from this country to China, where it is sold to adulterate or as a substitute for the more valuable Korean ginseng—he became more communicative, and told me how when he was young he could make five dollars a day by collecting sang in the forest; now it was nearly all gone and, owing to its being cultivated in Pennsylvania, or for some other reason, the price was lower too. I asked him why they did not grow it here too; he said it took five or six years to produce a good-sized root from seed, and that unless you sat over it with a shot-gun you would not get much for yourself. There are still many other medicinal plants whose leaves, roots and stems are collected and dried for sale on a large

scale by the people in these mountains, such as *Podophyllum*, and when I stopped at a wayside store a day or two afterwards I found the people bartering these drugs for coffee, sugar and other goods, just as Indians would trade furs. The old man also told me that the people of this section had never been slave-owners, and had sympathised with the North during the Civil War. They were forced by the Confederates to serve as teamsters with their own mules and horses during the greater part of the war, being allowed only a month in the spring to plant their corn and another month in the fall to harvest it. He had during one of these visits hidden two Federal officers who were escaped prisoners of war, and at last enabled them to rejoin their own side. I should much have liked to stop here the night, but my driver was for some reason very unwilling to do so, and it is not easy to get these mountain-men to do anything against their will; so we drove on to a small country town where I got lodgings in a private house, as there was no hotel.

The next day I got a guide and horses to ride up to the top of the Blue Ridge, where there is a mountain hotel where I meant to stop. It was a lovely ride and the forest very fine, reminding me more of the temperate Himalayan forest than of anything in Europe, though without the mass of climbing plants, ferns and epiphytes which cover the trees there. Some of the magnolias (here called cucumber tree) were five or six feet round, with clean trunks up to about fifty or sixty feet. Most of the best black walnut had here been cut out and sold to lumber merchants, who employ agents to travel about the country and buy fine and valuable trees. Only the very best will in most places pay to haul out, and there are still great tracts of virgin forest quite untouched; I met a timber merchant's agent, who gave me glowing accounts of a block of forest 160,000 acres in extent which he had got the option to purchase at a dollar an acre, and he said that in many parts of it there was timber standing on one acre which would pay for a hundred more. Such a speculation might be very profitable if managed by a company of Americans, but as a matter of fact no large enterprise of this kind can be carried out in the Southern States until you have a controlling interest in the railways or other means of transport. The value of any produce depends on what it costs to get it to market, and if it does not suit the railway companies' interest to have a particular section of country opened up, they can and often do, by heavy rates of transport, cripple any enterprise in which they are not interested. All over the States one cannot help observing how much more development of the country depends on railways than in other countries, and how entirely the settlers are at the mercy of a railway company when there is no competing line; even when there is competition, it is usual for combination to be made in the interest of the companies, whereas any combination of the agricultural interests is almost impossible. The farmer, who has created the wealth, and to a great extent the commerce of the country, seems to get always the hardest part of the work and to receive the least share of the profit, and the knowledge of this drives most of the really clever young men off the land into business. I believe that the greater part of this forest land, which has since been opened up by big lumber companies, is now worth from ten

to thirty dollars an acre, without the mineral rights which in some places are valuable.

When I got up the mountain on to a beautiful open top with groves of spruce, azaleas, and other trees and shrubs, I saw a great barn-like wooden hotel, but found it was still closed, the season not beginning till the middle of June. I had lunch with the caretaker, and, finding that it was too early for butterflies as well as for flowers at this elevation (about 5,000 feet), I returned. I had hoped to find the little *Lilium Grayi*, a species peculiar to the Southern Alleghanies, which was undiscovered when my book was published.* The hotel is reached by a driving road from a distant station. If ever I visit this country again, I would travel with a waggon and tents, as the country is too thinly settled and too little developed to be properly explored when you are dependent on the hospitality of the farmers for a lodging. I cannot imagine a more charming or productive trip than this for a naturalist, and with a good driver and a team of mules you might get about almost anywhere; the mountains are usually not very steep, and the forests not too thick or encumbered with fallen timber. I do not think much game would be found, as though black bears, deer and wild turkeys exist in remote places, I never saw any sign of these during my short stay in the country.

On my drive back to Marion I caught a few more butterflies, including a beautiful *Argynnis* and a rather rare species of *Thecla* confined to the Southern States. From Marion I went on by rail to Washington, where I was lucky enough to meet that very distinguished Tibetan traveller Mr. Rockhill, who is now appointed United States Minister at Peking, and whose intimate knowledge of the language and people of China and energetic and determined character ought to make him a most admirable man for the post. I visited for the first time the Smithsonian Institution, which seems to be a most admirably arranged and conducted museum. Though it is especially rich in birds and mammals, and has perhaps the best collection of economic entomology in the world, the collection of American lepidoptera is very incomplete at present; and there are so many public museums springing up in the principal towns of the United States that there must be a good deal of competition among them to secure specimens, which would be far more useful to naturalists, at least to foreigners, if they could be brought together for study. I do not think there is at present any single collection of lepidoptera in the United States which contains anything like sufficient material to enable a catalogue of the lepidoptera of North America, or even of the United States, to be made. I have now seen all the principal collections, including those of Dr. Holland at Pittsburgh, which contains the greater part of the material used by Mr. W. H. Edwards in preparing his beautiful but incomplete work on the butterflies of North America; those of the late H. Edwards and Neumogen at New York; that of Dr. Skinner at Philadelphia, which contains perhaps the best set of American *Hesperidæ* in the United States; and that of Mr. Herman Strecker at Reading. All these collections united would perhaps, if well arranged, be sufficient for the purpose; and if the work was in the hands of a broad-minded specialist who had a sufficient

* "Monograph of the Genus *Lilium*," 1880.

knowledge of the distribution and variation of the species in other countries, especially Mexico, Northern Asia and Europe, we should have a work which would enable lepidopterists to work in future on a firm foundation. At present, however, American lepidopterists are far behind their colleagues in ornithology and mammalogy, and systematic work seems to be rather at a standstill. There are some beautiful and well-stuffed groups of mammals in the Smithsonian Museum, especially of the buffalo, which show the high standard of art to which taxidermy has now reached in the United States. I say art, because though the stuffing of animals, birds and fish has not been treated as an art, and until quite recently has been done by workmen of a low grade, it is certainly deserving of a higher and more educated treatment. The lovely groups of birds in the South Kensington Museum are to my mind works of art of higher type than much of the painting and sculpture which one sees, and, if there were more men capable of combining a knowledge of the anatomy and habits of living animals with the technical handicraft of taxidermy, we should have a great deal more pleasure in looking at museums than at present. The old-fashioned cases in which a pair of birds sat facing each other in an erect position on the conventional branch, and decorated with the same lichens, the same grasses and the same pebbles, are the best we can now get from the ordinary English bird-stuffer. Such work is often nasty and anything but cheap, and the exorbitant prices which are often charged for such work in London shops disgust people who would be glad to pay, as I should, from three to five pounds a week to a man who took pride in his work to do it in one's own house. For such men there is both in America and England ample scope, and the best among them would be certain of regular employment; but unless they improve their style, their occupation will get, as so much other work does, into the hands of foreigners. The three best specimens of taxidermy in my house were done at Brussels, at Trondhjem and at Moscow; and I do not know where to find a working bird-stuffer in England whom I could trust without constant personal supervision to do anything which would be a pleasure to the eye and in accordance with nature.

From Washington I returned to New York, and went home by the White Star Line, which I have found the most comfortable of all the Transatlantic lines I have tried.

CHAPTER XIV

CENTRAL ASIA, 1898

IN 1898 I planned an expedition to a part of Central Asia which has been visited by only very few Englishmen, though to a big-game hunter or a naturalist the Altai Mountains are one of the most attractive places I know of.

Though Mr. St. George Littledale, had gone there to hunt the Great Wild Sheep, and Major Cumberland has written an account of his sport there, I was the first English naturalist who had been in the Altai. My stay there was far too short to make extensive collections, but I was never more successful or enjoyed a journey better. My companion, Mr. W. A. L. Fletcher, one of the most distinguished oarsmen that Oxford has ever produced, was anxious, if possible, to reach the home of Prjevalsky's wild horse, which had then only been obtained by the Russian naturalist Grum Grshimailo; and as he had accompanied his uncle, Mr. St. George Littledale, on his great journey almost to the gate of Lhasa, he was keen to explore and survey new country, and to shoot big game on the journey.

It was important to have a really competent interpreter who could speak not only Russian but some of the native languages, and, on the advice of M. Semenoff, the President of the Russian Geographical Society, I engaged M. Berezowsky, who was a naturalist and had accompanied Potamin in an expedition to Kansu and Mongolia. I did not know at the time that Berezowsky was a half-breed, his mother, as I learnt afterwards, being a Buriat; he was personally a very good companion, honest, sober, and speaking very fair French, but he was slow, dilatory, and, like many Russians, bad to start in the morning.

As we had a considerable amount of baggage, including a tent, saddles, surveying instruments, and collecting outfit, Fletcher went out by sea to Riga, where he had the usual trouble, delay and expense, in getting our things through the Customs. I went round by Petrograd, where I picked up Berezowsky, arranged with the Bank for a credit on the Government Treasury at Barnaul—there being no bank or house of business in the province which could finance me—and met Fletcher at Moscow on May 19th. From here we sent our heavy baggage on in charge of a travelling servant, Joseph Abbas by name, who had accompanied Prince Demidoff to the Altai Mountains, and who, I believe, was an Armenian, though he called himself Persian; a very clever fellow, and a good linguist, but not the man for a journey entailing hard travelling, and as greedy to make money at our expense as most of his race.

We took the route by Nishni Novgorod and the Volga, spending two days on a very good and comfortable steamer on our way to Samara, where the weather became quite warm and summerlike. At Samara, which is a large, very dirty and dusty place with more Tartars than Russians, we got into the train; and on the next day entered the foothills of the Ural mountains, covered with an almost unbroken forest of elm,

oak, birch and poplar, which has been much wasted by fire and axe, while many of the trees are dead or dying. We passed one or two mining towns, and in the evening came out into an open down or steppe country, crossing the frontier into Asia about six the next morning, at an elevation of not more than 2,000 feet. There is a place called Zlatoust near here, where the rainfall is said to be for this dry region unusually heavy, and where many rare butterflies have been taken; but I saw no really attractive looking halting-place anywhere between Samara and Tcheliabinsk, an important railway centre where we changed trains.

From here we had two long days and nights across the great Barabousky steppe, formerly the home of the nomad Kirghiz tribes, who are now, in the more fertile parts of it, being largely replaced by Russian settlers. This great tract of almost dead flat country is the most monotonous I have ever seen, full of small lakes and brown tracts of prairie interspersed with birch woods still leafless. The summer here had not yet begun; there was a sharp frost at night, and the peasants at the stations were still in their winter sheepskin coats. Though we saw little cultivation near the railway, there must be a lot of good land further back; for at many of the stations there were long piles of wheat in sacks waiting to be sent to the Black Sea for export as soon as trucks could be procured. As a rule, it seems, this wheat is not exported owing to the heavy cost of carriage; but this year, owing to the Spanish-American War, there had been a great rise in the value, and those merchants who, by favour or bribery, had been able to secure trucks before the price fell again to a normal level made large profits. But a great deal of this wheat remained exposed to the weather when we returned four months later, and was much damaged by rain, as the upper tier was green with spoiled grain.

The only flowers one could see from the train, or round the stations where we stopped, were *Adonis vernalis* and an anemone very like the one which grows on the prairies of Manitoba and Saskatchewan. This country has a good deal of resemblance to parts of the Canadian North-West, and may some day be a well-settled agricultural country; but the short summers, uncertain rainfall and distance from a market are all great drawbacks to its becoming, as some have predicted, a great grain exporting country.

On the third day after leaving Tcheliabinsk we reached the great river Obi, here about 1,000 yards wide and very muddy. Crossing it on a fine iron bridge, we left the train at a new town which has sprung up on the east bank since the line was made. We found that the steamer for Barnaul, the capital of the Altai Government, had just left. We slept at a small new hotel. The next day another boat came in crowded with passengers, but we were able to get on board. The weather was still cold, cloudy and rainy, and the scenery on the two banks of the river was without any beauty; with large villages at long intervals and a great many cattle, which are wintered on straw in great yards on the banks, from which the spring floods carry off all the manure.

We reached Barnaul on May 30th, and went to call on the Governor, General Bolderoff, who was very civil and promised passports as far as the Chinese frontier. I was obliged to carry a lot of money on from here,

as there is only one town beyond Barnaul on our route, and from here on we saw no foreigners but one Dane who was exporting butter on a large scale to Europe. Joseph, with our baggage, went on by a slow steamer which took three days to reach Biisk. We drove in two carriages, changing our teams of three horses at stages averaging twelve to fifteen miles apart, through a level country more or less wooded with pine and cultivated at intervals with spring wheat, some of which was just up and some not yet sown. After a day and a half we got to Biisk, about 150 miles, where we got our first view of the Altai Mountains.

Though Biisk is the centre of a large through trade with Mongolia and a town of 10,000 inhabitants, which is the only source of supply for the settlers in a very large part of the mountains, there was in 1898 no tolerable hotel, or bank, and we had to lodge in an empty house which was badly infested by bugs. The streets, like those of Russian country towns in general, were deep either in mud or dust; and the spring was only just beginning.

We found here a Dutch fur merchant, who told us that he had bought many thousands of Mongolian marmot skins at ten copeks (twopence) apiece, which are dyed in Europe and sold under other names. He also had quantities of squirrel, badger, ermine, polecat and other cheap furs, but few sable, and those of poor quality. The only other foreigner in the town was a German commercial traveller.

While at Biisk a boy came to show me a pair of Maral (the Altai stag) horns, which I bought for fifteen roubles. They had only ten points, but were much wider than others I had seen: forty-seven and a half inches across the tray, and thick and heavy, the top points also well developed.

After four days' delay we succeeded in getting all our camp outfit and heavy baggage sent on to a village called Angodai, 250 versts to the south-east, and near the Chinese frontier. Beyond this there was then no road possible for wheel traffic. The transport was arranged at a very low rate, as empty carts were going to fetch goods from Kobdo in Mongolia. We started early on June 6th, and ten miles beyond Biisk crossed the Obi just at the junction of the Bija and Katun rivers. The Obi is here quite a mile across, but very shallow, and on the other side the track ran over a level steppe of fertile land, with marshy intervals, which made the travelling very bad to the large village of Altaisk.

At Altaisk great numbers of horses and cattle were coming in from pasture when we arrived. The cattle are very small and stunted, and have no appearance of any distinct type or of care in breeding. The sheep, of which more than half are black or partly so, are also small and bad. The horses are small but very tough and hardy. We drove six hours with the same pair, about fifty versts, crossing some very deep boggy flats and swampy ground. They seemed quite fresh when we got in, except the shaft horse, which always has the hardest place. When well fed, they are often good-looking little horses, about fourteen hands, and very active in rough and also in swampy ground.

On the next day at last we got into the foothills, and began to find both flowers, birds and butterflies. *Rhododendron*, *Chrysanthum*, *Magasea crassifolia*, *Anemone sylvestris*, *Corydalis bracteata* and *Trollius*, were the

most showy. The weather became rapidly warmer in the shelter of the hills. Scattered larches now appeared, but many of them dead or dying; and the forest generally in the neighbourhood of the villages was rapidly disappearing. A German forester said of the Russians what would be almost as true of Americans up till recent times, that they were "always and everywhere true wasters and destroyers of forest"; and as the consumption of firewood is very large, the time is not far distant when the settlement of these steppes and foothills will be checked by want of fuel. At present, however, the older villages seem very prosperous, and the houses where we slept were as a rule clean and comfortable. The people have much more freedom from Government interference in Siberia than in most parts of Russia. We saw nothing either of the mining districts or of political exiles.

Gradually ascending through grassy valleys with a luxuriant vegetation, we reached a low pass of about 4,000 feet, and among the flowers seen were quantities of a handsome Peony in bud, and beds of a variety of dog's-tooth violet (*Erythronium denscanis*), which is twice as tall, and with flowers twice as large, as the European one.

Having spent the night at Tchirga, we started at 6 a.m. on June 8th, and drove up a fairly level valley with the mountains gradually getting higher and more wooded. In two or three hours spruce began to show in the wet bottoms of the valley. When we had gone twenty versts, we found a small deer park by the side of the road with seven Maral stags in it, which are kept for their horns. They were now about half-grown, and, the owner said, would be cut off in a few days. Their value is from six to ten roubles a pound; and one very fine stag, which he said he had had ten years, would have horns weighing twenty pounds when cut, or ten pounds dry. They were in good condition, and well-fed during winter to make their horns large. The cutting does not seem to injure them at all, and, though they lose flesh during the rut, they live many years under these conditions. Some of them are caught alive during the deep snow, and some are bred in captivity.

The size of these deer is much greater than our red deer, but the colour much the same, though perhaps not so red; and the head very long and thin with large open ears. When moving, they carry their heads with the nose quite horizontal. The growth of the horns was very open, and the brow, bay and tray, are always better developed than the upper points, which are sometimes four or five on each side. I should certainly say that this animal was intermediate between the wapiti and our deer.

The next day we drove on over a low pass where the road was bad and very muddy. We had some Kalmucks—or rather Altaisk Tartars, for though of very Chinese appearance, dress and habit, they speak a language allied to Turkish—to help us up the hill; which they did by fastening their horsehair halters to our shafts, and pulling us on whilst mounted.

From this point we passed into the Tartar country; all the Russians were comparatively new settlers, and there were only two or three small villages before us. Many of these Tartars are very rich in horses; one man alone was said to have over 4,000. I also saw some yaks, which seemed much the same as the tame Himalayan yak.

In about three hours we reached the valley of the Ursal, which is a changing point in scenery, climate and inhabitants; the soil is much dryer, the forest on the south side of the hills becomes thin and patchy, the hills are steeper and rockier, and no more cultivation is seen except a few small patches near Russian settlements. The valley of the Ursal is flat with rocky dry hills, sparsely wooded near their summit on the north side, and thickly wooded down to the flat on the south side. It is very strange how few springs and streams are in these mountains. Whether the soil absorbs all the rain I do not know, but you only find water in the larger valleys.

The river Ursal had in many places overflowed its banks and changed its course, leaving a broad marshy flat partly covered with large larch willows and brushwood. The whole valley was full of Kalmuck youurts (which are the tents of the nomads), built Indian lodge fashion and covered with large sheets of larch bark. They bred thousands of horses in this valley. I saw several new birds, including an *Otocorys*, *Turdus atrogularis*, a pair of Cranes, and a good many Wheatears and Warblers; Cuckoos were common, Woodpeckers very scarce, and Kestrels plentiful.

We reached the Katun river on June 15th, and camped on its bank for the night—the first time we had put our tents up. We followed the Katun to its junction with the Tchu (Tchuja), up which we turned. I had filled a box with plants, intending to dry them, but when we got into camp they were too much withered to dry properly. In order to make a collection of plants of any use one must halt for some time; one cannot do enough when travelling with pack horses most of the day.

As we went on, the Tchu valley assumed a more Alpine character, and trees came in on the north side. I found a considerable change in the butterflies: *Papilio machaon* was common, *Parnassius delius* appeared at 3,500 feet or less, I took two of the rare *Thecla tridvalskyi*, and, by the waterside, a fresh specimen of *Triphysa phryne*, a species which I always supposed to be essentially a steppe insect. Further up the valley were caught two butterflies of exceptional interest: *Erebia edda*, which I only knew from East Siberia, and a very fine *Ceneis nanna*.

We left the Tchu valley to cross a range of larch-covered hills. When we got out of the forest on to the open downs at the top, about 5,000 or 5,500 feet, we had a most splendid view of the very remarkable country before us. Fletcher said that it reminded him very much of that part of Tibet north of Lhasa where they were turned back by the Tibetans. We overlooked the Kurai steppe, which is a plain eight or nine miles long by five or six wide. The centre is flat and marshy, and covered with forest of larch and willow. On the south is a very high, snowy range of mountains, marked on the old maps as the Cholim range, which have glaciers of small size and are covered with perpetual snow for about 2,000 feet from the summit, which was about 10,000 feet. This range is the real boundary of China and Russia, though the frontier is a good deal to the south. The mountains were said to be uninhabited, and impassable from the Kurai plain, though I have no doubt that horses might be taken over them.

To the north are high mountains, but much more rounded and lower than those to the south, and a pass through them down the Kurai river

leads to the Bashkaus river running into Lake Teletskoi. The whole view was very remarkable, and the dry character of the steppe close to the marshy larch forest was very striking. There were few plants actually in the plain, but many interesting Alpine plants on the hills round, and on the islands which the river formed. I saw a flock of Jackdaws, not at all like those which we saw north of Ongodai, and which were little paler on the neck than English ones. The old ones had the nape, breast and flanks quite white; but the young ones looked the same as English jackdaws.

At the end of the steppe the valley contracted and the hills on each side were very steep, and looked like volcanic rocks, red and yellow in tint. Twenty-seven versts from Kurai we came to a log house for travellers and lunched there. In a few miles the Tchuja steppe came into view surrounded by mountains, most of which are covered with snow on their tops. The lower slopes are bare and gravelly, and the only wood was a few larches near the water. There are a good many ponds and overflows of the river, and abundant growth of willows in the flat near water. The plain seemed about forty miles long by fifteen wide, and there were very few yourts in the parts we saw. The grazing seemed very thin, but there were lots of horses and some sheep. I saw very few birds, some small pink finches, larks, and one or two eagles and kites. After a long ride of thirty-five versts we got to Kuch Agach, where there were a small church and custom house, and a few Russians who trade in wool; but the whole place was very poor and miserable, and everything round about was eaten off by horses.

On June 24th, having arranged for hunters and guides, we got off for the hills south of the Tchuja steppe with a party of ten Altai Tartars and twenty-three horses. The first three or four miles out of Kuch Agach was among lakes and branches of the river. On most of these lakes there were waterfowl, principally Ruddy Sheldrake, followed by their young, and Scoters, a very unlikely bird to be found here at such an immense distance from the sea. It turned out to be a Scoter which had hitherto only been found in the North Pacific, and I gave it to the Petrograd Museum. A few Eagles hang about these streams, and Kites were still, as they had been all through the Altai, the commonest bird of prey except Kestrels.

We passed a Mongol marmot hunter's camp by the way. He was a wild-looking fellow, dressed in sheepskin, and seemed to be living entirely on marmot's flesh, of which he had a large potful boiling on a fire of willow twigs. He let me take one of his best marmots to skin, but owing to lack of speech I could not find out much about the way he caught them; though I saw several places where deep excavations had been made to dig them out.

We spent several days in this district, hunting and collecting. One day I climbed up to the open flat top of a mountain, very much like a Norwegian fjeld at 4,000 feet, but with flowering plants as high as I went, perhaps 9,000 feet, *Sax. oppositifolia* being highest and most abundant, and very few mosses or lichens. From here I had a splendid view to the south, and could see, about seventy miles off, very high snowy mountains, which form the southern extension of the Altai range and are the source of the

Kobdo and Irtisch rivers. I could also see an immense extent of high down grassy country to the south and east, and high snowy mountains to the north and west. But it was hopeless to get any correct geographic information from the natives when one had no reliable interpreter—Mr. Berezowsky returned from Kuch Agach—and the map was very bad.

On the way back I joined the old route from Sock Karaul, the Chinese frontier post, to Kuch Agach, which was deeply marked in the ground though now little used. The frontier was marked by a large pile of stones, but no inscription or post on either side; and I believe the Chinese post was a day's ride or more to the south.

On the steep shaly side of a mountain I saw several *Tetraogallus altaicus*, which went off very wild. Once on the wing they can sail for a very long way without moving the wings, which for such a heavy bird is very remarkable. As they fly they utter a sharp call of one note. What such large birds live on, I do not know, but there are plants up to as high as I have been, wherever there is any soil.

In a small valley near our camp I collected at least a hundred species of plants. A very pretty large-flowered bright blue *Scutillaria*, a bright blue *Corydalis*, and lots of *Primula* like Panyi, were the best things. Up the side of the valley it became more rocky, and here, to my great surprise and joy, I caught *Parnassius evermanni*, a species only known from Amurland and said to fly in peat-bogs. I saw four and caught three, all fresh out.

On July 13th I got the first letters I had had since leaving Moscow, and two papers, the latest dated May 30th. This was the turning-point for the expedition, and after a few days more of collecting, we started for Kuch Agach on July 19th. We met a lot of Kirghiz who were herding about 700 or 800 horses, on the milk of which, made into kumiss, they largely live. They had no tent and were all young men, rather easy in their manners. Unlike the Tartars we had, they would not touch vodka or tobacco, saying they were Mussulmen. They gave us very good kumiss out of a large leather bag, and offered us sheep cheese pounded into little bits out of a kid-skin bag. They were milking the mares, having tied up the foals first. Some had to be hobbled, some stood to be milked, but all had their foals held by them whilst a boy milked into a leathern bucket. They had two nearly full-grown young falcons, which had been taken from a nest near by on a steep mountain. I could not make out the species; they were too large for Peregrines, and much more the colour of Sakers. The Kirghiz train these falcons to catch foxes, and they say wolves too, but I doubt the latter story.

The hills just north of Kuch Agach were covered with a thick coat of fresh snow, which came within 500 feet of the plain. There were heavy storms of snow and thunder in the hills to the south, which, however, I escaped. When the sun came out a little, the dry plain was at once alive with large locusts, with grey forewings and the underwings black and crimson, about two inches long. The females were unable to fly and hopped about on the ground.

We spent the night of July 26th at Ulaghan, a small village, and next morning went to see the Saisan, or headman, who, though he has a good

wooden house, prefers to live in a yourt. We found him ill with rheumatism, and left him some Elliman. His wife, a fat but well-favoured woman, entertained us with tea and boiled lamb, which was very good. They are, like many of the natives here, Christians, and we heard that a bishop had just passed through; so I suppose the Russian clergy do pay some regard to the aborigines, though as they are all nomads they must be hard to get at. We left after having spent an hour with the Saisan, whose relations and retainers all squatted near the door of the yourt, inside, while we talked through Joseph. There was evidence of a good deal of comfort, if not wealth, in this large yourt; but though there were mats and boxes all round, it was dirty enough, and had an open fire in the middle on which cooking was done.

On July 29th we made a long march down the Chanishman valley, which is a rocky gorge with high cliffs, topped by forested slopes about 2,000 feet above the river. The road was often very rough and stony over boulders, but sometimes over small sandy flats. It opened out in the evening into a plain about three miles long by one wide, at the lower end of which were several yourts, and some attempt at cultivation. Rye, now in flower, and spring bearded wheat were the crops grown, but they were very weedy. The people here seemed poor, but mostly Christians, and there were wooden graves with crosses in several places.

I did not get many butterflies, but there were a good many moths, and quantities of grasshoppers and locusts; also two species of dragon-fly which I had not seen before, but birds, excepting wagtails, were scarce.

Next day we crossed the Bashkaus above its junction with the Chanishman, at a ferry; but as there were two boats, we unloaded, swam the horses over, and loaded up again, in little over an hour without mishap. There were some wooden houses on the west side inhabited by half-castes. One of them, an ill-looking old man, agreed to let us have a boat with five men to take us from the end of the Teletskoi lake, which was fourteen miles further on, to its north-west end, about ninety versts, for thirty-five roubles.

Passing on without halting, we camped in a beautiful spot by the river, half-way from the junction to the lake. This stretch of the valley is one of the most beautiful Alpine valleys I ever saw, and completely different in its character from what it is higher up. The sides, though very steep, are densely wooded with birch and Scotch fir, and the herbaceous vegetation on the lower slopes and flats was the most luxuriant I ever saw in a temperate climate, except, perhaps, in some of the inner valleys of Sikkim. Bracken, which I had not seen before in the Altai, occurred, and tall ferns three or four feet high, with grass above one's middle, and *Delphiniums*, *Spiræas* and *Thalictrum* seven or eight feet high. This is probably owing to a moister climate, richer soil, and much heavier snow-fall; for I noticed that the people who live here all make hay, and if they would utilise the mountain pasture, which few or none of them seemed to do, they might keep a great quantity of cattle.

We started at 7.30 next day, July 31st, on a beautiful morning, with a strong breeze from the south, and reached the lake in about two hours. Here we found a large clumsy boat and one or two huts, but no one living

in them. It seemed strange that here, at the foot of a lake which in any other half-civilised country would be a principal means of communication, there were no Russian settlers and very few native inhabitants. After a little delay we had all our baggage stowed, and got away at eleven, after having paid off the men and horses that had brought us here. On the whole, the men behaved very well and had given no trouble. They were rather lazy but never cheeky, and Omok, who had been my daily companion for nearly six weeks, was really a very good man. The horses also had been very good, and though two or three times one had kicked off a load, we had no accident or damage worth talking of to our baggage all the time.

The lake had very steep shores, especially on the west side, for many miles, and we rowed four hours before we found a place where we could have camped. The mountains rose about 3,000 feet, perhaps more, and there was no track of any sort along the west shore. On the east there were a good many yourts on the hillsides, and a large valley came in at the south-east end. The boat was a heavy load for four men to row, and did not make above three miles an hour. We stopped in the afternoon, where a large forest came in on the west shore, to make tea. I tried to go up the shore a little way, but found the forest so very thickly grown with underwood—*Rhododendron* and *Lonicera* being the principal shrubs—that it was almost impassable. Fallen timber and great boulders, with swarms of mosquitoes, added to the difficulty, and there was not the faintest trace of man's presence, though I found traces of a bear. Growing under the pines were little beds of *Cypripedium guttatum*, past flower.

In the evening it came on rather gusty, and as the shore was very steep and the sea got up very quick, we had some difficulty in landing all right; but by great good luck we found a place flat enough to haul the boat up, and pitched our tent just before it came on wet. Next day we got off about 7.30 in the boat and rowed till nearly twelve, when we stopped to lunch. The forest was more open here, but the grass so long and wet that I could do no good. The flowers on the rocks by the lake were very pretty; a large-flowered dwarf pink aster being most conspicuous, and *Saxifraga cordifolia* being everywhere on the rocks.

I saw several times flocks of from twenty to a hundred Nutcrackers (*N. caryocatactes*) flying high along and over the shores of the lake, as though preparing to migrate, which they have been supposed to do, though before this I had always seen them as a solitary and resident bird. I also saw Ravens and Wagtails in the forest, and one Hazel grouse; also two Ospreys, but almost no ducks or water-birds. Common Sandpipers were the only birds on the shore.

About thirty miles from the south end the forest, facing north, was the most dense and impenetrable I ever saw out of the tropics; it was very rocky and full of large fallen trees, *Pinus cembra*, Larch and Spruce, being the commonest. The ferns, four feet high, and a dense jungle of Azalea, Red Currant, Raspberry, *Saxifraga cordifolia* and high grass, all growing up to one's waist—and higher among the fallen timber and boulders—made it almost impossible to move except very slowly. Where the vegetation was not so dense, *Linnea borealis* and many mosses covered the ground, but I saw no orchids here.

On August 2nd, we reached the west end of the lake where the river Bija, on which Biisk stands, runs out of it. Here there was a group of houses with one or two Russians, who had fishing-nets. There were some small clearings and one or two fenced fields of rye, and some attempts at making hay of the extremely rank grasses and herbaceous plants which exceed in luxuriance anything I had seen before. Wild Strawberries were ripe in the dryer spots, and Red Currants had a few small clusters of ripe fruit, but the Raspberries none.

About eleven the horses were ready to start. I had a very good one which carried me over twenty versts of the worst forest path I ever rode on without once making a mistake; though in some places he was up to his hocks in mud, and the path was full of sharp stones, roots and stumps. The forest had apparently once been all coniferous, as it still was on the south side of the lake, but had probably been burnt about thirty years before, and consisted of tall white poplars, sixty to eighty feet high and a foot in diameter, very large birch, with scattered Cembra, Spruce and Larch, but no Scotch fir. The track led over low hills, winding up and down, across swampy bottoms full of very tall, rank herbage: Delphinium, Nettles, Veratrum, Docks, Thalictrum and many common English plants, often higher than your head and always up to your waist. In consequence it was impossible to go much off the path, and as my pony was always inclined to go on rather than to stop, I could not do much collecting.

After three and a half hours' ride we got down to an open flat covered with grass and a few scattered Scotch fir, and after a couple of miles suddenly came to quite a civilised-looking village called Kabizan, the only one we had seen for seven weeks since leaving Ongodai. From Kabizan we went straight down the valley to Barnaul, where we arrived on August 9th, after three days' riding and three days' in carriages. We arrived at eight and found a good fast boat starting for Obi at 12.30, so we got our things on board and enjoyed the rest and good food after three days of jolting, dirt and discomfort.

As regards hunting, I was not very successful in the Altai, for though the wild sheep were numerous, they are admitted to be by all who have hunted them about the most wary, sharp-sighted, and difficult animals to approach, that exist. As I expected, from what I had heard from Mr. Littledale, who had been in the same mountains with Prince Demidoff, that as a rule one would have to take very long shots, I bought one of the then new Männlicher rifles at Berlin on my way out, and had it fitted with a telescopic sight. With this fixed ready to shoot, one could not crawl; and on several occasions I surprised sheep hidden among rocks or in hollows, which, if I had been on foot with my old Henry rifle, I could have hit as they bolted. But I was very much hampered by the telescopic sight, which I had not learnt to use, and which is by no means easy to manage unless one has plenty of time and is lying down, and I missed several shots that I ought to have got.

The native hunters always ride, and were so badly shod for walking that they always did ride until we had found our sheep, sometimes at great distances, which entailed very long detours to get the wind right, or to get into a position from which the sheep could be stalked.

When lying down to rest, they always select positions from which they can see all round them, and the only way one could usually get within shot was from above. When feeding, they move over the ground much faster than deer, and often shift their position, so that you do not find them where you expect. And at fifty-two, at elevations of 8,000 or 9,000 feet, I honestly confess that I was not so willing to stay out late at night, as one must do in stalking, or so active on rocky and difficult ground. And the attractions of collecting butterflies, which were unusually numerous and interesting, in a region where no one had collected before me, were so strong that, after I had got two really good heads, I only went after sheep when the weather was too bad to collect.

Another difficulty with sheep is that, when a number of rams are lying together, it is very hard to pick out the best head. At a distance where you can examine them carefully, one may think one has done so; but when you get within shot, they are so much sharper in seeing you than stags are that you dare not use the glass, and cannot make out for certain which is the best head. As has been remarked by all hunters of wild sheep, in America as in Asia, they can see a man much farther off than deer; and, though they may be still till you are out of sight, will then move to some distance whilst you are making your approach.

Two days after leaving Kuch Agach, having seen some sheep in the neighbourhood, we went out stalking, and rode up the valley to a place where the river spreads out into a flat plain of gravel, which in some places was still covered with snow three or four feet thick. It was everywhere quite shallow enough to ford easily. After spying the ground in sight from this point and only seeing ewes, we rode up to the higher ground. The men, who were very fair stalkers and understood the use of a telescope, suddenly saw some rams and got the horses into cover at once.

After getting above them, we saw them lie down in the middle of a great flat, rather wet ground, near some ewes. There were eleven rams headed by a very good one. They soon left the flat and went out of sight. We went a long way round and much higher up to get out of sight of the ewes, and spied a lot of ground without finding them. I saw some more and got down within 400 yards, but could get no nearer. Then a heavy thunderstorm came on, as it seemed to do almost every afternoon in this country. The thunder moved the sheep, and the men wanted to wait till the rain was over. Before it stopped, however, Omok, the stalker, who had a very good idea of his work, went a little forward and suddenly beckoned me to come on. I loaded the rifles at once and went on, getting quite close to some ewes, but could not see the rams, which he seemed to think were more to our left. Anyhow, they got our wind, bolted, saw the horses, and crossed the glen about 200 yards off at a gallop. I had several shots, but missed. As I was going home we saw the eleven rams we had seen in the morning in a position where I could have got at them, but, as the wind was very changeable and it was late, I determined to leave them as they were, feeding quietly, and hoped to find them in the morning. We did not, however, find them again.

On another occasion, in the same district, we saw a large lot of sheep—

I counted over thirty rams and a lot of ewes—on a high shoulder opposite. After a while they lay down in a position where I could get within about 300 yards of the nearest. As the wind was, the only chance was to go up and either wait till they fed, or try to move them. The hunters seemed to intend the latter plan, but did not succeed. After a hard climb up over shaly slopes with larger sharp stones which were difficult to cross, I got in sight of the farthest-off sheep, about 400 yards; but I knew that others were nearer, and did not dare to go further to see. We waited about an hour or more, expecting the other man to give them his wind, when a small ram's head suddenly appeared within twenty yards. I knew he would put the rest away, so I ran in till I could see the rest. They were all going off fast, but luckily I got one fair ram singled out, and hit him through the heart at about 150 yards. I had several more running shots, but was rather flurried, and though I hit one I could see no blood afterwards. When we got to the shoulder where the sheep had gone over, I saw my ram lying dead, and also some more big rams climbing up the steep rocky shoulder far above me.

I was very pleased at getting my first *Ovis ammon*. Though not a first-class one—forty-three inches round the curve—he was a great leggy, ugly beast, just getting rid of the last of his winter coat, and with very short scrubby hair. The feet and legs were very big and strong. The weight was about sixteen stone clean. It was all that the hunter and I could manage to drag him a few yards up to the top, and then we got him in a snow gully and slid him to where the horses could reach him. The men packed the head and part of the meat behind one saddle, and the best of the meat on the other horse, and rode them home with this additional load as a matter of course. My hunter's grey pony was a wonder and showed more blood and shape than most of them. But the extraordinary thing was the way that the ponies' feet stood the constant work over sharp stones and rocks, and the wonderful way in which they never seem to put their feet wrong on rocky or boggy ground.

Mr. Elwes published an elaborate paper *On the Lepidoptera of the Altai Mountains* in the *Transactions* of the Entomological Society of London for 1889. In this he described 189 species, of which about thirty-nine are not found in Europe.

CHAPTER XV

SPORT IN THE ALPS

IF I were younger and able to walk over bad ground, I would certainly prefer a good shooting in Austria to the best forest in Scotland, though the expense is now little, if any, less, and the best shootings are rarely, if ever, let.

Baillie-Grohman has well described Alpine sport as it was years ago, and still is in many places, where millionaires, noblemen or princes have not controlled it. But I have never assisted at any of the great deer or chamois drives, and began too late to become a good shot at chamois, which I think the most difficult of all animals to hit. I have enjoyed many delightful if not very bloody days in a shoot which I rented in the Vorarlberg with my friends Mr. J. Fairholme and the late Mr. Gardner Bazley. Without the help of the former, who was born and lived in the country and spoke the language like a native, and was equally at home with peasants or princes, I could never have rented or managed this shoot; and even with his help and supervision there were many difficulties and drawbacks which prevented us from going on with it after our lease expired.

Egg was the name of a large parish comprising about 14,000 joch,* and situated at a short distance from Bregenz at the east end of the Lake of Constance. It had, until we took it, been shot over by the sportsmen of the commune, whose Mayor, or Vorsteher, was a keen sportsman, and would not willingly have allowed it to be let. But the majority of the inhabitants, finding that only a few of them got anything out of it, petitioned the Governor to have it put up to auction. If Fairholme had not had an intimate knowledge of the country, we should never have obtained it at such a seemingly low rent as we paid.

Two keepers were engaged by him. One was a clever fellow but a rogue, who later on was caught shooting the game. The other keeper, a Styrian and a very pleasant fellow, was looked on as an intruder by the very clannish inhabitants of the valley, and was not likely to be too friendly with the men, however much he might enjoy the society of the girls in the Alp hutten. Poor Willi, as he was named, was not a first-class keeper, and the ground was so wide and so broken that he was unable to look after it thoroughly. At first we tried to nurse the roe and chamois, believing that they would increase a good deal when the ground was kept quiet. But we discovered later that the stags, which found a splendid wintering ground in the sheltered woods and valleys of our shooting, spent the summer and most of the autumn on adjoining higher land, and did not come on to our ground till after the rutting season. When the snow became deep they came down, and caused great damage to the young trees by gnawing the bark. This damage was assessed by the Government forester in the spring, and a bill for "Wildschaden" caused by deer which we never saw was sent in, and amounted to as much as or more than the rent of the shoot. Then we would get a notice from the Vorsteher in

* A "joch" is more than two acres.

December saying that, as the deer were doing harm, we must hold a battue or the local governor would order one, as he had the right to do. This meant going out in the dead of winter and paying a lot of drivers for very little result; or allowing the inhabitants to do their worst on the deer without regard to age or sex. Then there were poachers from Bavaria—or at least the Bavarians got the credit of it—who were said to be quite ready to use their rifle on man as well as on chamois or deer, if disturbed or challenged by keepers. I expect there was a woman in the affair when poor Willi had his brains blown out, after we gave up the lease, perhaps by one of these poachers. The murderer was never discovered or convicted, and the keeper's body might not have been found if his dog had not gnawed his leash and led the searchers to where he lay dead. This dog was the best dachshund after roe or deer that I ever saw. I remember once, when we had unsuccessfully driven a thick rocky wood on the banks of the river, Willi slipped the dog, who found a stag, followed him across a torrent fifteen yards wide, up the opposite hillside till the stag was out of sight, and three hours afterwards followed him back over the river again and into some cliffs which we had beaten for chamois, and which were too steep for the dog to climb.

It was very pretty sport to go and seat yourself on a still day in a favourite "Wechsel," or roe path, between two of the patches of forest which filled all the hollows on the lower part of our ground, and let the dachshund find a roebuck, which would run round and round, stopping to listen to the dog baying on his track, and generally giving one a shot if you knew best where to cut him off.

Roe were fairly numerous and gave a great deal more sport than they do in Scotland, in their rutting season, July and August. The method adopted was to go out at daylight and walk quietly about in places which bucks were known to frequent, stopping at intervals to imitate the call of the doe. This, called "Blatten" in German, is done by blowing on a blade of grass held in the hands in a peculiar way. The love-sick buck, hearing this sound, which is not heard very far off and only when the weather is calm, runs quickly to the place and shows himself for a moment, but long enough to get in a shot with a rifle if you are quick. My successor on this shoot, Baron von Lerchenfeld, once killed seven bucks in a single morning in this manner; but it is no use staying out after seven or eight o'clock, and the meat is not so good then as in early winter, when it is first-rate if cooked in German fashion.

We often found roe as high up as the chamois when drawing the woods, or rather we found chamois as low down as the roe. For some of the best chamois bucks on the ground frequented the steep rocky woods both in summer and winter, in preference to the higher pastures, which were mostly fed by cattle during the summer months. There were two old bucks in particular, which had long defeated the wiles of the best stalkers in the district, and which I had spied more than once in positions where they could be neither stalked nor driven.

We had a drive one day in which the lowest post fell to my lot, at the foot of a partly wooded rocky hillside, under a big sycamore tree. We expected to find roe and perhaps a stag, but I had little hope of a chamois,



[From a sketch by Ludwig Otto, Dresden, 1899]

FIG 9.—THE AUTHOR IN SPORTING KIT.

though as it turned out two came forward and one was killed by Fairholme at the highest post. The beat was over, but, as the others had arranged to lunch close to my post, I sat for some time watching, as old bucks often go back behind the beaters. Just as the others were assembling on a flat grassy meadow not far off, I saw a chamois buck stealing down a little watercourse about thirty yards from my post. I had a Paradox in my hand, and was so hurried in the shot that I fired by mistake the right barrel, which was loaded with buckshot. The buck was out of sight in an instant, but as he was going in the direction of the lunch party I called to my friends to look out, as I knew he must come in their sight. I saw no blood where I had fired, and when I rejoined the party I asked them where the buck which I had missed had crossed the meadow. They all said that no buck had appeared, so I took the dachshund and put him on the scent where I fired. In three minutes I found the body stone dead, with one shot in his heart, lying in a hole not fifty yards from where the party were sitting. Judging from his age and the very long hair on his back, this was one of the old bucks that had so long escaped. It was the best chamois I ever killed, and, as it was late in November, was in splendid condition with very long black hair along the spine.

When we got back to the inn where we spent the night, I locked the body up in an old outhouse, intending to have him stuffed whole as a trophy; but the long black hair, known as the "bart" or beard, was so much-coveted by some evil-disposed person, that in the night the lock was broken and all the long hair pulled out. Such a "bart" is worth fifteen or twenty gulden to make the hat ornament which every sportsman or would-be sportsman in Austria wears, and the longer the hair the more it is prized. The other old buck had one of the narrowest escapes that ever buck had, as I will tell.

One bright, sunny December day, I went out alone with Willi, the snow lying deep in the shady and sheltered places, and we spied the buck near the top of a wooded cliff in a place where he thought he was safe. But as the snow was deep above, and I thought there was just a chance that he might come downhill, we went on till we were out of sight, and then I sent Willi to climb round above him, while I crept back out of the buck's sight to a place where I thought he might cross into a ravine. I posted myself behind a boulder at the foot of the pine wood which covered the lower part of the cliff, and waited a long time in the sun, watching. At last he came straight down to me, but so quietly in the deep snow, and keeping himself so well hidden, that I never saw him till his head appeared on the other side of the boulder behind which I sat, literally within ten yards. I do not know whether he was as much surprised as I was, but he stood for a second, and if I had had a shot-gun or a double rifle I must have got him. But, having a Lee Metford in my hand and being hurried, I cut the hair from the side of his neck with my bullet, and before I could get another cartridge up the buck rushed past me and disappeared in the gully behind. I knew he must come in sight again, and waited till he came on to a ledge perhaps a hundred yards off, where he stood long enough to give me another shot; and then—though I do not expect to be believed—I again grazed the skin without touching the

body, as the hair was on the snow, and no blood, when I went to look. This was my last season at Egg and I never saw or heard of this buck again.

The late autumn and early winter here was the best season for sport in my opinion, as then we generally had lovely still, bright weather, though long ascents in the snow were sometimes very hard work, and it was necessary to carry an extra warm coat if one had to wait long in the shade. We thus escaped the wet muggy weather and frequent mists which often spoil the sport in August and September. And to my mind, the advantage of being able, by tracks in the snow, to know exactly what is going on in the woods, and to find out the habits of the game by their tracks, is an unfailing source of interest which one cannot have until snow falls and lies, as it generally did here from some time in November till April or May.

Though there were a fair number of capercaillie and black game at Egg, and their playing-places were well known, we rarely saw them in summer or autumn. I only once went out in the spring to try the sport which is so dearly loved in Austria of shooting the cocks at their "balz platz," or, as they say in Scandinavia, at the "lok."

In order to do this one must get up sufficiently early—which means any time between two and three in the morning—in order to reach the spots where the birds assemble before the first peep of dawn. Then you have to wait in the dark till you hear the song of the male capercaillie—an extraordinary sound divided into three parts, which is repeated at intervals of two or three minutes for some time.

Whilst the bird utters this sound, at least during the latter part of his song, he is so much excited by sexual passion that he is for a few seconds blind, deaf and stupid; and as soon as you have located the tree in which he sits, you can approach close to him, by three long steps at a time, taking care to remain absolutely motionless when he is not singing. The approach is sometimes an affair of some duration, as if the bird becomes suspicious and stops singing, you just have to wait till he begins again. Sometimes he hears or sees you and flies off; and if you succeed in getting within shot, it is often very difficult to see him clear enough through the branches above you to kill him in the correct sportsmanlike way with a rifle. Sometimes two, three, or even more birds sing within a hundred yards of each other, and if you are lucky you may get two or three successive shots, for even if you miss your bird, he does not always fly away. I soon had enough of this sport, which does not seem to me as exciting as it is to some noble sportsmen in Austria, who spend three weeks or a month during the spring in going from one place to another on the chance of getting a shot or two every morning, returning to their hut or shooting lodge to finish their broken night's rest. Black game are shot in the same way, but this sport I have only seen in Russia, where it appeared to me more interesting than shooting capercaillie. For several black cocks assemble to dance, fight and court the hens on the same patch of ground, usually an open glade in a marshy forest, and their antics are very curious to watch, though the actual shooting is easy enough.

We had excellent quarters at Egg in two or three inns which were in different parts of our ground, and it is surprising how well they cook

and what good beds, food and wine you get for a nominal price at these little country inns in the Bregenzer Wald. The natives seem mostly very well off, living on the profits of their cattle, cheese and timber, and were on the whole not bad fellows, though bigoted Catholics and not nearly so honest or friendly as Norwegians of the same class.

Sometimes we invited neighbouring sportsmen to a drive and then we were pretty crowded in a small inn, where the consumption of wine and beer after a successful day was astonishing. Austrian sportsmen, even of the highest rank, are perfectly ready and willing to rough it on these occasions. They usually brought nothing but their rifles, and what they could carry in their rucksack, and were quite happy for two or three days at a time with a bed in the hay, and a dip at the water-trough in the morning.

In a valley not far off is a celebrated chamois preserve, with a fine large shooting lodge at Hopfreen, which was built by, or for, the late Mr. Maund, who then rented the shoot. I had one or two good days chamois stalking on this ground, much of which was very steep or dangerous, and I confess there are many places on it which I did not like at all, as my head, after the age of fifty, became less indifferent to looking down precipices than it was when younger.

During the five years I had at Egg and at Lech, where I had an out-lying beat, I never killed a stag with a first-class head; and never saw more than one which was much better than a good Scotch head, though the feeding and shelter are so much better. And I should never have had an idea of what splendid sport Alpine deer afford if I had not been asked by an Austrian gentleman to spend a week at his forest in Styria. I arrived at the station near his house about four in the morning in the first week of October, when the rutting season was well on, and found a carriage waiting to drive me to the house, where I arrived to find him ready to start as soon as I had had breakfast. We drove a little way up the valley, where we were met by two foresters with ponies and lanterns, for it was still quite dark. Mounting the ponies, we rode up a long zigzag ascent through the forest till we reached its upper limit about daybreak. The head forester then took out a conch shell, with which he produced a wonderfully good imitation of a stag's roar, finishing with three deep grunts. Before long he was answered by two or three stags not far off. I found that my friend intended to keep us company, as he said that he had now killed his 500th stag, and that, unless he found one whose head was remarkable, he had rather I did the shooting. So we started for the stag whose roar came from the most accessible place not far off. It was a dark, rather misty morning, and we found the stag standing on the edge of the forest with two hinds and a small stag, known as the "Beihirsch," hanging around at a little distance. The ground was so flat and open that my companion and the forester seemed to think it was impossible to get within shot, though the stalk would have seemed quite easy to a Scotch forester. So I said that I would try and creep in alone whilst my companion went to look for another. I had not much difficulty in getting up to about 150 yards of the master stag, going, as the forester afterwards told his master, "schlangenweise," or snake-like, on the ground; but when I got

as near as I dared go, the stag was so restless and the light so bad that I missed him. We found another later, but as he was standing a good deal higher up and they calculated that by the time we got above him the cloud would be on the hill, we did not stay out late but went in at eleven to a good dinner and a snooze. This I found to be the regular plan here during the rutting season, as the stags rarely roar after nine or ten in the morning, when they retire to the shelter of the woods, coming out again and commencing to roar an hour or two before dark.

The estate was admirably provided with narrow paths along the sides of the forest-covered hills, these paths keeping very much on the same level. When the season begins, these paths are cleared of all fallen trees and sticks so that you can walk in perfect silence, and approach either from above or below any stag which may be heard roaring. I also found that the position of the sun determines whether the stalk is made from above or below, as when the hillside is in shade the air draws down the hill and, when in sun, upwards. And as the weather at this season is usually still and sunny with frost at night, one has little trouble with eddies and currents of wind, which so often spoil a stalk in Scotland. In fact, the system is quite different and consists rather in finding stags by their roar, and using the glass mostly to make out deer at a distance.

That evening we slept and dined very well in a keeper's house to which our necessaries had been sent up. Next morning I went out alone with the head forester and soon after daylight heard a stag roaring in the forest. When we got within 200 yards I asked him to let me go in alone, as I feared that he might put me off my shot, and after a little manœuvring I got sight of a hind walking slowly through the forest. The stag was not far behind and I killed him dead with a single shot, and found I had a good ten-pointer. Up ran the forester, who was very pleased, but he neither bled nor gralloched the stag. I found that this is never done here until after the body is carried down to the road, as it is supposed to make deer shy of the ground where any blood or entrails are left.

The next thing was to cut a sprig of silver fir, which he presented to me with great ceremony to place in my hat as a sign of success, and then to take out the two big teeth which are much valued by German sportsmen. We then went back to the house where my companion soon arrived and congratulated me. He had found a stag whose horns were abnormal and formed two knobs on the top of the head, and was more anxious to get it than if it had been a sixteen-pointer.

In the afternoon I went out again, and found five or six different stags moving about in a partly wooded hollow, but so restless and uneasy that I could not get a shot. During the six days I was here I never saw more than two or three hinds in company with a stag, and sometimes only one. But though hinds were nothing like so numerous as in a Scotch forest, the proportion of good stags was much greater, and I was told that about eighty are annually shot on the estate. The next day we had a drive in a place where my host told me he once shot eleven stags without moving from his post. Only three men acted as drivers, and they went a long way round before daylight, and walked towards us through the woods, tapping trees as they went.

My post was on the edge of a steep grassy opening running up and down the hill between two strips of forest, and I sat facing the one which was being driven, with the sun rising just at my back. Two or three hinds and small stags came to the edge of the forest, and, after looking out, passed across the opening below me at a walk, as I did not think them good enough to shoot. Then a royal put his head out at the same place, and smelling the tracks of the deer which had crossed before him, came on with confidence at a slow trot. I took a careful aim at about seventy yards, and he rolled down the hill out of my sight, apparently dead. Above me my host got two stags, one a very good one, and the men were sent to drag them down to the road a long way below.

In the afternoon we went out together and about five o'clock heard a stag roar in a strip of forest, separated from the wood where we stood by a rather steep, smooth, grassy sort of gully, about twenty yards wide. After listening for a while, as he did not seem to get nearer, I began to cross the opening, but was immediately pulled back by the forester, who said it was dangerous. It seemed to me perfectly safe though the slope was steep, but whilst he was talking in a whisper, the stag, luckily for me, came out fifty yards above me. I aimed at his heart and fired. He gave a jump into the air and fell on his back, rolling down. I then realised how steep and slippery the grass was, for by the time the stag was opposite where we stood, the body was rolling at such a rate that it was soon out of sight 400 yards below, and I expected to find every bone broken. But we never got to the place where it was found, as my companion said it might roll a long way further, and it would be recovered by one of his men in the morning.

The next day we moved our quarters to another keeper's house a few miles off, where we were made very comfortable as before. On the way we passed over a high bare hill, which overlooked an adjoining valley forming part of one of the Emperor of Austria's private preserves. As we were spying the ground, which was high-lying grassy moorland with scattered bushes and stunted trees, I saw a very good stag, which we made out to be a sixteen-pointer, coming up slowly from the march into our ground, as though looking for hinds, of which we could see two with a small stag on the other side of a grassy ridge which ran down from the hill where we sat. I said, "There is a stag worth some trouble." My host said, "Yes, but you will never get a shot in this open ground, for we cannot come down from where we are without his seeing us." I said, "Let me try alone, for I think I can," so I started to slide down on my back in full view, stopping when the stag stopped, and going on when he moved on. When I did get about 300 yards down, the stag had put the ridge between him and me, and seeing that it was quite safe, I jumped up and ran to the place where he crossed the ridge. Peeping over quietly, I saw a really splendid beast within 200 yards, just coming to the hinds after driving the small stag away. And I certainly believe that I would have got him if the men above had not foolishly tried to follow me, standing up, and not on their backs. But the hinds had already seen them and were just going to be off. Seeing that there was no time to lose I aimed carefully at the stag, but just as I pressed the trigger one of the

hinds pushed the stag and he went off, unhurt as far as I could judge. I could never make out whether the action of my host and his forester was due to jealousy or carelessness. They might have wished to keep such a fine head for themselves, or they may not have realised that the hinds could see them if the stag could not. I think, however, that though Austrian foresters are, from long practice in steep and difficult ground, much better at chamois stalking than most Englishmen, they are not nearly so good at crawling or at approaching deer in easy ground as the average Scotch deer stalker, and are nothing like so clever in the use of a telescope as our men usually are.

I had now had five days of excellent sport in this forest, and had killed five stags, besides missing two; and I might easily have killed as many more. On the last day we had a long walk back to my host's house, and after spending the morning in vainly trying to get a very restless stag which would not stop long enough in one place to be stalked, we were going along a path on a steep hillside with open ground above us. Coming round a corner I saw a good stag standing alone at a distance which I guessed at 350 yards, and very high above me. He stood and watched us, and though I have never been in the habit of trying such long shots as this, I thought I might take a last chance.

I had often found that my Lee Metford carried high when shooting downhill, and I had missed several chamois standing below me. Though I had asked my son, who at the time was musketry instructor of his battalion of the Scots Guards, what was the proper allowance to make when firing at steep angles up or down hill, he said there was nothing known about it in the army as their musketry practice was always on the level; and the lesson of Majuba Hill did not seem to have opened the eyes of the musketry instructors at that date. Sir Edmund Loder was the only man who seemed to have worked out the question for himself, and he advised me to aim very low when firing downhill with a Lee Metford fitted with sporting sights as mine was.

In this case I put up the highest sight, marked 300 yards, and took it very full, firing from the shoulder without a rest. The stag gave a start and stood still without shifting his position broadside on to me. I fired a second and then a third shot, without any visible effect. At the fourth shot the stag dropped dead. When we got up to him, which took a long time, I found that one shot, which I suppose to have been the first, had passed through the shoulder; and another, I suppose the last, through the heart. My companions were much surprised at the distance, which they estimated at 400 to 500 yards, and I went away with a reputation which I certainly did not deserve. For though, with modern telescopic sights properly fitted to a Mauser or Männlicher rifle, a first-class shot may fire at such distances with a good chance of killing, I have always looked on about 150 yards as my farthest safe distance, and have missed many shots, especially when lying down, even at that range.

This ended the best week's sport I ever had, and one that I would not have changed for treble as long in the best forest in Scotland. But I must again warn English sportsmen of the many difficulties that the leasing of Alpine preserves by foreign sportsmen entails, even if they speak

German well. In most of those that are not the private property of great landowners—and these are hardly ever let—there are innumerable rights of way, of grazing, timber felling and other easements as the lawyers say, which are very likely to cause trouble to one who is not a native of the country. Though the game laws in Austria are very stringent and strictly enforced, poaching in many districts is rife, and bloody affrays between keepers and poachers, though not so common as they were, are still possible. "Wildschaden," or damage done by deer, has also to be reckoned with, and if deer become too numerous, of which the Government officials are the sole judges, you may be obliged to kill them down, or, in default of doing so, a battue may be ordered in your absence. Keepers who have no one on the spot to superintend them not infrequently do a bit of poaching themselves, and in other ways the position of a foreigner is not the same as that of a native.

But to those who do not mind these risks, or who have friends in the country on whom they can rely, sport in an Alpine preserve is more attractive than in the Highlands. The season, commencing with chamois and roe about June 15th and lasting till November or December, is much longer, the climate much less wet and windy, the scenery much more beautiful; and for the man who likes to do his stalking independently, and not to follow at the heels of a stalker and only fire when he is told, the opportunities of using your own eyes, skill and judgment in finding and approaching game are much greater. With the help of ponies and good paths, which are made expressly to help the sportsman in most of the best preserves, even an old man may stalk without much fatigue; and those who are too old to stalk may have many more opportunities of driving game, without unduly disturbing the preserve, than in the Highlands.

No one who did not see the incomparable exhibition of sporting trophies and accessories of sport at Vienna in 1910 can have any idea of the extent to which the preservation of big game is carried in many parts of Austria and Hungary, or of the amount of money that is spent on this form of sport. And though one can hardly hope to kill such magnificent trophies as those which were shown there, one may at least be certain of finding some better than can be got at home. I visited Vienna on purpose to see this Exhibition, which was described in a Special Supplement to *Country Life* on July 30th, 1910; and at the request of the Editor wrote an article on some of the exhibits which most interested me. My friend Mr. Fairholme, who on account of his familiarity with Austrian manners and customs acted as British Commissioner at Vienna, selected four heads from my own collection which would have been shown there. But the committee decided to restrict the British collection to specimens killed in some part of the British Empire.

THE TROPHY HALL AT THE INTERNATIONAL SHOOTING AND FIELD
SPORTS EXHIBITION, 1910.*

This building contained, when I visited Vienna on June 10th, a selection from the finest heads sent to the exhibition, and brought together for the purpose of awarding prizes. As it was decided that none of the English exhibits should be removed from our own building, which has been already so well described in *Country Life*, the competition was principally confined to trophies of European big game; and as English exhibitors were not allowed to send any heads not killed in British territory, Asia and America were not so well represented as they might otherwise have been. But the number, size and variety of trophies—red deer, fallow deer, roe, chamois, ibex, moufflon, elk, boar and bear—were really wonderful, and can only be described very imperfectly in the absence of a catalogue, while no prize-list had been published when I left Vienna.

Few Englishmen who have not lived in Austria have any idea of the extent to which large game is preserved, or of the immense amount of care, time and expense which the majority of large landowners devote to the improvement of their shooting-grounds. Though racing is a popular sport, yet shooting holds by far the first place in their estimation, and fine heads are prized even more than by ourselves, while the rage for collecting abnormal varieties and monstrosities is a special cult with many of them. With regard to the system adopted by the Committee in awarding prizes, I must say that, in my opinion, which agrees with that of Mr. Millais, not nearly enough importance is given to symmetry, for which only a maximum of ten points is allowed. Size and weight obtain too large a number of points in comparison with this important feature, and under the German and Austrian code of rules, a head in which the points were numerous, irregular in position and individually small, would in many cases be placed before one in which the points were long, even, regular and equal on both antlers.

On entering the hall the first thing that I noticed was a wapiti head sent by Mr. Baillie-Grohman. This, though a very fine twelve-point head, would stand little chance of winning in competition with several that I have seen, or with others which are recorded by Rowland Ward. Mr. Millais, than whom there is no better judge, considers that Mr. Tulloch's twenty-pointer was the finest in the American Exhibition of 1887. A collection of trophies from Central Asia was sent by the Prince of Braganza, Herr G. von Almasy and Hubert von Archer. The last has some fine ibex and wild sheep from the Thian-Shan; but there were no first-class heads of *O. poli*, *O. ammon* or *O. hodgsoni* in the Exhibition, some of which at least might have been admitted if the English Committee had not ruled otherwise.

The same may be said of the various races of Asiatic wapiti, of which I only noticed one of moderate size from the Thian-Shan and none of the Manchurian *Cervus luehdorfi*. By the way, are we any longer justified in calling the Asiatic animals wapiti? It seems to me that this name

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ought to be confined to the American species, and that maral is a better name for the Central Asiatic deer of the wapiti type.

Asiatic roe are also exhibited, and show an extraordinary variety in the set and pearly of the horns, though I saw none in the Exhibition quite equal to Herr Hagenbeck's record head.

Count Ludwig Apponyi shows a very fine collection of moufflon heads and skins from his estate in North-West Hungary, where this handsome sheep seems to have become perfectly naturalised. It was first introduced from Corsica by Graf Fogatsch about seventy years ago into the Nitra comitat. The size of the horns seemed at least equal, if not superior, to the best I have seen from Corsica and Sardinia. The first prize for moufflon was, however, awarded to Chevalier Wessely for a pair of horns 33.85 inches round the curve and 9.49 inches in circumference at the base. (This measurement was taken by Herr Gustav Schuster of Vienna, editor of *Halayi* at the request of the editor of *Country Life*.) Only one slightly longer is recorded by Rowland Ward from Sardinia, and this is $\frac{3}{4}$ inch less in circumference. I saw no heads of the Cyprian or Armenian wild sheep. Some very fine moose heads from Alaska are shown by Paul Niedieck, one of which, with seventeen points on each side, measures 6 feet 2 inches across, and is one of the most imposing heads in the exhibition. Herr Schuster's measurement was 77.16 inches in spread, and the weight (presumably with the head) is given as ninety-four and a half pounds. It received the first prize in its class. Another, killed in the Kenai Peninsula in 1909 by Rudolph von Guttmann, has nineteen points on each side, and a third, killed on the Macmillan river by Mr. Selous, comes very near it in size and symmetry. This is shown in the British Pavilion, and has the right-hand palm so thick that it is partly divided into two layers. Philip Oberlander shows a fine Stone's sheep head from Cassiar, and also one of the race known as *O. nelsoni* from Lower California.

The caribou heads in this building are not so fine as those shown in the Canadian Government building, where Mr. W. Pike has brought together a splendid selection of heads from British North America, which are separately described.

Elk from Sweden and Norway are better shown than I have ever seen them previously, and afford an excellent opportunity of comparing the heads from these countries. The finest Swedish elk is sent by Herr Rothmann, from Murjeck, and measures 4 feet 8 inches in span, and 2 feet 8 inches from the highest point of the shovel to the longest point on the brow. It has on the left twelve and on the right eleven well-developed points, measures 8 inches in girth above the brow, and its weight is given as twenty-five kilogrammes. It received the first prize. Another, from Jockmock in Lapland, is evidently that of a very old bull, and has twenty-four rugged points, and there are three others of a somewhat different and more erect type from Nederkalix, Bracke and Helsingland, the latter with twenty-four very regular and well-shaped points.

A very curious Norwegian elk head has on the right antler five points turned upward and three downward, while the seven on the left are all

normal. None of the Norwegian elk heads in this building, or in the Norwegian building from which they came, are so fine as the Swedish ones, or as several which I know of in England; and there is no Norwegian red deer equal to one in my possession from the island of Hitteren. Scandinavian reindeer are also poorly represented in comparison with elk, both as regards size and number.

The roe heads from South Sweden were also remarkably large and well developed, and seem to have been a great surprise to the German and Austrian sportsmen. It seems remarkable that this animal should be found over so wide an area as from Sweden to Southern Spain in the West, and from Western Mongolia to the Caucasus in the East.

From the Caucasus came two fine wild goat heads, a splendid pair of the horns of the Caucasian tur (*Capra cylindricornis*), sent by Prince Demidoff; and though E. Juthner sent a fine Caucasian stag's head with twenty-two points, I do not think from memory that it is equal to Mr. Littledale's best head. Mr. Walter Winans sent some hybrid red deer and wapiti horns from Surrenden Park, and some very fine boar heads from Sachsenwald, for which he received a group prize.

The King of Italy sent a remarkable collection of ibex heads, killed by his grandfather and himself in the Royal preserves in the Val d' Aosta. The finest of these, which obtained first prize, was, according to Herr Schuster's measurement, 31·89 inches in length and 8·86 inches in girth at the base. Several larger heads are recorded by Rowland Ward (*Records of Big Game*, ed. III., p. 347) as being in the collection of the King of Italy, and one which was shot by the late King Victor Emmanuel is there given as 33 $\frac{1}{8}$ inches by 9 inches in girth, with a span from tip to tip of 39 $\frac{3}{8}$ inches. But Mr. Baillie-Grohman in *Sport in the Alps*, p. 267, states that, according to Count Hoyos, the largest head in the King of Italy's collection is 30 $\frac{1}{3}$ inches along the curve by 9 $\frac{3}{4}$ inches in girth and 29 $\frac{3}{4}$ inches from tip to tip, so there is probably some error in the *Records of Big Game*. All of these are straighter and stouter in comparison with their length than any of the horns of the Siberian and Himalayan ibex.

I saw no heads of the Spanish or Sinaitic ibex, and none of the wild goat from Asia Minor or Crete. Neither were there any stags' antlers from Asia Minor, the Crimea or Turkey, so that the compulsory omission of contributions from Englishmen of these and many other animals not killed on British territory is much to be regretted.

When, however, we come to German collections of stags, fallow deer, roe and chamois, their number is simply bewildering; and though they have been very carefully judged, and the prizes awarded by a committee of Austrian and German connoisseurs, it is almost impossible to pick out the most striking. The head which received first prize belongs to Prince Alfred Montenuovo, and is figured by Mr. Baillie-Grohman on Plate XIV. of *Sport in the Alps*.

This stag was killed by a peasant in Hungary, and when killed the antlers weighed 29·7 pounds. According to Herr Schuster, they measure 40·55 inches, with a spread of 42·12 inches, and the burr is 11·81 inches in circumference. The head has eleven points on the right side and eight

on the left, the most remarkable feature being that both brow tines are forked, the right having three, the left two points. A head shown by Count Traun has the left antler almost palmate on the top with six points, but no bay or trez antlers. Duke Johan von Liechtenstein showed two heads, which were very remarkable on account of their narrow span and abnormal palmation. A splendid thirteen-pointer, shown by Hugo Mossler, is no less than 1·60 metres in width.

With regard to the weights of these Hungarian stags it is difficult to get exact figures, because sometimes the stags are weighed as shot, sometimes when brittled; and sometimes, no doubt, as it has occurred to me, it is impossible to get the body from where it fell without cutting it up, and then the weight is estimated, after weighing it in pieces. Mr. Baillie-Grohman quotes the heaviest weight known to him, as given by E. von Dombrowski, at 44 stone 4 pounds, equals 620 pounds. A head was shown by Count Schonborn Bucheim (numbered 6,129) from a stag whose weight was given as 270 kilogrammes. But I was assured that the heaviest stag killed in Javovina, a forest in the Hohe Tatra, was 397 kilogrammes as killed, and 312 kilogrammes when brittled, and this comes very near the weight given in *Sport in the Alps*, p. 178, of two stags killed in 1693 and 1696, as 850 and 835 pounds. A remarkable head killed by the German Emperor at Rominten in East Prussia has no less than forty-four points; but these are small and crowded on the top, in the style of the celebrated sixty-six pointer in the collection at Moritzburg. A selection of these relics of a bygone age was sent by the King of Saxony, sufficient to show that no modern red deer can compare with them in span, size, or number of well-developed points. For though I searched the whole collection I could find no modern stag's head with more than eighteen or twenty really well-developed points, most of the best having fourteen to eighteen.

Chevalier Wessely gained the first prize for fallow deer with a head which measured 26·48 inches round the curve, and 22·04 inches in spread, with the palm 6·69 inches across. There were many others: from Duke Günther of Schleswig-Holstein, from the Duke of Ratibor and from the Prince of Saxe-Coburg-Gotha; but perhaps the best that I noted was a head from Hacs in Hungary with sixteen points on one side and fourteen on the other. I was under the impression at the time that some of these heads were larger and heavier than our best park heads, but on comparing the measurement of the first prize head mentioned with those given by Mr. Millais in *British Deer and Their Horns* I find that both in England, Scotland and Ireland fallow deer have existed which considerably exceed the German heads in length and spread. The record whose origin is known is from Drummond Castle, Perthshire, and measures 36 inches in length with a span of 37 inches. Millais gives 8 pounds 1 ounce as the weight of the best horns known to him (with skull, but without lower jaw), which came from Petworth Park.

Among the curiosities were a pure white roe, stuffed whole, and a chamois of a pale yellowish dun colour; and in the collection of chamois horns sent by Herr Paul Haberg was a most remarkable head, fawn colour striped with grey, and very wide-set horns. The record chamois

head (numbered 6,111), from the Carpathian Mountains, was shown by Baron Donald Schönberg. It measured 12·6 inches along the curve, 4·13 inches girth at base, with a spread of 7·08 inches. Herr A. Huter showed a white-headed chamois.

The best collection of roe heads was shown by Count Trautmansdorff, and contained many of great size and abnormal development. The first prize for roe was awarded to Count Mycielski for a head 12·2 inches high, 7·87 inches round burr and 7·08 inches in spread.

Bears are still not uncommon in parts of Hungary and Galicia, as well as in Bosnia and Croatia, but seem to be nearly extinct in Austria proper, though there are still a few left in the Dolomite Alps of South Tyrol. The largest bear in the exhibition is one sent by Count Potocki, which is stuffed in an erect attitude and stands $7\frac{1}{2}$ feet high. From the point of the nose to the eye this bear measures 6·03 inches. Another fine one, killed in Galicia by Dr. Boujinsky, has a dark, almost black, fur.

The prize for a wild boar goes to the Emperor of Austria for a splendid head with tusks 13·6 inches in length. A superb boar shown by Freiherr Gotz Akocin seems to be of stouter build, and to carry longer tusks and a much thicker coat of bristles, than the boars of the Ardennes, but this, no doubt, is accounted for by better feeding. It would be interesting to know the weight attained by the wild boars in Hungary and whether they ever equal those of the Caucasus, which are said to attain 600 pounds. The heaviest that I have killed in Belgium, Turkey and Asia Minor did not attain half this weight.

CHAPTER XVI

CHILE, 1901-1902

MY journey to Chile had three main objects. The first was to gain some idea of the peculiar conditions which make the fauna and flora of Chile so interesting. The second was to collect as many as possible of the lepidoptera, which have never been studied on the spot by any competent entomologist. Thirdly, I wished to learn something about the many beautiful plants of Chile which we grow in gardens and of whose habitat we know but little, and to introduce to cultivation the terrestrial orchids which are such a marked feature in the flora of the country.

I was fairly successful in all these objects, and brought back a collection of plants which have been worked out at Kew by Mr. T. A. Sprague, Mr. Rolfe and myself.

Though many good naturalists have travelled in Chile, yet for the most part their explorations have been confined to the settled parts of the country. There is a large region in what was formerly called Araucania which, having only lately become open to travellers, has remained comparatively unknown to European naturalists, though it has now been fairly well explored by the numerous surveyors who have been employed by the Chilean and Argentine Governments to settle the boundary dispute, which at the time of my visit had become a very burning question. Among these Señor Moreno on the Argentine side, and Dr. Hans Stiffen on the Chilean side, are by far the most distinguished.

I need not enumerate the various authors who have written on the natural history of Chile. The names of Gay, Philippi, Cunningham, Darwin and Ball are all well known. The two former have described the natural history of the interior of the country, whilst our countrymen have studied the coast in a way which I cannot hope to equal, as it is evident that three months in such a country as Chile would by no means justify me in forming any very decided opinions about the causes which have produced such a remarkable fauna and flora. So far as Darwin saw the country, he describes it in a manner which makes it difficult to add anything of importance to what he wrote. But he saw little of the southern mountains, which in his time were almost unknown to the Chileans themselves. I shall therefore pass over the regions which he so well described, and confine my remarks principally to the route between Mulchen and Puerto Montt, which has never been described by any scientific traveller except in part by Señor Moreno.

I left England in November, 1901, and arrived at Buenos Ayres on December 2nd, when the political relations between Chile and Argentina were in a condition which almost led to war, and which delayed me considerably in making a start for the southern frontier. I had engaged the assistance of a Swedish engineer, Señor Arneberg, but on arriving in Chile I was advised that it might be unwise to travel with a man who had been employed by the Argentine Government as surveyor. After a month's delay in Chile I was fortunate in obtaining the assistance of

Mr. Bartlett Calvert, an English entomologist long resident at Quillota, whose intimate knowledge of the language made it possible for me to organise my camp without any serious difficulties. I received every facility from the Argentine and Chilean Governments in the way of passports, for which I have to express my gratitude to the ministers of both countries, as well as to many kind friends in Chile who did everything in their power to assist my undertaking, and whose hospitality was far beyond what I had ever previously experienced in any country where I travelled.

From Buenos Ayres to Santiago was now an easy railway journey of three days, broken only by the pass over the Andes between Puente del Inca and Salto de Soldado, which was traversed in one day on mule-back with perfect ease and safety. This journey has been so well described in recent works by Fitzgerald and Sir M. Conway that I need only say that the good hotel at Puente del Inca, at the foot of the great mountain of Aconcagua, affords a delightful resting-place. The few butterflies which I found there seemed to show that there is considerable resemblance between the high Andes in this latitude and the Bolivian Andes, which have been so well explored by Garlepp, and whose lepidoptera have well been described by Staudinger in *Iris*, VII., p. 43.

After visiting the museum at Santiago, where Dr. Philippi was good enough to allow me to leave my collections to be dried, I first went to the Baños de Cauquenes, which have been described by Darwin and the late John Ball, who visited Chile in 1882 and wrote a book on his journey. The season for plants was here already advanced and the country very dry, but I saw enough to convince me that the evergreen forest which clothes the mountains and extends into the plain farther south had never been present in the outer valleys of the Andes here, though about six hours' ride into the mountains brings you to a valley where *Libocedrus chilensis*, the Chilean "cypress," grows abundantly. The magnificent *Puya cærulea* (or *alpestris*), which Miss North has so beautifully painted, was the most striking plant I saw, but orchids were conspicuous by their absence.

I next visited Concepcion and the beautiful gardens of the late Madame Cousino at Lota, also described by Mr. Ball, where I saw for the first time on the hillsides some of the South Chilean plants, and where large plantations of the Californian *Pinus insignis* are rapidly changing the aspect of the country. Nothing is more surprising in the great central valley of Chile along the line of the railway than the way in which the indigenous vegetation is being supplanted by trees and plants introduced from Europe. The weeping willows are finer than I ever saw in Europe. Lombardy poplars form avenues along most of the country roads and surround many of the irrigated fields, in which wheat, lucerne, vines and beans grow with wonderful luxuriance, and which, when fallow, are smothered with gigantic thistles and other South European weeds. European oaks, peaches, figs and introduced conifers have so changed the aspect of the settled and cultivated parts of the country that one would suppose oneself to be in Italy rather than in South America. In the beautiful gardens and fruit plantations of Señor Salvador Isquierdo at Santa Inez, I saw

that with skill and enterprise Chile will soon rival California as a fruit-growing country, and at Quillota some tropical fruits may be grown in addition.

Agriculture in Chile has been fostered by the establishment of a college at Santiago, which in its equipment surpasses anything we have in England. And though old-fashioned methods are still in vogue in the haciendas of the country, many of the enlightened landowners of Chile are devoting themselves to the improvement of their estates in a way which will bring its own reward.

My next trip was to the Baths of Chillan, sixty miles east of the town of that name, and situated in a forest-clad tract of mountains at the foot of the Nevada de Chillan at an elevation of about 6,000 feet. Here I collected many beautiful plants and insects, and saw the beech forests, which here clothe the mountains from the plains up to about 6,000 feet, in all their glory.

As this is the only place where comfortable accommodation can be obtained at a high elevation in an accessible part of the Andes south of the Mendoza Pass, the Baths of Chillan have been visited by several naturalists, though much remains to be discovered. I collected a large number of the curious terrestrial orchids of the genus *Chlorœa*, which grow here and which were first discovered and described by Poeppig in the valley of Antuco, whose volcanic peak can be seen to the southward from the mountains round the Baths of Chillan. I very much doubt, however, whether we shall succeed in cultivating them successfully as their long fleshy roots are so deeply buried in the sand and stones among the roots of bushes and a bamboo-like grass, *Chusquea andina*, that they are very difficult to get up without injury. And as they grow most abundantly at an elevation where they are covered by snow during the English summer and flower in brilliant sunshine and a dry air at the time when our English winter is at its worst, the conditions are very hard to deal with. Those which I sent to Kew from the coast region about Concepcion are, however, growing fairly at Kew, and their beauty and interest are so great that every effort should be made to flower them. Some of the species found here at 5,000 to 7,000 feet elevation, as for instance *Pogonia tetraphylla*, extend south to the Straits of Magellan, where they grow at sea-level, and there are many other plants, and some birds and insects, which have the same great range of distribution.

Having obtained nearly all the butterflies which were found at this place by Mr. Edmonds, and which were described by Butler in 1883, I returned to Santiago and found that the immediate risk of war was over and it was now possible to start on my journey along the frontier to Lake Nahuelhuapi. President Barros of the Santiago University advised me to go to his brother-in-law Mr. Bussey, an English gentleman who had married a Chilean lady, and who lived at the Hacienda de San Ignacio, a part of the great Puelma property which extends from Mulchen nearly up to the Lonquimai pass, now the principal route by which the cattle and sheep from the Argentine frontier ranches as far south as the Rio Limay are brought to market at Victoria. I cannot sufficiently express my gratitude to the members of this most charming and amiable

family, especially to Señora Bussey and her brothers for the great kindness they showed me when seized by a severe choleraic attack, and for the assistance they gave me in engaging men, mules and outfit for what was looked on even then as a somewhat venturesome journey.

I first went as far south as Victoria, Temuco and Tolten, which was then the end of the great southern railway, to be connected soon with Valdivia and Puerto Montt. Here I saw the way in which the great southern forest of Araucania was being rapidly converted into wheat-fields and grazing grounds, largely by German immigrants. I made the acquaintance of two timber merchants, Mr. Smith, a Canadian, and Herr von Voden, a German, who gave me much valuable information about the timber resources of the forests of Southern Chile, which are already supplying railway sleepers to Argentina, and which, if properly conserved, will be one day one of the greatest sources of wealth in the country.

At San Ignacio I was detained ten days, partly by illness, and only succeeded in making a start for the frontier on January 22nd.

The forest has been to a great extent cleared for wheat cultivation from a point a little east of Mulchen up to the foot of the mountains, but in the valley of the Renaico river, which I followed from San Ignacio up to its source in the Sierra de Pemehue, I found a great many of the plants which are peculiar to South Chile, and which require a moist climate. Among these may be mentioned the beautiful climber *Lapageria rosea*, one of the greatest ornaments of English greenhouses; *Eucryphia pinnatifida*, a very handsome white-flowered shrub which ripens seed in the South of England; and *Embothrum coccineum*, a shrub which grows in Cornwall to a greater size than I ever saw it attain in Chile.

This was the first place where ferns were a conspicuous feature in the flora, and covered the wet rocks on the river bank in company with *Gunnera chilensis*, which, though it becomes a conspicuous feature in the scenery further south, is only found in Central Chile in swamps and places where moisture is constant.

Our journey for the first six days was of surpassing beauty and interest, leading over the Sierra de Pemehue, a range which, though not exceeding 7,000 to 8,000 feet in elevation, is a more striking feature in the orography than the true Cordillera is in this latitude, and is covered with splendid forests of beech and Araucaria. We stopped at Lolco, a large grazing farm near the Biobio river, which is the longest if not the largest river in Chile, and, crossing a pass of about 7,000 feet, where I found many beautiful Alpine plants and a butterfly which very closely resembles a species from the high mountains of New Zealand, descended to the frontier settlement of Lonquimai. Here the Chilean custom house is situated about fifty miles east of Victoria, and a long day's ride up the Biobio valley from the actual frontier at Los Arcos. The scenery about here changes completely and begins to show a dryer type of vegetation, resembling that of the Argentine territory on the east side of the watershed. The broad, open, upper valley of the Biobio is covered with grass, bushes and an umbelliferous plant called "*Yerba negra*," *Mulinum spinosum* Pers, which is very abundant and characteristic of the frontier region

from Lolco to Nahuelhuapi. On these grassy downs the beautiful silver butterfly, *Argyrophorus argenteus* Blanch., is a most conspicuous ornament, flying rapidly in the high wind which usually prevails a few hours after sunrise. It is unique in its coloration among the Lepidoptera, though belonging to the *Satyridae* which are all over the world characterised by brown, black and rufous tints.

In the dense shady forest of the Sierra de Pemehue is found another butterfly belonging to the *Hesperidae*, *Cycloptides Puelmæ* Calv., which is also unique in its coloration, being of a bright shining golden colour. Though usually settling on the green leaves of the tall bamboo-like grass, *Chusquea*, which in many places forms a dense and almost impassable underwood in these forests, it often lights on the brilliant golden flowers of *Alstræmeria aurantiaca* Don., which is extremely abundant not only in the forest but also in the open.

It seems to me that any attempt to account for such abnormal coloration in isolated cases like these by any theories of protective coloration or otherwise is hopeless in the present state of our knowledge.

From Los Arcos, where we found a small outpost of Argentine cavalry, we travelled through a beautiful country at an average elevation of 3,000 to 5,000 feet covered with scattered groves of *Araucaria* and beech interspersed with grassy downs and stony hills, some of which had flat tops and basaltic columnar sides, past Lake Alumine to Pulmari, and then down the Alumine valley to the Quillen river. *Mutisias* were the most beautiful flowers in this part of the country, and at the higher elevations assumed a dwarf Alpine form quite different from their long and straggling growth over bushes in the lower parts of the country.

Mutisia is a genus which will require much study before the so-called species can be discriminated in a satisfactory manner. They seem to vary immensely according to the elevation and situation, and I should not like to say that all that have been named by various botanists are good species.

By far the handsomest from a horticultural point of view is the well-known *M. decurrens*, which, though long known in cultivation, has proved a most difficult and disappointing plant in English gardens. In the lower parts of the country it forms a straggling climber of which the lower part loses its leaves as the top extends, and rarely makes a good show of its splendid flowers. The finest form of it was on the edges of the clearings on an island in Lake Nahuelhuapi. On the mountains south of Lake Alumine it becomes an Alpine plant growing with a stem apparently herbaceous and only two to three feet high at an elevation of 5,000 feet or more, and as in the last days of January (midsummer) it froze here at night, it must be a very hardy plant.

Though I took great trouble to procure good seed of the *Mutisias*, and dismounted at least fifty times when I saw a likely looking plant, I was unsuccessful in getting any seed that would germinate.

Birds were not numerous and, though Condors were occasionally seen at a distance, they appear to be very much less common than Darwin found them. I only once got near enough to a Condor to distinguish the ruff round the neck, and never got a shot at one. A few *Thinocorus*, a few snipe and ducks, a single pair of black-necked swans, and an occasional flock of the

large brown Ibis, *Theristicus caudatus*, which is common in many parts of Chile, were the most conspicuous. At rare intervals I saw a humming-bird, generally at high elevations. But though I began life as an ornithologist and still have a great interest in this study, it is impossible, when travelling on horseback and collecting plants and insects, to pay enough attention to birds to make one's observations of much value. And as the birds of Chile are fairly well known from the catalogue of them compiled by the late Mr. James and edited by Dr. Sclater, I have said but little about them.

Mammals are scarcer in Chile than in any country I ever visited. I do not think I saw six species during the whole of my journey. Guanacos are common further east wherever they are not too much hunted, but I only saw one small herd near Traful. Foxes are not rare, but seldom seen. Deer are still found in the denser and more remote forests, and were formerly common on the upper Biobio valley, but I never saw even a track of the large *Cervus chilensis*, and only once surprised a small *Pudu* in the thick forest above San Martin. It seems difficult to say what the Indians who formerly roved over this country lived on; for though the seeds of *Araucaria* are said to have formed the principal food of the tribes frequenting the restricted region where this tree grows, and the seedlings which have sprung upon the site of old camping grounds show that they carried them about as food, yet before the Spanish colonists introduced cattle it seems as though there could not have been fish, flesh or fowl sufficient to support more than a very few of them for a part of the year.

Dr. Moreno has studied the anthropology of the country so thoroughly that I will not say anything of the tribes. In a book which he published in French, *Reconnaissance de la Région Andine* (La Plata, 1898), he has given a good account of this part of the frontier illustrated by photographs which will tell far more about it than I can do, and the geology of the country is probably one of its most interesting and attractive features, of which I can say little or nothing.

I have never, however, in Europe, Asia or America, seen such curious and striking rock formations as we passed in the valley of Quillen, and on the march from San Martin to the Limay river. Some of these Mr. Calvert photographed, and though these photos fail to show the wonderful forms and colours of the rocks, they may attract a competent artist and geologist to a country which is full of beauty and interest, and as yet quite unknown to European naturalists.

From Lake Quillen we tried to return to the lowlands of Chile by a trail through the forest which is called the Pucon pass, and which leads down to the lake of Villarica, once a flourishing Spanish settlement which was destroyed by the Indians and whose site is now, as I hear, covered with what seems to be virgin forest.

Our guide, however, either did not know the road or purposely misled us, for, before reaching the frontier, which is here quite a low pass, the track became so much encumbered with fallen trees and the forest so dense that I had to turn back. I crossed from Lake Quillen to Junin de los Andes, near the sources of the Pichi Nahuelhuapi river, and after leaving

this valley saw no more *Araucarias*. The range of the tree, therefore, seems a very narrow one, from about the Antuco valley in lat. $37^{\circ} 30' S$. to about lat. $40^{\circ} 30' S$. I was told by one or two persons that an *Araucaria* is found in the neighbourhood of Lake Nahuelhuapi, and was in great hopes of discovering a new species or variety, but when I reached the Limay river I could hear nothing of such a tree. If any isolated groves or specimens of it exist so far south, I should suppose them to have been introduced by seeds dropped by the Indians. *Libocedrus* was the only coniferous tree I observed between Junin and the Limay river, and that never attains any great height.

Yet this remarkable tree, *Araucaria imbricata*, has been so imperfectly studied by modern travellers that I think the conditions under which it grows are worthy of being described fully.

Miss North, in her account of her Chilean journey, describes the *Araucaria* forest which exists on the coast range (called the Cordillera de Nahuelbuta) west of Angol in lat. 38° , where its habitat is completely isolated from the Andes.

Poeppig describes the conditions under which he saw it in the district of Antuco a little farther north, which appears to be almost, if not quite, its northerly limit. I first saw it at about 4,000 feet or a little lower on the Sierra de Pichintron, in the upper part of the Renaico valley on the road from San Ignacio to Lolco in lat. 39° . Here it grew on exposed ridges sometimes mixed with beeches and sometimes alone, and did not attain such large dimensions as it does farther south. Its seeds freely and in places where fire had not gone through the forest I found many young seedlings which appeared to grow at about the same rate as in England. Its bark is thick and rugged when old and is divided into large tabular bosses.

I did not see any old trees which had kept their lower branches; when old the tree has almost always a flat top formed by densely crowded branches near the summit. I should say that it attains a maximum height of ninety to a hundred feet and an average girth when adult of ten to twelve feet, but I measured one tree which was about twenty-four feet in circumference.

On February 5th, the weather, which had been almost uniformly clear, hot and windy, broke up, and we had several wet days after this which much interfered with my collecting. At Junin de los Andes we found Colonel Perez, commanding the 3rd Argentine Cavalry, who invited me to return with him to San Martin, a new military settlement at the east end of Lake Lacar, which was occupied by his regiment. The watershed which forms the frontier is here so ill-defined that I crossed it without being aware of the fact.

Near here there is a very striking volcanic peak called Lanin, which I had seen from several points on my route, and which is of great height (12,041 feet), but I was unable to visit it from want of time. The scenery round Lake Lacar is very beautiful and I have no doubt that San Martin will one day be a favourite resort in the Southern Andes. Though at an elevation of under 3,000 feet the winter climate is sometimes severe, and the snow lies so deep that in the first year that it was occupied by

Colonel Perez's regiment they lost two hundred horses from want of fodder caused by the deep snow. Permanent barracks, however, are now built, and a large area of land has been brought into cultivation with lucerne to supply fodder. The officers of Colonel Perez's regiment showed us the greatest kindness and hospitality, and I have to thank this fine old frontier officer for much assistance on our journey.

The mountains round Lake Lacar are forest-clad and some of them run up to 6,000 or 7,000 feet, having the flora and aspect of Chile rather than of Argentina. On the Chapelco mountain I found several rare and interesting plants, among them an *Oxalis Bustillosii* (or *adenophylla*), which may be new and which has already flowered in my garden, and *Ourisia Poeppigii* Benth., of which a few seeds have also germinated; and on the Chapelco mountain above San Martin I have no doubt that other plants of great interest will be found.

The weather from here southwards became much wetter, and the vegetation had an autumnal aspect; but the meteorology of this region is so much affected by the presence or absence of high mountains to the west, which in some places cause the rainfall to vary very much in a short distance, that I should not like to say that there is any real change in the climate.

When we reached the point where the Limay river runs out of the great Lake Nahuelhuapi we were almost out of the mountains and on the edge of the great Patagonian pampa, whose natural history is pretty well known. I had intended to return to Buenos Ayres by boat down the Rio Limay as far as Confluencia, where it joins the Rio Negro, and where the present terminus of the railway was situated. But as the valley is already well described by Señor Moreno, and I heard that there was now an easy route to Puerto Montt in Chile, I decided to go that way and was very well pleased that I did so.

All the western and north-western shores of the lake are shut in by mountains rising to 5,000 or 6,000 feet, and covered with dense, almost impenetrable, forest, of which beech, cypress and Alerce (*Fitzroya patagonica*) are the principal trees. A saw mill has now been opened by an English firm to cut and float logs down the Rio Limay to Argentina, and there is a large ranch belonging to a well-known American settler, Señor Jones, on the north shore. I sold my horses and mules to his partner, Mr. Neil, who has a store on the banks of the lake where the Limay leaves it, and sent my Chilean servants back to Lonquimai, as I had not time to extend my journey southward to the Welsh settlement of Colonia de 16th Octubre, near the headwaters of the Chubut river.

As for the road to Puerto Montt, I do not think I have ever seen a route which in three or four days combines such varied features of beauty and interest to a naturalist. Starting from San Carlos on the south-east shore of Nahuelhuapi, we crossed the lake in a small steamer, and reached Puerto Blest at the head of a deep inlet on the south-west end of the lake.

At Puerto Blest is a store for merchandise, but there were then no inhabitants, and travellers' baggage is conveyed on bullock carts about three miles through an extremely dense forest to the shores of a little mountain lake called Lake Frio. Here I first saw that magnificent tree *Fitzroya*

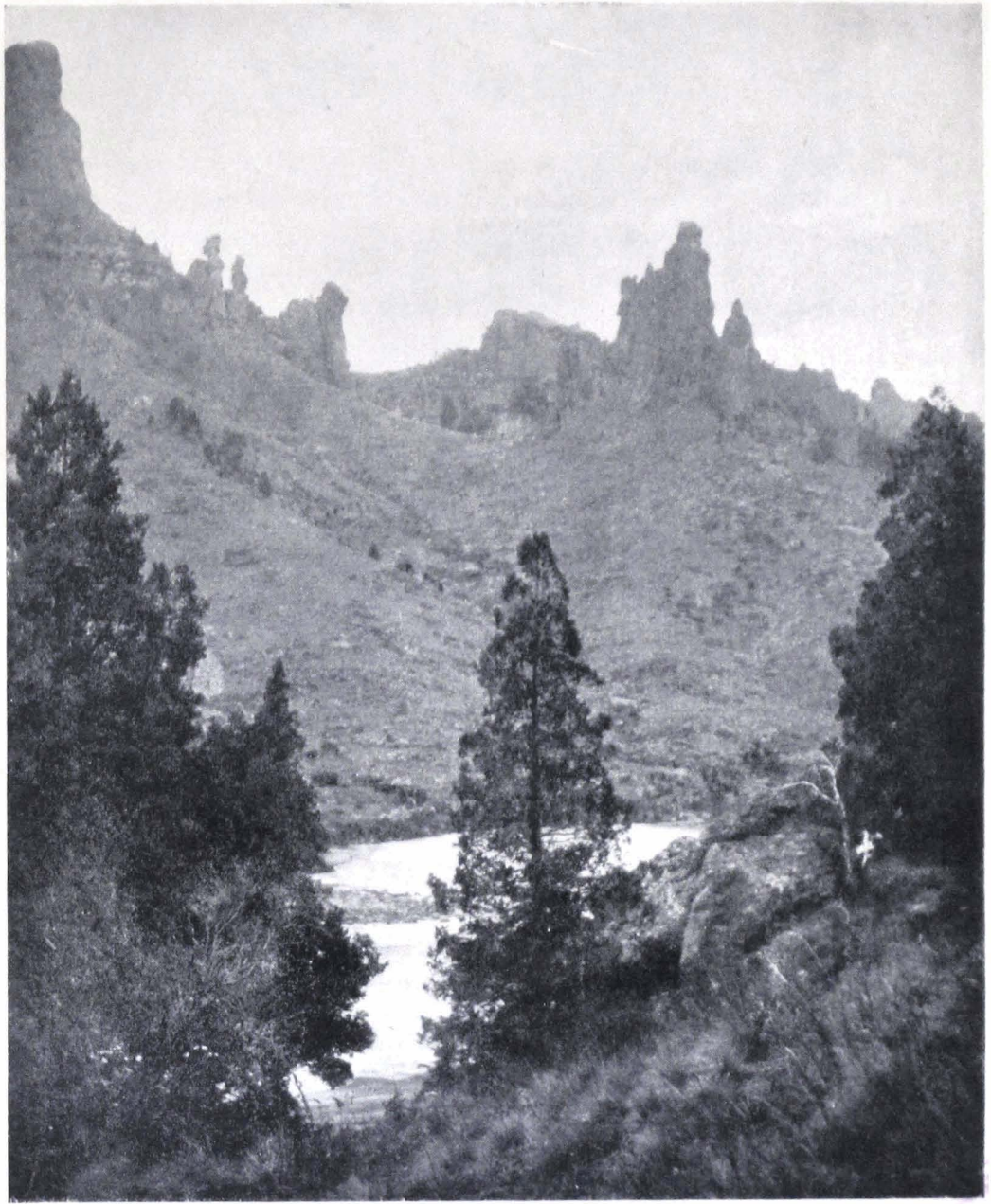


FIG. 10.—CHILEAN CYPRESS ON THE BANKS OF THE RIVER LIMAY.

patagonica, which resembles the Californian redwood *Sequoia sempervirens* in many ways. It seems to require swampy ground to bring it to perfection, and in some places attains a height of 150 feet or more. Its timber has a beautiful grain and makes excellent shingles, but at present, as far as I know, has not been exported to Europe. It has attained a height of nearly forty feet in Devonshire and Cornwall, and if planted in wet soil would, I think, make a fine tree in the extreme south-west of England and Ireland.

The climate of Nahuelhuapi is a cold one in winter, much more so on the east shore (where Mr. Neil said the thermometer had fallen to -17° C. in winter) than on the islands, where the captain of the steamer, Herr Otto Mühlenpfordt, has a house, and had not registered more than 8° C. of frost. From Lago Frio we had a magnificent view of the great Tronador, one of the very finest mountains I have ever seen, for though not of any great height (between 11,000 and 12,000 feet) it is covered with glaciers which on the north-west side reach down to about 2,000 feet above sea-level, and its lower slopes are buried in an evergreen forest composed of the many beautiful trees and shrubs of South Chile.

From Lago Frio, which is passed in a row-boat, to Casapangue, the pass of Perez Rosales is crossed at an elevation of 11,150 metres as shown by the Chilean boundary pillar on its top. This pass is named after a Chilean governor who passed it in 1855. Here I found a very beautiful plant, *Columnnea ovata* Cav., in flower on the rotten stumps and bases of trees in the dense shady forest, but could find no seed ripe enough to gather. I also caught several of the characteristic forest butterflies, nearly all *Satyridæ* and *Hesperidæ*, and descended about 2,500 feet through a forest which reminded me very much of the Sikkim Himalaya at about 6,000 to 7,000 feet.

At Casapangue is a good wooden house where the manager of Messrs. Hube and Achelis entertained us, and I would gladly have stayed there some days had time allowed. But as there were only two full days before the steamer was due at Puerto Montt, I had only time to visit the foot of the great glacier which descends into the valley near Casapangue, and which will some day be a favourite resort of those who wish to make the as yet unattempted ascent of the Tronador mountain, from whose precipices avalanches are constantly falling, with the thundering noise which has given a name to the mountain.

On reaching the foot of the glacier, from an arch in which a considerable torrent emerged, I was much surprised to find growing on the stony debris which had been brought down from above by the moving ice a whole grove of beech trees, some of them fifteen to twenty feet high, and a great quantity of *Gunnera chilensis* Lam. in fruit, from which I have since raised seedlings. There was no moraine on either side as far as I could see, but the dense forest came right down to the edge of the ice. Neither in the Himalaya nor in the Alps have I ever seen a glacier which from a naturalist's or Alpinist's point of view seemed so interesting as this, and so well deserving of careful examination and description.

From Casapangue to Puella on the shore of Lake Todos Santos is a beautiful ride of twelve to fifteen miles through superb forest where

I saw humming-birds and a magnificent tree, *Eucryphia cordifolia* Cav., growing eighty to a hundred feet high and covered with large white flowers. This has been introduced to cultivation (by Messrs. Veitch, I think), but not long enough to show its beauty in England.

Lake Todos Santos is buried in forest as yet quite uninhabited except by Messrs. Hube and Achelis's employees at Puella. We crossed it in another small steamer, and attempted to photograph a remarkable volcanic peak called Punta Agudo on the north shore, but the clouds which hang over it make it hard to realise the sharpness of its cone, the upper slopes of which appeared to lie at an angle of at least fifty degrees.

Landing at Petrehue on the north-west end of the lake, we passed over the southern slopes of another great volcano called the Volcan de Osorno, whose upper half was covered with snow and whose base was covered with deep beds of volcanic ashes and sand, deeply cut into ravines, which in some places were forest-clad and full of ferns, Myrtaceous shrubs and other interesting plants. Passing along the bank of the deep and rapid Petrehue river, here one hundred yards wide and quite impassable, we came to a great marshy flat on the shores of Lake Llanquihue, where I had to wait a day for the arrival of the steamer which plies to the various German settlements and farms around its shores. This part of Chile has been settled a good many years and is developing rapidly. We reached Puerto Varas, on the other side of the lake, after dark, and were only just in time to catch the Pacific Company's steamer at Puerto Montt, from whence, calling at Calbuco, Ancud in the island of Chiloe, and Corral, the port of Valdivia, I reached Concepcion and from there returned by rail to Santiago and Buenos Ayres.

Though such a reconnaissance as this gives one no right to form theories on the origin of the Chilean flora and fauna, yet I realised on my journey certain facts which I never realised by reading, and which I think may help to explain why the fauna of Chile is so poor in species, considering the immense extent and very varied climate of the country.

From a climatic point of view Chile may be divided into three regions. Of the northern part, including the provinces of Tacna, Tarapaca, Antofagasta, Atacama, and perhaps Coquimbo, I know nothing personally, but believe that for the most part they are too arid to support a rich flora or fauna, and so far as I know are characterised by a total absence of forest even on the higher slopes of the mountains. This region forms a boundary quite impassable to the tropical forms which otherwise might have been expected to extend southward, seeing that the climate even as far south as Valparaiso is mild enough to enable some tropical fruits and palms to flourish.

Though some tropical forms extend on the east side of the Andes as far south as about lat. 30° S., in the Argentine provinces of Catamarca, Rioja and Cordoba, yet they are unable to extend themselves into Chile in the way they have done in similar latitudes in North America and China, owing to the absence of shelter-giving forest along the east side of the Andes. Among birds only a few hardy tropical forms such as parrots and humming-birds exist, whilst among butterflies there is hardly one, except perhaps *Terias* and *Callidryas*, which are characteristic of a tropical

climate. Thus the fauna, and I think also the flora, of Chile are and have for ages been completely isolated on the north and east by mountains and deserts which are as good a boundary as sea.

In the central parts of Chile, from about lat. 32° S. to lat. 38° S., we have a climate like that of southern Europe, in which a great number of species of plants, mostly peculiar to the country, and a few mammals and birds, also mostly endemic, are found; and in this region forest begins to be found—though much of it has been destroyed by man—on the lower slopes of the main range of the Andes, and up about 6,000 to 8,000 feet from somewhere between lat. 34° S. and lat. 36° S. Forest of a more scattered and bushy character is also found on the coast range and in the sheltered and moister valleys between the coast and the Andes.

From about lat. 37° S. the rainfall, produced presumably by ocean currents, rapidly increases to such a point that near Valdivia, in lat. 40° S., the whole country with the exception of a few open savannahs and swamps is covered with dense forest, mostly consisting of evergreen trees, and inhabited by a very scanty bird and animal fauna. This forest extends across the Cordillera to a point often within the Argentine boundary where the rainfall intercepted by the high Andes rapidly diminishes, and where the region of the Pampas begins.

Many of the species constituting this fauna and flora descend to lower elevations as they go southward, and in some cases reach the Straits of Magellan, where they occur at sea-level.

There are, however, few species peculiar to the region south of about lat. 40° S., and the small number of birds and insects found in Southern Patagonia and in Chile south of lat. 40° S. are mostly near allies of those which occur in the region between lat. 36° and 40° S. which constitute the South Chilean fauna, and which are able to endure a constantly wet climate, not, however, accompanied by any great degree of cold in winter.

The high mountain region of this Southern Andes has, however, been too little explored in a zoological or botanical sense to enable us to judge of its constituents. All we can say is that there is no reason to expect many new forms.

Mr. Elwes brought home a collection of 364 Chilean plants, which were named and described by the authorities at Kew; the list is preserved in the Herbarium there. It included five new orchids, one of which was named by Mr. Rolfe, after the discoverer, *Chlorœa Elwesii*. This orchid, whose handsome flowers are green with black veins, was found on the Lolco pass, 6,000 feet up, in large tufts under Araucarias; it was common at the timber line. It is nearly allied to the Patagonian orchid, *C. magellanica* Hook., but its flowers are rather larger.

The author contributed a full list of sixty-nine Chilean butterflies, with notes and plates, to the *Transactions* of the Entomological Society in 1903.

CHAPTER XVII

THE MALAY PENINSULA AND JAVA, 1911

IN the autumn of 1911 I arranged with Professor Shirasawa, who visited me during the Anglo-Japanese Exhibition, to visit the island of Formosa, where the finest Cypress forest in the world is found, and where the close resemblance of the fauna and flora to those of Sikkim made the island particularly interesting to me. Mr. W. R. Price, who was much interested in botany, agreed to accompany me and to stay on there during the summer of 1912 and collect the plants, which were very little known except to the Japanese. We left England in December and reached Port Said on the 11th. Whilst the steamer was coaling I visited the Government slaughter-houses, where live-stock from various ports in the Levant is quarantined and inspected before slaughter, and found the veterinary surgeon in charge, Signor Magni, very obliging in telling me about the curious collection of live-stock which I found there. Sheep from Alexandretta, and probably bred in the Taurus mountains, were a breed about as large as Scotch blackfaces, with long coarse wool, mostly white, with faces and legs black or mottled with black and brown. Their ears were drooping and from five to seven inches long, and their tails rudimentary, with large fatty masses surrounding them, so that no tail was visible. There were no rams, but the wethers had only short horns, and the ewes none.

Another lot from Cyprus were of the same type and colour, but had shorter and less drooping ears, and tails in some cases reaching to the hocks, in others almost to the ground. The rams of this breed had large horns, of the Welsh or Merino type, and the ewes had short horns in some cases. Signor Magni told me that he had once seen a ram here with seven horns, of which four were large and the others small, but he thinks that four-horned sheep are not a distinct breed, but only occur occasionally.

The cattle were of various types, some a small long-haired, brown or red breed, like stunted Ayrshires, from the mountains of Asia Minor; some a small variety of the humped Indian cattle which he said came from Bagdad. There were many buffaloes from some part of Mesopotamia, which were fatter and seemed to have endured the journey better than the cattle, which were lean and would not be considered fit to kill in England.

After a very pleasant and calm voyage, we landed at Penang on December 29th and visited the Botanic Gardens, which were being transferred from the Government to the Municipality, much to the regret of the Malay superintendent, who spoke excellent English and seemed a very capable gardener. The most striking tree I saw in flower was *Spathodea*, and *Dacrydium excelsa*, a Malayan conifer, was in fruit. There were a few interesting orchids, *Vanda Hookeriana*, and two terrestrial species, *Cypripedium niveum* and *C. bellatulum*, of great beauty, from the island of Langkawi, where they grow on limestone rocks. I sent some of

these home from Singapore, and had them in good health ten years afterwards.

The situation of the gardens is excellent, but the soil seemed poor, and the vegetation of Penang generally was not equal to that of the interior of Singapore. We left the steamer here and went by the well managed and equipped railway which runs south to Singapore, stopping for a day at Taiping, the capital of the Perak State, where I tasted for the first time the celebrated Durian fruit of which the Malays and some Europeans are so fond. Though its smell is repulsive to many people, I did not find it so bad as reported, though the fruit itself was by no means so delicious as I expected. Mangosteens are another fruit which are found in perfection here and in Java, and these again were, to my taste, inferior to a good peach. At Taiping I saw in Mr. Barnard's garden a fine plant of the giant orchid *Grammatophyllum speciosum* in flower, as well as *Vanda Hookeriana* and *Vanda teres*, the latter flowering at the top only of long bare stems and by no means so fine as one sees it at a few places in England. On arriving next day at Kuala Lumpur, the capital, I was astonished at the way in which the town had been laid out and built in so short a time. I believe it is a fact that, only twenty years previously to my visit, constant warfare was going on between the Chinese and the Malays, and that Chinese heads were brought in and paid for at so many dollars a piece, as if they were vermin. Now there is a station hotel, which would be considered first-class even in London, a beautifully laid out and well-roaded city, on which motor-cars were a common means of locomotion, a very well-equipped Museum, and Botanic Gardens where the Director, Mr. Robinson, and Mr. Boden Kloss were bringing together a complete collection of the fauna and flora of the Malay Peninsula. The Government offices and shops were far better than in most provincial towns in India. And all this is due to the hard-worked and under-paid officials of the State, and to the extraordinary prosperity which has come to the Malay Peninsula since the rubber boom, which began a few years ago, brought so much European capital to the East, and, to those who got in at the bottom, such large fortunes. I have seen no country in the world, except perhaps Formosa, which has been developed so rapidly, and where good order and good government and prosperity have so rapidly replaced the primitive state of semi-savagery, which over the greater part of the Malay Peninsula existed a generation ago. Chinese labour, British capital, energy and capacity for governing half-civilised peoples, and the mineral and vegetable wealth of the land have done wonders, though the climate is by no means healthy in many places, and there is no cold weather, nor are there hill stations in which Europeans can regain their vigour as in India. There seems to be no difficulty in recruiting the Government services, mercantile or planting industries, with first-class men, though the high pay for all native service makes the position of those who depend on Government salaries very difficult.

As I wanted to see something of the Malayan virgin forest I went out seven miles by train to Sungei Buloh, where an American company is employing Chinese to tap the "Jelotan" trees, *Dyera costulata*, whose sap produces a variety of gutta-percha. This is said to be the tallest tree

in the Malay States, and to attain a height of 240 feet, which is about the utmost height of any trees I have seen or heard of in the Eastern tropics. The tallest I could find was 175 by 12½ feet. A *Dipterocarpus* which produces a valuable wood known as "Queng," and *Azelia palem-banica*, were both fine trees here, averaging about 150 feet, with clean boles of from 60 to 80 feet, and, like many of the trees in the Malay forests, supported by large spreading buttresses at the ground. A tree known as "Miribah," *Shorea sp.* or *Hopea sp.*, was being cut for timber, a fine red wood which may be the same as the Bornean Miribah. But the multitude of timber trees in these forests is so great, and most of them are so little known to botanists or timber merchants, that it will be long before the Forest Department now established in the Malay Provinces will be able to identify them all, though Mr. Burn Murdoch, Chief Inspector of Forests in the Malay States and Colonies, has commenced to publish, at Kuala Lumpur, a work on the trees of the Peninsula. Some of them are very rare and local, and I was told by Dr. Ridley, the Superintendent of the Singapore Botanic Gardens, that in the small area of forest on which these gardens have been formed he had found three distinct trees which had not been discovered elsewhere.

We drove round the Public Gardens at Kuala Lumpur, which, though only recently formed, are nicely laid out, and contain many handsome palms and ornamental shrubs and plants. *Cyrtostachys lakka*, a palm with red trunk, and *Raphia Ruffia*, the palm from which the raffia fibre so much used for tying in English gardens is produced, were noted, also *Arenga Saccharifera*, which produces the Malacca sugar, used in making an excellent and wholesome sweet dish composed of sago boiled in coconut milk, which I commend to the notice of residents in the tropics.

We went on by rail to Singapore, a journey of twenty-four hours, through country of which a great deal was in a state of nature, though cultivated in patches, and with a few newly opened rubber plantations. We found the Raffles Hotel a very comfortable and well-managed house, in which parties of globe-trotters were continually coming and going.

Our first visit was to the Botanical Gardens, which, under Dr. Ridley's able management, have been of immense value to the planting community of the Malay States, and contain a great variety of trees, shrubs and plants, as well kept, as well cultivated, and as well named as is usual in gardens which have been managed by men trained at Kew.

We were shown here the largest tree of the Para rubber, *Hevea brasiliensis*, which exists in the East. It is about 85 feet high by 10 in girth, and has yielded thirty-six pounds of rubber in one year. Great attention has been paid to the selection of seed, and one variety known as No. 240 yields twice as much rubber as the common form. The seed, if packed in the ashes of rice husks, will keep good for a long period, and has been sent as far as British Guiana without losing its vitality. If sown on the surface of the soil it will germinate in two days, and the small seeds are found to be better than the larger ones. A plantation of trees, twenty-six years old, seems to prove that on good soil, with sufficient space for the trees to develop large spreading branches, *Hevea* will not be so short-lived as it has been on some of the plantations. After seeing several, I

came to the conclusion that, as a rule, they are planted much too thickly, and that many of the estates on dry land, interplanted with such an exhausting crop as pineapples, which has been largely done on the island of Singapore, will prove short-lived and unprofitable. I offer this suggestion with the greatest diffidence because I know too well how necessary it is to have local knowledge and experience.

Among the most interesting and beautiful things we saw in these gardens I must mention a few which were shown us by Dr. Ridley, on whose authority I give the names as follows.

Martinezia caryotæfolia, a South American palm with very spire-like trunk and leaf stalks.

Calamus scipionum, the climbing palm which produces the Malacca canes of commerce.

Calamus cœsius, which is the most valuable rattan cane for most of its numerous uses.

Bertholetia excelsa, the Brazil nut palm, a very large tree.

Brucea sumatrana, a shrub whose seeds are a very valuable cure for dysentery. A dose of twelve seeds the first day, ten the second, and nine the third, is considered enough to effect a cure in most cases.

Murraya caloxylon, a Siamese tree which produces very fine timber.

Carludovica sp., the palm from whose leaves the best Panama hats are made.

Dryobalanops camphora, the Bornean camphor tree, which is gregarious in some parts of Johore and Penang. It produces a very fine building wood of which the scent is said to evaporate when exposed to the air, but a clothes chest, which I had lined with wood sent me from Borneo, retains its peculiar and very persistent odour.

Melaleuca leucodendron, the Cajuputi tree, which has a very curious white bark and produces cajuput oil.

Casuarina sumatrana, a very handsome tree, in leaf and habit so like some of the Mexican pines that many people mistake it for a conifer.

Wormia subsessilis, a very handsome yellow-flowered shrub, whose beautiful pink carpels are a great attraction.

The gardens were formed in a piece of what was formerly virgin forest, in which a great variety of native trees exist. One of these, described as *Ormosia macrodisca*, is unique, and, as its seeds will not grow, it is likely to become extinct. *Shorea gibbosa* is another very fine tree which has been found nowhere else but in the gardens.

Camoensia maxima from the Congo has beautiful flowers unlike those of any other genus.

Dendrobium spectabile from the Solomon Islands would be a great acquisition to our orchid collections, and another *Dendrobe*, *D. crumenatum*, called here the Pigeon orchid, has the peculiarity of opening its flowers regularly and simultaneously on the same day.

On the whole, I thought that the Singapore Botanic Gardens, if not so large as those of Calcutta, are, on account of their situation and climate, much more suitable for investigations on tropical economic plants. We heard with surprise that no successor had been appointed to Dr. Ridley, who had managed them for many years with conspicuous success, and had

done so much to help the planters by his investigations on rubber and other tropical products.

Another place which no one should miss seeing at Singapore is the Raffles Museum, where there is a fine and well kept series of Malayan birds, mammals and ethnological collections of great interest, with a library where facilities are given to the public to study.

The fish market is also one of the largest and most curious in the world, owing to the immense number of different fish which are found there. The Malays, like the Chinese, are great fishermen and fish eaters, and I believe that a daily visit to this market would give unrivalled opportunities for collecting fish to anyone who was interested. I went round with a Malay connoisseur who selected for me a few of the best for the table, and had them cooked at the hotel, as the native delicacies are neglected in favour of imitations of European dishes. Bamboo shoots, cut just as they come above ground, and stewed in slices, are one of the best vegetables I ever ate, and Malay cooks are, like Chinese and Indians, very clever in preparing a number of excellent dishes and condiments to eat with rice, fish and sago, which form the principal elements of their food.

As I received a telegram from Dr. Shirasawa to say that he would not be able to arrive in Formosa before the first week in February, we decided to pay a short visit to Java, an island which I had long wished to visit. We arrived at Batavia after a hot but not unpleasant passage on January 8th, and went up to Buitenzorg as soon as possible, where we found excellent accommodation in a hotel close to the celebrated Botanic Gardens. No other country has maintained so large, well-equipped, and favourably situated gardens as these, which are the resort of botanists of all countries, and we found Dr. Kenigsberger most obliging in showing us as much as possible. Buitenzorg, though only 800 feet above the sea-level, is cooler than Calcutta or Singapore and is not subject to a hot, dry season, or to the cyclones which sometimes do so much harm at Calcutta. The soil is rich and many trees which are not natives of Malaya grow very well here. Araucarias grow to a large size, *A. Cookii* being about 100 feet high, but do not look so healthy as in Portugal. *Cypressus funebris* and *Juniperus excelsa* are able to exist and attain from 30 to 40 feet in height, though the climate is evidently too hot for them.

Dammara alba is the finest conifer, 130 feet high, with bark scaling off in the same way as that of a Plane tree. *Casuarina Rumphii* attains 130 feet by 8 feet.

Pinus Merkusii, from Sumatra, was 77 feet by 5 feet, and had orchids growing on its branches.

A tree named *Pinus Montezumæ*, which, however, I was unable to verify, was no less than 105 feet by 5 feet.

Dipterocarpus retusus was the tallest tree I saw and measured 140 feet high, with a whitish bark and very curious lobed fruits. There was a fair specimen of *Lodoicea*, the double cocoanut of the Seychelles Islands, whose fruit was produced by fertilising the female plant with pollen sent from Ceylon. On a second visit to the gardens I spent the time mainly in the economic division, where all kinds and varieties of tropical

economic plants are studied, with great advantage to the planters of the Dutch Indies.

Hevea brasiliensis (the indiarubber tree), planted here in May, 1905, at 20 by 20 feet apart, was now from 45 to 50 feet high, and was underplanted in part with *Coffee robusta*, in part with Cocoa and in part with *Ocimum canum*, a leguminous plant whose seeds produce oil, but which is dug in as green manure to fertilise the soil. It seemed to me that this is a much more sensible system than the close planting and clean cultivation of the soil below, which I saw adopted in some Malayan rubber plantations; and that the risk of disease, when trees not naturally gregarious are planted over large areas without allowing any other vegetation to cover the soil, is as great as it was in the case of Coffee, which requires shade to keep it healthy. Such shade is provided here by planting with the coffee a very fast growing tree called *Derris macrophylla*, which grows up above the coffee, and is considered superior to *Albizzia*, which has been largely used for the same purpose in some modern tea plantations, but is more brittle and does not resist wind so well as the *Derris*.

Philippine hemp, *Musa mindanensis*, grows well here and is said to be a profitable crop in East Java, and Yucatan hemp also succeeds well.

Andropogon nardus, the Citronella grass, is also grown for its oil, as well as many other new and little known plants whose economic value is being experimented on.

Close to the entrance gate of the gardens near the Herbarium I measured a very slender palm, *Livistonia excelsa*, 104 feet high by only 2 feet 10 inches in girth; and a fine clump of the giant bamboo, *Dendrocalamus giganteus*, was 100 feet high, with forty stems, averaging about 9 inches diameter in a circumference of 23 yards. In the Herbarium building was a fine collection of timbers, where I found, under the name of *Eusideroxylon Zwageri*, the hard Bornean timber known as "Bilian" wood, and at Palembang as "Ironwood." The handsomest woods in the collection, as regards their figure, were *Nauclea fagifolia*, *Metrosideros vera* from Ceram, *Cassia florida*, and a species of *Cedrela* from Fort de Koch in Sumatra was, like *Cedrela sinensis* from Padang, beautifully waved. *Schima Noronhæ* and *Bischoffia javanica* were both of fine colour and texture. But none of these timbers, owing to the cost of transport, seems as yet to have been introduced into the English market, where new and little known timbers, however good their quality, usually find a very difficult sale.

On January 9th we left Buitenzorg in a small carriage drawn by three stout ponies, and drove about twenty-five miles over a pass 4,500 feet high, passing the spot where Wallace resided when collecting here on the slopes of the Pangerangong volcano fifty years ago. It was a very pretty drive through country highly cultivated, with rice and fruit trees, including Durian, Mangosteen, *Achras sapota*, Mangoes and Pineapples. The country was thickly populated up to about 3,000 feet, and we passed a large Chinese house with a fine avenue of Dammar trees. From about 3,000 feet nearly to the top of the pass was a large tea plantation on fine, rich volcanic soil, but roughly laid out by an American company. On the

top of the Megamendong pass there was a little virgin forest left, but where Wallace stayed is now all cleared and cultivated. About five miles beyond the pass we came to a place called Sindanglaya at 3,800 feet. Here is a well-appointed modern hotel in a delightful climate, where, if time had allowed, I should like to have stayed some days.

The next morning I started in a chair, carried by six coolies, to visit Tchibodas, where there is an establishment in connection with the Buitenzorg garden, and where many exotic trees and plants, requiring a cooler temperature, are grown. Before reaching the bungalow, which is at 4,500 feet, we passed through an avenue of *Araucaria Bidwilli* about thirty-five years old, and averaging 70 feet by 5 feet. At the house we found Mr. Wygman, who has been forty years in Java, and who was good enough to show us the tract of virgin forest which begins behind his house and extends up the slope of the mountain to about 7,500 feet. This is probably the best place in which to study the virgin forest of Java, as there are good paths kept up through it and many of the trees are named.

The forest reminded me a good deal of the lower slopes of the Himalaya in Sikkim, but with fewer bamboos, fewer orchids and more large-leaved *Alpinias* and other Scitaminous plants. The trees were only moderate in size, the largest that I saw being "Ramasala," *Altingia excelsa*, which was about 140 feet by 33 feet, with a smooth white buttressed trunk and the upper branches covered with pendant lichen.

Quercus induta, with very large acorns, and *Michelia montana* were also fine trees. In one place I saw the red-flowered *Rhododendron javanicum* growing high up as an epiphyte on the branches of *Podocarpus cupressina*, a very fine tree 140 feet by 15 feet, without a branch for half its height. *Acer niveum*, a moderate-sized tree, and *Cedrela febrifuga* were noted, as well as a curious fig, *Ficus Ribes*, whose small currant-like fruits are used by the natives as a febrifuge. I noticed no palms except Rattan, but some of the more open slopes, which had been partly cleared, were covered with a beautiful tree-fern, *Alsophila contaminans*, which I measured 50 feet by 2 feet 9 inches; and this, according to Mr. Wygman, is the extreme height attained by tree-ferns here. Besides those mentioned I probably saw fifty or sixty other species of native timber trees in this walk of two or three miles, and also caught a few butterflies, but birds seemed scarce and silent.

In the park round the house at Tchibodas there are many exotic trees. A plantation of *Eucalyptus saligna*, thirty years old, averaged 140 by 9½ feet. I noticed *Pilocarpus pinnatifolius*, an American plant producing the drug known as "folia Jaborandi." *Cestrum aurantiacum* from Chile has become naturalised, but a plantation of Japanese camphor trees was not flourishing—I imagine because it is too far south.

Among the exotic conifers raised from seeds sent from Italy, the Cypresses were most flourishing. An Italian Cypress, *C. sempervirens*, only twenty-three years old, was 62 feet high with full-sized cones in abundance.

Cupressus lusitanica, a species named *C. Benthamii* and another with very pendulous branches which is probably *C. Kashmiriana*, as well as *Araucaria Cookii*, were all growing fast, but *Cunninghamia sinensis* looked

as if the climate was too damp and equable to suit it. *Pinus insularis* from Manila, a three-leaved pine, was making a wonderful leading shoot 5 to 6 feet long, and *Pinus Merkusi*, which forms large forests at 5,000 feet in Sumatra, grew well. *Agathis loranthifolia* was a fine tree about forty years old and measured 70 feet by 9 feet 10 inches. *Xanthorrhœa Preissii* from North Australia was one of the most striking trees in appearance, and was 25 feet high.

The soil of all this district is, like much of Java, volcanic and very rich; the rainfall is about 150 inches, with no regular dry season; and, as Wallace long ago pointed out, the seasons are very different from those of East Java.

I have rarely had a more interesting and pleasant day among rich, beautiful surroundings than the one I spent at Tchibodas, and this was largely due to the accurate knowledge of my guide, Mr. Wygman.

The next day we drove about twelve miles down the valley to the station of Tandjoer, and on by rail to the large town of Bandoeng, the capital of the Preanger district. Here we got a motor-car and drove about twelve miles through a level rice-growing country to the foot of the valley, which we ascended for another twelve miles to the large Government plantation of Tjendjeroven, which has been for many years the principal cinchona establishment in West Java. Here Mr. Van Lensum, the Director, was good enough to show us the plantation and factory where the bark is dried and sent to Bandoeng to be manufactured into quinine. The cultivation is at an elevation of 4,000 to 5,000 feet, on the gentle slope of a mountain on rich volcanic soil, which seemed to me superior to the plantations in Ceylon, Sikkim and British Bhutan. The rainfall is about 100 inches, and plantations which were commenced about fifty years ago now extend to about 2,000 acres and employ as many hands. The Director's house is in a beautiful situation close to the virgin forest which clothes the ridge of the mountain, and near it are trees of all the different species of cinchona which at various times have been introduced and tried. But none of them is found to equal the variety known as *C. Ledgeriana*, some trees of which have produced as much as 12 to 13 per cent. of sulphate from the stem bark, 8 or 9 per cent. from the root bark, and 6 or 7 per cent. from the bark of the branches. From the best of these trees only seed is collected, and the seedlings are planted on their own roots on the best land, whilst on inferior land they are grafted on stocks of hybrid, *C. succirubra*, which are more vigorous but not so rich in quinine. The largest trees of pure *C. succirubra* near the factory are thirty years old and from 70 to 80 feet high; one on the outside of the grove measured 80 feet by 5 feet 9 inches, with a straight clean stem, whilst the largest tree, *C. Ledgeriana*, planted in 1866, was about 40 feet by 4 feet 3 inches, and does not look as if it would grow taller. Some trees of this age have produced as much as 100 kilos of 6 per cent. bark. The plantations are made closely, so as to cover and shade the soil quickly, and are highly cultivated by hoeing. As soon as the trees become crowded, all the worst are taken out and barked, leaving the trees about 6 feet apart in the lines, with the rows 9 feet apart, and the bark from the thinnings is found to pay the expense of plant-

ing and cultivation. There seems to be no fixed age for clean cutting, which is regulated by the demand for bark; but after felling the same ground is replanted, as in Sikkim. The annual produce at present is about a million kilos, but I gathered that at the low price of quinine there is not enough profit in the business to attract private industry, and that the plantations are kept up, like our own in India, for the benefit of the people of the country.

The climate and rainfall seemed to be more equable throughout the year than in Sikkim. Some large Cypresses planted by Dr. Junghuun forty or fifty years ago were growing well, and I measured one of *C. sempervirens* 65 feet by 6 feet 3 inches.

After spending a most interesting afternoon here, we returned in the car to Bandoeng, where we stayed in a large, well-appointed hotel, full of residents and travellers; and on the 12th started early by train for Parangkoeda, a station on the line to Buitenzorg. Five miles from here is the fine old tea plantation of Parakan-Salak, managed by Mr. Boreel, to whom I had a letter of introduction. The road to it ran through an avenue of large symmetrical trees of *Dammara alba*, which were 80 or 100 feet high by from 6 to 9 feet in girth.

Some of the oldest parts of this plantation, opened nearly seventy years ago, on which the tea plants were worn out, have been replanted with rubber mixed with *Albizzia*, whose roots are believed to improve the soil by the bacteria which they produce. In this area the poorest land was planted with *Ficus elastica* at 50 feet apart, and the rubber from these trees has yielded as much as four shillings a pound, though now much cheaper. But as there is no cost on the produce beyond the initial planting, and the trees will produce rubber for many years, it may be a profitable crop on land too rocky and steep for tea.

On arriving at Mr. Boreel's large and handsome bungalow, in which were many trophies of the big game of the island—tiger, rhinoceros, banteng (a species of wild cattle allied to the Indian bison or gaur) and sambur—it came on to rain so hard that we did not visit the tea gardens now worked, which lie at from 2,000 to 4,000 feet; but after lunch we saw the factory, which is very large and well equipped with modern machinery for drying, rolling and sifting the tea. Besides that made for Holland, a good deal of green tea is specially made, by rolling the leaf in hot pans by hand as in China, for export to the Persian Gulf, where it fetches as much as two florins a pound. Java tea, though not fetching so high a price in England as the best Indian and Ceylon, is now, on account of the cheapness of labour and transport, a very profitable business, and will probably, in the long run, pay better than rubber. A great deal of English capital is now invested in the island in both of these industries, and one hears comparatively little of coffee, which used to be the principal produce for export. Owing to the cost of good timber, imported boxes of plywood are now largely used, and seemed very superior to those roughly made from inferior local wood. On returning to Buitenzorg we had another long day in the gardens, and were much helped by Mr. Koorders, who is publishing a complete work on the trees of Java. Though it is impossible to form an accurate estimate of so large and varied an island as Java



FIG. II.—“FICUS ELASTICA” : INDIARUBBER TREE AT BUITENZORG, JAVA.

OKLAHOMA

during the short time I spent there, I came away with the impression that it is equal, if not superior, to Ceylon, but that Ceylon is the better governed both from the European and the native point of view.

On January 15th we got back to Singapore after a calm and hot passage, and found that we should have to wait some days for a steamer to Hong-kong. We spent part of the time in visiting the rubber estate of Tebrau, to the manager of which I was introduced by a mutual friend. We crossed the island by rail and went by the steam ferry over the strait which divides it from the mainland to Johore, a protected State under a Sultan. Mr. Bryce drove us out six miles in his motor-car to Tebrau, a plantation of over 2,000 acres first opened out five years since, on undulating land from which the forest was completely cleared. As all the work was done by Chinese and imported Javanese labour, the cost of laying out a rubber plantation in this district seems very high to an old tea planter. But the work was well done, and the trees raised from seeds sown on the spot were growing rapidly in the flats, but not so well on the low hills where the humus was washed away by the rain after the forest was cleared. I could not help thinking that if rubber planters were not so anxious to get a large area cleared at once, it would probably pay better in the end to leave all the poorer patches of land in forest, as a shelter for the rubber. For *Hevea* in the Amazon region is not a gregarious tree and grows naturally in mixture with many other species in places where the soil is enriched by annual floods; and though at present I have not heard of any serious attacks of fungoid disease which have destroyed the rubber as coffee was destroyed in Ceylon, yet the exhaustion of the soil must be much greater when large areas are planted exclusively with one tree.

After tiffin we went in a dugout canoe up a narrow winding river overhung on both sides by dense virgin forest, which gave me a good idea of the difficulties of travel in Malaya. Progress was made partly by paddling and partly by poling, but the winding course of the stream was often partly blocked by fallen trees and creepers. There were fresh tracks of tigers, wild pigs and Argus pheasants on the sandy banks, and we saw hornbills, monkeys and a few kingfishers, *Drongos*, barbets and small herons. Large *Hestias* floated about on their soft grey wings, and some *Papilios* settled on the places where the sun penetrated; but the ground was so densely covered with rattan and scitaminous plants that it was impossible to collect much either with gun or net, and I found, as Wallace has often remarked, that the only places for collecting were where good paths and clearings had been made. A man might live for years in this country without seeing half the birds and insects which exist in the forest. And though, with the help of the Malays, who in some cases become intelligent and good collectors, the fauna and flora of the Peninsula are now fairly well known, there are many large tracts at the higher elevations quite unexplored and likely to remain so.

The next morning I went out to see the tapping of the rubber trees, which has to be done in the early morning and evening only, as the latex will not run when the sun is hot, between 10 a.m. and 4 p.m. The coolies employed are mostly Javanese, who are paid very highly considering how

light the work is—namely, fifty or sixty cents in Singapore currency for tapping about three hundred trees a day. The rubber is coagulated at the factory with acid, and then washed and rolled in thin strips which go by the name of “crepe,” but which as yet (1911) do not fetch so high a price as the rubber of the same species imported from the Amazon region.

CHAPTER XVIII
FORMOSA, 1912

ON January 27th, 1912, Mr. Price and I arrived at Hongkong and found the change of climate very marked, for though the thermometer kept up to about 80° until 200 miles from Hongkong, it then suddenly became quite cold.

On February 1st we left by a steamer for Amoy, calling on the way at Swatow, where I found a French Customs Officer who was an old colleague of Dr. Henry in Yunnan and who entertained us most hospitably. At this place is made a fine linen-like cloth from the fibre of *Boehmeria nivea* and other fine fibres. These are most beautifully embroidered in silk by the Chinese women, who have been taught this work by Belgian missionaries, and the products are sold at what seemed to me a very low price, having regard to their delicacy, durability and beauty. We were so much taken with these that I bought a much larger quantity than I could pay for. The Chinese merchant made no difficulty about this, but invited me to come to the bank, where he was sure they would advance the money. There I found a manager from my own county who knew my name, and the very clever Chinese merchant was triumphant and sent the goods off by parcel post without any more trouble. These purchases, in the form of tea-table covers, bedspreads and summer dresses, were very much admired by all the ladies who have used them, and wash very well.

At Amoy we called on Mr. Wallace, manager of the Hongkong Bank, who is a great gardener, and showed me many nice things in his garden, but, as is so often the case in English gardens abroad, he took more interest in exotic plants than in those native to the country. The environs of Amoy at this season were not attractive, consisting of dry rocks and barren hills of granite, often covered with great boulders. I saw nothing like forest, and was surprised to hear that tigers, though not numerous, were often found in the neighbourhood of Amoy, where they live in the caves of the hills, and are hunted by a few Chinese hunters, who will for a high reward show them to European sportsmen, among whom Mr. Bruce of Sumburgh in Shetland was said to be the most successful tiger hunter. Two days after arriving at Amoy we got passage in a Japanese steamer to Tamsui in Formosa, where we landed on February 7th after a rather rough voyage. We were met by my friend Dr. Shirasawa, who had got all our baggage passed through the Customs without delay and went on with us to Taihoku, where we found a really first-class modern European-style hotel built and managed by the Railway Department.

Next morning we went to call on General Count Sakuma, the Governor-General of Formosa, a very nice old gentleman who was most agreeable and promised me every help, though he did not encourage my desire to visit what are called the savage parts of the island. For the aboriginal tribes were still at war with the Japanese, as they had been for generations

with the Chinese colonists who have been gradually encroaching on their mountain territory, which they gradually bring under cultivation.

The occupation of the island by the Japanese took place in 1895, and there was little or no difficulty with the Chinese inhabitants of the plains and lower hill country which comprises the western half of the island. The subjection of the savage or semi-savage tribes of the south soon followed, but there remained a tract of country along the east coast, where very steep cliffs and the absence of harbours make it almost inaccessible in the rainy season. Then, too, there is a great mass of forest-clad mountains in the north and central parts of the island, which have been the scene of a deadly warfare between the Japanese military police and the warlike tribes; these are not only unexplored and unsurveyed, but it is impossible to enter them without a strong military force. Many expeditions have been made, and by degrees outlying parts of these mountains are cut off, and the inhabitants driven out or starved into submission. But the tribes who still hold out defy the Japanese, and lose no opportunity of raiding the frontier settlements and attacking the Chinese camphor collectors and the police who try to protect them. A guard line had been cut through the forest for 400 miles, with fortified posts and block houses at short intervals and protected by live electric wires, but notwithstanding all these efforts the savages still held out in 1912.

After some consultation with the forest officials, and with the very courteous and obliging gentleman, Mr. Miyoshi, who at that time was foreign secretary, it was decided that we should first visit Arisan, where the finest forests and scenery in the island are found. Before leaving, we visited the camphor factory, where all the crude camphor, one of the most valuable products of the island, is distilled and packed for export, as it is a monopoly of the Government here as in Japan.

The Botanic Gardens are on rather heavy flat soil, then sodden by rain, and not very suitable for the purpose as far as I could judge. But as the gardens were quite new and this was the winter season in North Formosa, there was not much to see. I found a very clever little botanist, Mr. Tashiro, who remembered meeting me at the Botanical Congress at Petrograd twenty-five years before. In the Museum we found a mixed collection of natural history specimens and economic products of the island, and arranged with one of the employees, a very clever little man named Kiguchi, to come with us to Arisan and assist in collecting. I also visited the Agricultural Experimental Station, where several breeds of cattle, pigs and sheep were being tried; but as far as I could see and learn afterwards, buffaloes, which are preferred by the Chinese both for milk and for ploughing, and pigs, which are the Chinese favourites, are the only kinds of live-stock which thrive well in the island.

The sky cleared up that day, but there was a cool north-east breeze, and the temperature did not exceed between 55° and 65°. At lunch we were entertained by a rich Chinese merchant, Lim-Nee-kar, a native of Amoy, from which province most of the Formosan Chinese originally came, and whose dialect they speak. Our Chinese boy from Singapore could not understand the people here at all, and very few of the Japanese

colonists or officials seem able to speak the local dialect fluently. The menu was of the usual Chinese type; some excellent rissoles of prawn, and the delicate thin-skinned boiled dumplings, which to my taste are the *chef-d'œuvre* of Chinese cookery, were fit for a king's table. The meal was washed down by excellent Shamshu, a Chinese wine rather like sherry negus, and Formosa tea, which has a peculiar flavour, not so much to my taste as Chinese or Indian tea, and is mostly exported to North America. In the evening we dined with the Governor-General, who gave us an excellent European dinner, and, though he only spoke Japanese, seemed much interested in the objects of our visit.

On February 10th we started by rail for Kagi, a large town 180 miles south, passing through a country where all the level plains are cultivated with rice and sugar, and the dry hills covered with bamboo and scrub, interspersed with small patches of tea. At Kagi we found a much warmer temperature and a good Japanese inn, and on the next day went to see a party of the aborigines who had come down from the mountains of Arisan to see the Governor. They seemed very varied in type, some being more like Malays, and some big stalwart men whose legs were protected by deerskin gaiters. One had a type of face strongly resembling a North American Sioux Indian, and some of the women had nice open faces and were not at all bad looking.

As it was a fête day, we could not start for the mountains, and therefore visited the Experimental Garden where various kinds of rubber-yielding trees were being tried. The climate is evidently not sufficiently tropical for Para rubber, which looked sickly, though an indigenous rubber identified as *Ecdysanthera utilis* was thriving. In the public park we saw Teak trees, only four years planted, which looked well and were 20 feet high, whilst an older one, eight to ten years planted, was 36 by 2 feet. Some crosses of Devon and Ayrshire bulls with the native cows were kept here, and good pigs by a Berkshire boar from a native sow, which is very hardy and prolific; but it was difficult to get exact information as none of the men in charge seemed to know much about live-stock.

On February 12th we started by a narrow-gauge 2½-foot railway for Arisan with Mr. Kanno, the engineer-in-chief of this remarkable line, which after going about ten miles over the plain began to climb a steep grade of one in ten up a narrow valley clothed with vegetation, which reminded me of the Sub-Himalayas. Pineapples and areca nut were growing up to 1,500 feet, where the line passes through several winding tunnels; but except for a few camphor trees and a large species of *Celtis*, there was no timber left below about 3,500 feet, where we came out on a ridge at the end of the line, which as yet was open no farther.

Here we found chairs carried by Chinese coolies—a most agreeable mode of travelling in the mountains. I was able to carry my gun, plant box and butterfly net in the chair, and stop whenever I saw anything interesting to examine or collect. The coolies were most excellent fellows who took great interest in my work and retrieved birds in the jungle or climbed trees to gather plants, almost as well as a Lepcha, when they understood what I wanted. The forest which commenced here was of

extraordinary interest to me on account of its remarkable resemblance to that of Sikkim. There were large areas of fine bamboo, 60 or 80 feet high, *Phyllostachys bambusoides*, from which a very fair coarse paper is being made at a very cheap rate. At 4,000 feet the forest was sub-tropical with large cordate-leaved Aroids climbing the trees as in Sikkim. Large plants of the fern *Asplenium nidus*, and a fine tree-fern 20 or 30 feet high, Bananas and scitaminous plants, were abundant, but the ferns were not so varied as in Sikkim. Ascending gradually to 4,500 feet, we reached a place called Funkiko, where the road came to an end and the Japanese engineers' construction camp was situated. In one of their houses we passed the night in a very pleasant temperature of about 60°, with no chill in the morning.

We started next morning about seven-thirty, and walked some miles through the forest, collecting birds as I went in advance of our coolies. Every one of the birds that I shot belonged to a genus that I knew well in Sikkim. A pair of large martins, shot on the road, were the same or almost the same as the common Himalayan martin, *M. flavigularis*. In four hours we reached Jujiro on a saddle 5,300 feet high, whence we could see Mt. Morrison in the distance covered with snow down to about 11,000 feet. Near here begins the territory inhabited by the aborigines, one of whose villages we saw on a bare grassy slope below us, the forest burnt off for some way round the huts. As we ascended, the forest became denser and more largely composed of evergreen trees, among which Camphor and *Machilus Thunbergi* (known as Japanese Mahogany) were abundant. On northern slopes at 6,000 feet I saw a very fine species of alder attaining 100 or 120 feet by 8 or 10 feet. I collected seeds from it, but the plants raised from these seeds were killed by our English winter. There were many small orchids on the trees, and some terrestrial ones, but the only one worth bringing home was a fine white-flowered *Calanthe veratrifolia*. A *Dendrobium* out of flower, but afterwards identified as *D. flaviflorum* of Hayata, is abundant here, and we saw large bundles of the dried stems being carried down, as it is considered by the Chinese to have medicinal value. Another orchid, with a small but pretty cluster of flowers, was so similar to one which I collected in Sikkim at similar elevations that I cannot separate them. As we approached Arisan, the trees became larger and here we found several species of oak and chestnut (*Castanopsis*) just as one would at 6,000 or 7,000 feet in Sikkim. Aralias of several species were also abundant, and, to complete the resemblance to my old and well-known haunts, a heavy thunderstorm came on, which obliged us to hurry over the last three miles, where the wonderful Cypress trees begin to predominate in the forest. The future station of Arisan will be at about 7,000 feet, but then consisted of a number of shanties inhabited by the workmen building the railway, and some better houses for the foresters and engineers, who kindly placed two rooms at our disposal.

The next morning I went out early in hopes of finding some rare birds, as there are a good many species peculiar to these mountains, and found nowhere else. The first I shot was one called *Liocichla Steerii*, one of the very few genera commonly found in Formosa, which has no allies

in the Himalaya. I hoped to see, in the early morning, one of the rare Mikado pheasants which had only been recently discovered in Formosa; but these very shy birds avoid inhabited places and seem to keep to the thickets of dwarf bamboo-grass which are found rather higher up. The cypress forest round Arisan is, however, the great attraction. The Cyresses are composed of two species, one of which, *C. formosensis*, known to the Japanese as *Benihi*, is the largest Cypress in the world. The other species is the Japanese *C. obtusa*, known as *Hinoki* in Japanese. As no one has yet described them in English, I took careful notes and measurements of these wonderful trees. The former has smoother bark, greyer and more sparse foliage, and a more ragged habit of growth. When young trees grow together, they may be easily distinguished by their colour, the *Hinoki* forming shapely pyramids, which the *Benihi* does not do. The old trees are much buttressed at the base and often grow on the top of a fallen log which decays very slowly. The bark is very thin, from an eighth to a quarter of an inch in thickness, and the proportion of sap to heartwood is very small. The scent of the wood is very aromatic and persistent, remaining strong after several years in a cabinet which I had lined with it. The growth of the trees seems very slow, and in a dense stand trees 100 feet or more high were only about 3 or 4 feet in girth. Towards the upper edge of the forest there was a dense undergrowth of a bamboo known as *Arundinaria Niitakayamensis*, Niitakayama being the Japanese name for Mt. Morrison, the highest mountain of the island, whose snowy ridge we could see plainly when we came out on the open summit of the hill above Arisan. On this open space a number of Nutcrackers, *Nucifraga Oustoni*, nearly allied to the Himalayan species, were feeding on the seeds of a Pine, which is considered identical with the Chinese *P. armandi* and has attained 110 feet by 13 feet. From this opening in the forest we followed a path along a ridge for some way and were pleased to meet Mr. Goodfellow, a distinguished bird collector, who had come specially to Formosa a month or more previously in order to obtain living specimens of the Mikado pheasant. He was camped in the forest several miles away, and invited us to join him when we returned later. In the afternoon I measured some of the large trees near Arisan, especially one which is entirely peculiar to this forest, so far as known at present, and forms a monotypic genus. This is called *Taiwania cryptomerioides*, and when adult it has a very similar aspect to the old trees of the Chilean Araucaria, which I saw in the Southern Andes in 1901-2. The trees, however, were very few in number and scattered among Cypress, and I could find no young or seedling trees small enough to move. By far the largest tree was very near the station, and by a careful measurement I made it 190 feet by 28 feet.

Next day Price returned with Mr. Goodfellow to his camp, and I went for a long round through the forest with Mr. Shirasawa and one of the local foresters to see the forest which the Government are preparing to exploit as soon as the railway is completed. Among the trees we saw were several oaks, one of which, *Q. Jiujiuri*, attains a great size, one log being 9 feet in girth at 50 feet from the butt. *Cinnamomum randaense* was another fine evergreen tree. At 6,800 feet I found a fine

Hornbeam and several species of Maple. Shirasawa was anxious to see if the variety of Camphor tree, which grows here and produces only oil which will not crystallise, was a distinct species or not; but he could not discover any botanical difference, and it may be rather a question of climate. On the very tall and fine alder trees were great tufts of mistletoe growing just as it does on poplars, but never, I think, on alders in England, but I could not identify the species.

On the way home I measured, with the forester's help, the tallest Cypresses that I could find, as follows:

1. *C. formosensis*, close to the line of railway, 170 feet by 30 feet.
2. The tree which the Japanese call the "Shogun" Cypress on the lower side of the line, hollow, and now I believe destroyed, 162 feet by 40 feet.
3. The largest tree of all, very near the last and protected by a wire fence, 162 feet by 60 feet. This tree seems sound, and, if the rings on those felled trees which we counted are any sure guide, must be well over 1,000 years old.

On one, a newly felled stump, I counted the rings carefully, and found on a total diameter of 8 feet 8 inches in the first foot of radius from the centre, which was partly decayed, about 110 to 150 rings, on the second foot 85, on the third 112, on the fourth 121, on the fifth (only 8 inches) 84, making the age of the tree at least 500 years. On another tree which was carefully measured and counted by Mr. Uyematsu, the local forester, he found, on a section which measured 10 feet 8 inches in diameter, 968 rings. It therefore seems probable that these Cypresses may attain a greater age than any in the world except the *Sequoia gigantea* of California. In both of these trees there was only about an inch of sapwood, and the bark was only from a quarter to a half-inch thick. The soil on which these grand trees grow is partly yellow sandstone and partly a clayey slate, very deep and fertile. I could find no hard underlying rock near the surface, and except in openings where the soil was exposed, I could find no seedlings coming up, just as was the case in the *Cryptomeria* forest of North Japan. But seed which was sent home has germinated freely and, rather to my surprise, the seedlings have proved hardy enough to endure the winter in Gloucestershire. At this season the day temperature at Arisan was about 50°, very pleasant and soft, and I imagine that the rainfall is heavy, though no record could then be procured.

On February 16th Price returned from Goodfellow's camp and we descended to Funkiko, about six hours distant, but did not find anything particular which we had missed on the way up. Here we slept well, and as there were some unfinished tunnels rather bad to pass through, we took a short cut by another path, leading down to an old Chinese village in a valley about 3,000 feet with very tropical vegetation. Here we discovered a new species of *Tricyrtis* in flower, of which seeds were taken; this plant has done well in my greenhouse at home, and has been figured in the *Botanical Magazine* as *T. stolonifera*. In this valley was a beautiful *Prunus* in full flower without leaves, a bushy tree 10 to 15 feet high.

On returning to Kagi I left Price for a time and went with Shirasawa to Taiwanfoo, an old Chinese seaport where Swinhoe resided when he was Consul here. Here I engaged a new Chinese servant, as our Singapore boy was of no use owing to his inability to understand the language. We then went on by rail to Takao on the coast, where we slept, and thence by steamer to a place called Taihanroku in the bay between the south-west and southern capes of Formosa. It blew so hard off shore that we could only land in a lighter which was warped off. Here we were met by some Japanese officials, who conducted us in chairs to Koshun, the name for this curious district, which is quite unlike anything I had seen before, both in soil and in climate. The country at the south end of the island is a dry coralline limestone, with very little water at this season, and though the weather was very much hotter than in the north, a strong dry north-east wind was continually blowing day and night. Here there are another large experimental farm and a forestry station, where many kinds of trees and plants were being tried, at a place called Kuraru, under the direction of Mr. Inamura, who put us up in his house. There were a good many ebony trees here, *Diospyros utilis*, but the large ones have been cut. The only handsome flower I saw wild here at this season was *Alpinia nutans*, but in Mr. Inamura's house were some very beautiful plants in flower of *Phalænopsis aphrodite*, which used to be common here as an epiphyte on the ebony trees. It begins to flower in December at the end of the rainy season and lasts till March, and is the finest orchid known in Formosa, though very difficult to grow at home. A plant established on a tree fern had twenty spikes of large white flowers with pink and violet markings. There were several trees in this district producing very fine timber, among them the best are *Terminalia catappa*, *Hernandia peltata*, *Diospyros melanoxylon*, *Calophyllum inophyllum*, and *Pistacia formosana*. But here, as in many tropical countries, they are not numerous or accessible enough to have much value except for local use. Shirasawa agreed with me that this district is unfit for afforestation, and that most of the money which is being spent here will be wasted. The high wind blew all night, but in the sheltered hollows and ravines of the coralline limestone I found a few birds, and more butterflies than I had hitherto seen elsewhere. Among them were a pair of the large *Hestia*, which I had hitherto associated with purely tropical evergreen forest, and five or six species of *Papilios* very like Indian species. Hardly any showy plants were in flower.

On February 21st we went back to the place where we had landed in chairs, and then put our luggage on trucks pushed by coolies on a light railway through a curious country in which a palm, *Phoenix Hanceana*, forms a wild open forest growing up to 20 or 30 feet high, but more usually a stunted bush. I saw no other trees today except *Pandanus* and a few figs near villages. At Koshun, where we changed bearers, is a large square fortification, this having been a Chinese headquarters station when they governed the island. Our baggage was carried today by coolies, mostly females, apparently half-breeds between Chinese and aborigines, who are impressed for such work by the police. Noticing that two of them had babies on their backs, I objected to their being made

to carry a heavy load as well; but the Japanese said that it did not matter, as they were only savages and were used to it. I must say that the general attitude of the Japanese officials to the Chinese and aborigines in Formosa was not calculated to make them popular, and I was told that the Chinese settlers were in many places still quite unreconciled to Japanese rule. In three hours from Koshun, over a cultivated plain, we reached a police station at Shiju where we had tiffin and changed bearers, and then went on along the coast under cliffs of black coralline rock, with small patches of rice wherever water ran out of the hills, but the streams are all very low at this season. When we crossed the mouth of a river valley, a mountain called Riryusan came in view about 4,000 feet high and covered with good-looking forest partly cleared by the aborigines. The policeman at Fuko said that these forests had not been visited by any European, and were easy of access, so it might be a much better locality for a naturalist than the Koshun district, where I stayed, seemed to be.

We slept at Bozan, having made about thirty miles during the day; the weather was hot and windy with heavy rain the next morning. After a few miles more along the rocky shore we came out on the southern end of the great plain which forms the west side of the island, comprised of rich soil irrigated from the rivers and producing large crops of rice, sugar and yams. Large Chinese villages in open groves of bamboo with a few trees of *Ficus retusa* and *Bischoffia javanica* are scattered over the plain. At Shiju we changed our chairs for jinrikshas, but the road was so heavy and the wind so strong that we got on but slowly. At Borio we reached the end of a narrow-gauge private railway belonging to a big sugar company, on which we travelled twenty miles to the large town of Ako, where we were met by officials and conducted to a good new Japanese inn. On this day I saw little of interest to a naturalist. A few kestrels, shrikes, magpies, wagtails, buntings and many swallows were the principal birds seen. Egrets appeared for the first time, but I had not yet seen a duck, snipe, pheasant or game-bird of any kind since I landed in Formosa.

On February 23rd Shirasawa took me to see another experimental garden in which rubber and other economic plants were being tried; but here again on a bare, windy down, Para rubber was a failure, as might be expected in this climate, where the temperature goes down to about 50° in winter and the wind is very trying to tropical forest plants. After this we went to see a great sugar factory under the management of a Japanese engineer who spoke English. The machinery was all of the most up-to-date type made by the Milliken Company of New York, and was said to turn out 120 tons a day during the season, which lasts from December till May. There are 7,000 acres of land growing sugar to supply this mill. The cane was brought in from the field by many miles of permanent and temporary tramways, and four sets of Fowler's ploughing engines were used to cultivate the deep and fertile soil. I heard afterwards that a good deal of pressure was put on the Chinese farmers to compel them to grow cane by contract at less than its real value. But in Japan it is difficult for anyone but a resident who knows Chinese to get at the truth of these facts, and the Japanese are usually reticent about such matters.

After this I went to Taiwanfoo (called Tainan by the Japanese), where



FIG. 12.—SQUARING LOGS IN THE FOREST, FORMOSA.

NY
BROOKLYN

I settled up with Shirasawa, who had been most helpful and obliging during my visit, but who now had to return to his work in Japan. After taking leave of him, I went back to Kagi, where I met Price, and started again for Arisan. The weather was much warmer now than it had been a fortnight ago, and when we got up to Funchiko we found many plants newly come into flower, among them *Viola diffusa*, a fine large species of *Paris* very like the Himalayan *P. hexaphylla*, and an *Arisæma* very like the *A. concinnum* of Sikkim, which is hardy in my garden at home. Butterflies were now coming out, all belonging to Indian genera, as were the few birds we shot and skinned. Near the road I found a large camphor tree, of which part only of the trunk had been converted into chips for distillation, probably because it was of the variety which only yields oil. I believe that in these forests, which are not as yet under the direct management of the Forest Department, most of the camphor is produced by Chinese, who have a licence to work but are obliged to turn over all their camphor to the Government at a low fixed price. Where they find a large tree growing, they camp beside it and erect a small still. The whole of the wood is then converted into chips by a tool like a gouge. Many trees are also found in the river-beds during the dry season, which have been uprooted during the rainy season in landslips and carried down by the flood. In one of these camphor camps a woman attended to the still while the men cut and carried in the chips.

On the 27th we had a very pleasant march up to Arisan, but, though the day was fine, did not get many birds or butterflies. It was a good deal warmer than on our first visit and many new plants were in flower, among these the most interesting was a fine white-flowered root parasite *Monotropa* which is found in Japan also, and is nearly allied to, though much larger than, our English plant, commonly known as the *Yellow Bird's-nest*. The next day was mainly spent in photographing trees and measuring them. I found that the largest *C. formosensis* was 190 feet by 30 feet, as nearly as I could get it, but there may be taller ones in gorges which we could not reach. I found the trunk of a large *Taiwania* recently felled, which was being cut up into planks by the Japanese sawyers in a most ingenious way. The saw used was a broad-bladed single-handed saw with a blade 30 inches long by 18 inches deep. This broad blade keeps the cut true. When the man, after chalking his line on the upper side of the log, has cut it from end to end as deep as his saw will reach, he then turns his log over and makes a new cut on the other side so exactly true to the first that you would hardly know it had not been done on a saw-pit by using a long two-handed saw. I tried to count the rings of growth on the stump of this tree, but could not do so accurately. I estimated not less than 400 on a stump 8 or 9 feet across, but possibly it was much older. The sapwood, as in the Cypress, was very thin and the bark only from a quarter to half inch thick. There were many deep red streaks in the heartwood. I have now, after seeing more of the wood sawed up, come to the conclusion that the *Hinoki* Cypress, though a much smaller tree, has finer wood than the *Benihi* and has a sweeter smell. On one log, only 3 feet diameter, I counted 400 annual rings, and got some boards from it which, however, I was not able to

bring home. If and when this lovely wood is exported to England, it should command a very good price, as it must be very durable. For I found a prostrate log of *Benihi*, much of which was still sound, though a tree 200 or 300 years old (judging from its size) was growing on the top of it.

On March 1st we started for the camp on the other side of the mountain where Goodfellow was living, and, though the path was too steep and rocky to use a chair, I reached it in about five hours. Along the ridge at about 8,000 to 8,500 feet I found a species of Hemlock, Spruces, some *Cephalotaxus*, and Rhododendrons growing on the rocks but not in flower. A remarkable evergreen tree, *Trochodendron aralioides*, also found in Japan and hardy in the South of England, was scattered through the forest here. On this ridge I saw a small flock of *Suthora morrisonianum* and another of *Actinodura*, exactly the birds which I should expect to find in a similar place in Sikkim, though both the species are distinct and endemic. On reaching Goodfellow's camp we found him very joyful, as the savages whom he was employing to snare Mikado pheasants for him had just brought in two living males in fine plumage. The birds are caught by snares, set on the forest path and baited with berries of what seemed to be an *Aralia*, but the savages are too lazy to visit their snares often enough, and several of the birds they caught were injured or dead before they found them. Goodfellow, who is a very clever man with live birds, after living several weeks here eventually succeeded in bringing alive to England seven males and three females of this beautiful bird. From two of them which I purchased I bred in the next two years a fair number of young birds, which have been successfully acclimatised at Woburn, and, though naturally very shy, seem to thrive very well in the climate of England. The camp, where we stayed two nights in a hut covered with a water-proof sheet, was closely surrounded by dense Cypress forest. In the holes of these trees live two large species of very beautiful flying squirrels which seem to be nocturnal in their habits and were only procured with much trouble.

The next morning I took a long walk alone in the hope of seeing a Mikado pheasant on the path in the early morning, but I saw none and very few other birds except the Nutcracker, and a black and white Woodpecker. Kikuchi, who had come back with Price from Taihoku, and was an expert collector, found three examples only of what were eventually proved to be the seedlings of *Taiwania*, having narrow needle-shaped leaves entirely unlike the short leaves of the adult tree. The forest was almost entirely composed of Cypress with a few *Taiwania* here and there, but no huge trees as at Arisan. I found a great cave which was much used by the savages for camping in. In the evening they brought in the meat of a mountain goat-antelope, *Nemorhedus*, which they had killed, but the head and skin were missing, and, though I offered a large reward, my endeavour to procure a specimen of this rare animal, dead or alive, was fruitless. These aborigines were not at all willing to work for us, and were only kept in camp by the presence of a Japanese policeman, who spoke their language. In the night we heard a fox bark near our camp, as well as flying squirrels, but we saw none. The temperature

at this elevation, about 7,000 feet, was very pleasant, 60° or 65° in the day and about 45° or 55° at night, and, judging from the vegetation, snow, if it ever falls here, does not lie. The flora is nothing like so rich and varied here as I expected, and it was too early for many flowers; but I saw a *Mahonia* very like the Himalayan *M. Wallichii*, and many ferns, among which was a *Hymenophyllum*.

On March 4th we returned to Arisan by the same path, and near the summit found a fire-crest wren, *Regulus Goodfellowi*, in little parties, but it is very hard to pick up these tiny birds when they fall among bamboos in steep rocky places. Another bird which I got lower down was a new species of *Myzanthus*, a little flower-pecker very near the Himalayan *M. ignipectus*. A small white *Dendrobium* and other orchids were common on the trees at 6,000 or 7,000 feet, and in a similar place farther north Price discovered a new species of *Pleione* named after him by Sir D. Prain, in the *Botanical Magazine*. These repeated references to plants, birds, butterflies and animals whose congeners are all highly characteristic of the Eastern Himalayas confirm most strongly the opinion which I formed many years ago, when the Formosan birds were only known from the collection of the late Consul Swinhoe, and when the plants of the higher ranges were entirely unknown, that the sub-region which I then christened "Himalo-Chinese" is perfectly natural and homogeneous.

On our return journey from Arisan to the plains we were accompanied by the local forest officer, Mr. Uyematsu. He showed me several new trees, among them a species of *Castanea* and three or four of the allied genus *Castanopsis*. *Quercus Kawakamii* and another *Quercus* are also fine large trees, but I do not think any of these will prove hardy in Great Britain. At Toroen we camped in our own tent which hitherto had been little used, and enjoyed the place thoroughly, as the temperature was perfect. Near our camp I saw monkeys for the first time in Formosa, and shot some beautiful black and red *Pericrocotus*, a *Dendrocitta*, Nuthatches, Woodpeckers and Blue Flycatchers, all very like Himalayan species. Above our camp grew a fine scandent white-flowered *Hydrangea* and an *Eriobotrya* which proved to be new—a tree 50 feet high with white flowers smelling like a Hawthorn. Skinning birds and drying plants occupied a good deal of time here, and Price took some good photographs. The fine weather brought out a good many butterflies, among which were a fine species of *Kallima*, a large *Papilio* like *Philoxenus* and a *Danais* like *D. tytia*. We descended to the village of Sui-sha-rio in a hot valley where the policeman had, growing in pots, some nice orchids, among them a species of *Anæctochilus* with beautiful golden-veined leaves. He said this was scarce because the Chinese collected the plant for medicinal use. At Karaping there was a small and very primitive paper factory, where coarse paper was made from bamboo. A beautiful species of *Styrax* was in flower here, and I saw a wood-pigeon, which is the same as *C. pulchricollis* of the Eastern Himalayas.

On getting back to Kagi we found Mr. Kanehira, a very pleasant young English-speaking forest officer, who had been sent from Taihoku to assist us, and we arranged with him to visit the beautiful district of Horisha in the centre of the island. On March 10th we went by rail as far as

Nihatchisui, a station to which the timber from Mt. Randai is floated down the Dakshui river during the rains and cut up at a saw-mill for export to China; but the price of this fine *Hinoki* timber was too high then to allow it to be exported to Europe. After a few hours' plant collecting we went to Nanto, the chief town of the Horisha district, where we slept in a good Japanese inn, and next morning went back as far as the station of Lama, where we put our baggage on push-cars and went nine miles through a pretty country in the Dakshui valley to a Chinese village called Chip-chip, where there is a good inn. On the road Price photographed a fine old tree of *Bischoffia javanica*, about 65 feet by 20 feet, and an old *Liquidambar* about 75 feet by 12 feet. This is one of the common trees of the lower hills in this valley. In the jungle near here grows a plant known to the Chinese as *Ka-lang-kao*, which means "Bite-man-dog," a species of *Laportea*, which, if touched, stings very severely, and is much dreaded by bare-legged natives. It seems very similar to the dangerous stinging-nettle described by Hooker, in his *Himalayan Journals*, as growing in the hot valleys of Sikkim.

From Chip-chip I was carried on a chair and our baggage by coolies, to a place ten miles farther up the Dakshui river known as Togun, where there is a police-station at the foot of Mt. Randai. On this mountain, said to be about 10,000 feet high, a good deal of fine timber has been cut, and brought down to the river by means of a timber slide. Our camp here was surrounded by steep forest-clad hills, where the vegetation was very tropical and a stemless palm was common. Savage tribes live near here, and there had been fighting very recently with them, so that the police would not let us go further up the valley. I heard afterwards that the police here had been attacked soon after our visit, and some of them killed. On March 12th Price started early with Kanehira and eight coolies to ascend Mt. Rantai as far as possible, but, as the trail is steep and difficult, I did not attempt the trip. These natives carry loads on their backs on wooden frames, like those used by the Lepchas of Sikkim, but shorter and wider; they do not take such heavy loads, fifty or sixty pounds being about their burden. I collected round Togun in very tropical surroundings, but did not find anything very remarkable, except a climbing white-flowered *Hydrangea*, an immense mass of an orchid *Sarchochilus* sp. on a tree overhanging the river and a pair of green fruit-pigeons, *Sphenocercus formosa*. Near camp I shot a nightjar, *Caprimulgus monticola*, and a *Ruficilla rufiventris*. In the afternoon and night it rained very heavily, which made the river rise so much that the temporary bridge by which we had crossed became dangerous, and we might easily have been cut off for some days.

The next evening Price returned after having ascended to about 7,800 feet, where he camped in a Cypress forest, where the trees were not so large as at Arisan. He was much pleased at finding four large trees of *Cunninghamia Konishii*, a remarkable conifer which has only been found here as yet and is extremely scarce. It appears that the wood of this tree was highly valued by the Chinese for making coffins, for which very high prices were paid. He found the stump of a tree 7 feet in diameter, and was only able to procure cones by shooting an upper branch off with

a rifle. These trees grew at about 7,000 feet. A pine, called *P. taiwanensis*, and *Tsuga chinensis*, were the other conifers he noticed, but the weather was so wet that he could not collect much. The most interesting plant he found was a species of *Shortia*, not so handsome as the Japanese species. The only other place in the world where this genus is found is in the mountains of North Carolina. This fact makes such a find of extraordinary interest, when the traveller knows enough to appreciate his discoveries himself.

On March 14th, after a wet night, we found the river difficult to cross, but got over without mishap, and at Shashi, a village half-way to Chip-chip, we turned off our former route to the east, ascending through a very pretty hilly country to a place called Suisha, at about 2,500 feet on the shore of a lake known as Lake Candidus, though I do not know by whom it was christened. The hills were here grassy and not rocky, with patches of virgin forest and cultivation, and I saw for the first time that very beautiful bird *Urocissa cærulea*, a Magpie with blue back and long tail. I caught quite a number of butterflies that day, all quite Indian in type, of which the best was a *Papilio* like *P. helenus*. We put up for the night at a police station on the shore of the lake, where bananas, pine-apples and oranges all grow well. Next morning I had a walk through virgin forest, where I did some good collecting, getting a fine *Graucalus* and a hill partridge, *Arboricola crudigularus*, also an *Anæctochilus* out of flower but with beautiful leaves. After lunch we went on by road, and in eight or ten miles came to a village called Gyoshi, where we found a Japanese schoolmaster, named Terauchi, who was quite a good naturalist, and had a lot of birds and animals stuffed by himself. Among these were Swinhoe pheasants, the handsomest bird in the island, and a male Mandarin Duck, shot on Lake Candidus, as well as a large flying squirrel distinct from the one found at Arisan, with a red instead of a white breast. He had quite a lot of butterflies very well preserved in paper envelopes, among which I noticed a fine large black *Papilio* with broad red borders on the hind wings, and white antennæ, quite new to me (it has since been named *P. horishanus*), and a splendid *Thaumantis* very like the Chinese *T. Howqua*. Another very interesting butterfly which I should have much liked to carry off was a small species of *Aulocera* like *A. brahminus* of the Himalaya. Among the moths were a very fine specimen of *Brahmea* from Mt. Randai, probably new, a large *Cossus*-like species, an *Attacus* like *Atlas*, and a *Saturnia* near *S. pyretorum*. All this convinces me that an entomologist who will spend a year in collecting insects in Formosa, where Horisha seems to be one of the most favourable localities, will reap a very rich harvest of unusual interest and novelty.

A little below this village was a field of sugar-cane nearly all in flower. After a mile over flat ground we suddenly came to a deep gorge into which we descended by a steep path to the bed of the river, which at this season was a wide expanse of sand on which lay many trunks of trees, washed down by the floods. This valley was the most tropical-looking scenery I had yet seen in the district, and in places reminded me strongly of the Tista valley in Sikkim. A narrow-gauge tramway from Horisha passes through it. On emerging from a narrow pass in the gorge, we came out

on a flat plain four or five miles across, and surrounded by hills 5,000 or 6,000 feet high. Heavy rain came on before we reached the small town Horisha in the centre of this plain, and stopped at a good Japanese inn. On March 16th we had intended to go to Maibara, where there is a police station twelve miles from Horisha, near to where a tribe of aborigines live, but it rained so heavily that we gave up this excursion. Some of their women we saw in the town. Their mouths and cheeks were tattooed in a very peculiar manner.

At Horisha we found two more collectors from one of whom I bought a nice lot of butterflies in papers, a pair of Swinhoe pheasants' skins and a pair of the beautiful *Pitta nympha*, a species also known in South Japan, where, as here, it is only found as a summer migrant. I also found some interesting wooden trays made from sections of the stem of a climbing species of *Bauhinia*, and fine walking-sticks of a wood like holly, which Kanehira could not name. In the afternoon we visited a large sugar factory with new machinery made in Germany, which must have been got here with great difficulty on such very small trucks as the light tramway will carry. On the next day the weather was still dull and rainy, but cleared up at eleven when we went seven miles down the valley of the Nankan river to Hokozaoko, where we found lodgings in a police station. In this valley there was a great flood last year, which had broken the road in many places and obliged us to climb over a very rough path. In the afternoon I collected some birds, including a Drongo, *Chaptia brauniana*, and a rock thrush, and saw traces of Swinhoe pheasants, for which Kikuchi set traps. Next day I collected more birds, a green barbet, *Cyanops nuchalis*, a fruit-pigeon, and an *Arboricola*, and two fine Swinhoe pheasants were caught in the snares. Price and Kanehira took a long walk in the forest but did not find any trees of special interest, except *Pinus formosana* and *Podocarpus*.

On March 19th we marched ten miles down the valley. At first it was fine, but heavy rain came on at noon. We had not had a single sunny day since leaving Kagi, but most of the rain had fallen at night. In this central part of Formosa the wet and dry seasons do not seem to be nearly so well marked as they are in the north end of the island, where the rain mostly falls in the north-east monsoon, or in the south where most of it comes with the south-west monsoon between May and September. At Kishto, where we passed the night in a small Japanese inn, the stream joins a larger river and opens out into the plain five miles lower down. Here we found a tramway, which took us about twenty miles through a level country, mostly under rice, to Taichu, a town on the railway, where we dined, and went on to Taihoku in the evening. From March 21st to 25th we spent at Taihoku, drying and packing our collections of plants and bird-skins. The weather was very changeable, sometimes hot, sometimes windy, sometimes dull and cold with drizzling rain. I made an excursion to Tamsui, where in the Consul's garden I found a fine Lily in flower, which differs from *Longiflorum* with much narrower leaves, and brown or reddish stripes on the back of the petals as in *L. Browni*. It is common on the hills near Tamsui and bears as many as seven or eight flowers on a stem. I found the same or a very closely allied

plant in seed on the road to Heirimbi at 2,500 feet, and Price afterwards found at much higher elevations another lily, which by the Japanese botanists is considered identical with *L. philippinense*. This plant has proved hardy in the Botanic Gardens of Edinburgh, though I cannot grow it outside at home. In the timber stores at Taihoku I purchased some very handsome pieces of dark red wood known as *Katan*, which I believe to be *Bischoffia javanica*, also an ebony from Koshun and a soft wood known as *Shonanboku*, which is *Libocedrus macrolepis*, and is much used for furniture, doors and tables. It is often well figured and resembles satinwood in colour. But by far the finest timber in Formosa is cut from the great burrs which are formed on the old Camphor trees. These are sometimes very large and beautifully figured; they are cut into slices about half an inch thick and used for table-tops, and I have had them cut into very beautiful veneers for cabinet making in England, which take a good polish.

On March 26th, as Price was not very well, I went with Kanehira to look for a very rare tree called *Keteleeria Davidiana*. We started across the plain to the Agricultural Station on a push-car, and then took jinrikshas with two coolies each, up a long valley partly cultivated with rice. After five miles it became too steep for the riksha, and I got a chair up to the top of the pass, 3,500 feet on the road to Heirimbi. There were many small patches of tea here, the leaf of which is sold fresh to the Chinese, who manufacture it, as the Japanese seem to have left this business to the Chinese. Three hours up the valley we reached a curious little village, Sekitei, on a narrow ledge above the river, where I saw a dried skin of a hedgehog in a druggist's shop. A coolie passed by with a load of fresh deer meat; but though a small species of *Rusa* is not uncommon in the west and central provinces, and a variety of spotted deer, *Axis*, on the east coast, I saw no deer tracks anywhere. Several plants new to me were conspicuous in the jungle here. A large-flowered Rhododendron, a fine white Hydrangea, a *Crinum* (not in flower), and best of all, a real prize, in the shape of a Lily, of which I saw, growing out of the crevices in a steep rock among grass and scrub, a few plants only just coming into flower. One of the coolies succeeded in climbing the cliff and brought me down specimens, with bulbs, which I succeeded in sending safely to England. At the time, I saw that the plant, though smaller in flower, looked identical with the commonly grown Japanese *Lilium speciosum*, the wild habitat of which was unknown to Japanese or to European botanists, when I wrote on this genus forty years ago. Though the plant has been separated by Hayata under the name of *L. Kanehira*, I compared it carefully when in flower in my greenhouse three years later, and could find no reason to doubt my original conclusion. Though this plant has been in cultivation for over a century, it has never been found wild in China, and must have been introduced from Formosa to Japan at some remote period. Up to nearly 3,000 feet the sides of this valley were terraced for rice, and most skilfully irrigated by the streams. Some of the terraces were so narrow and the hillside so steep that it is wonderful how they can be ploughed by buffaloes.

After crossing the pass I descended along steep grassy hillsides covered

with a curious creeping fern, *Dipteris*, and here I found a very beautiful large-flowered white rose with very tough and prickly stems, the seed of which I raised. In 1922 this rose flowered on a wall at Colesborne and proved to be the well-known *Rosa lævigata*.

At the bottom of the hill we came to the village of Heirimbi, where we lodged in a fair inn, and had a warmer temperature, 68° or 70° at night. Next morning we went along the Tamsui valley by a pretty path through wooded hills, until we reached some virgin forest, where I was told that a few trees of the *Keteleeria* still remained near the police station of Kinkaryo, which is on the border of the country inhabited by the savages where the Japanese would not let me venture. Most of the large old trees have been cut and the timber is highly valued. The police station at Heirimbi was built with its wood, which on the ceilings and walls has turned to a rich dark colour. I was not able to climb up far enough through the steep dense forest to see the largest trees, the best that I found being only 3 or 4 feet in girth, but I got specimens with male flowers and cones, and a few badly rooted seedlings, which died before they got home. This forest was mainly composed of evergreen trees, among them oaks, *Machilus*, *Meliosma*, *Eugenia*, and a few small trees of *Podocarpus Nageia*, also found in Southern Japan. At the camphor store I found a splendid burr of camphor wood, which the owner would not sell, but Kanehira told me that sixty yen (£6) has been paid for a slice off this burr by a Japanese.

On March 28th we returned by chair, jinriksha and push-car by the same road to the edge of the plain near Taihoku, where we turned off to the south to Kisan, crossing a large river three times. At the second crossing is the power station which generates electric light for Taihoku, and is run by four large turbines fed by water from a tunnel leaving the river a mile higher up. At the third crossing of the river we got into what is called the savage territory, where no one is allowed to go without a pass, and near this found a large station belonging to the Mitsui Company, whose manager lodged us well, and gave us an excellent Japanese dinner. Round here are large plantations of *Cryptomeria* trees, made ten years ago by a Mr. Dogura, who sold them to the Mitsui Company. The appearance of the hills, backed by higher mountains which have been cleared of forest, is very like that of a Scotch glen. But the vegetation is very different, and the butterflies and plants showed that the climate is rather tropical than temperate. After crossing a long wire suspension bridge, I got into virgin forest with a few clearings made by the savage tribes, on which millet, tobacco and caladium were grown. Their houses are small and dirty; the women are heavily tattooed with blue, and the men have blue patches tattooed on forehead and chin. At one of these native huts I saw some plants in flower of a *Dendrobium* like *nobile*, and as the native boys were willing to climb trees I made quite a collection of orchids, including species of *Calanthe*, *Cymbidium* and one other new to me. But our best find was a new species of vanilla, which grew in great quantities on the trunks and branches of *Libocedrus*, of which a few trees were found in the forest at about 2,500 feet. The flowers of this, though not showy, were growing in twos and threes on a stout pedicel

one and a half inches long and had greenish segments with a pink labellum; it has now been named *Var. formosana* by Hayata. Its nearest ally is *Vanilla Griffithii* from Assam. The plant has grown at Kew and in my own orchid house for six years, but has not yet flowered. All the orchids I collected in Formosa were taken to Japan and handed over to the care of Count Foukouba, who is the most successful orchid-grower in Japan, and who was good enough to send me some of them later.

At Urai, where a river comes in from the east, we crossed a bridge to a large police station on a very pretty site, with some hot springs on the other side. This would be one of the best centres from which to explore the surrounding mountains, if the district was considered safe. But the police would not let us go far from the path, and followed us about everywhere. There are large camphor distilleries up the main valley and a forest of *Libocedrus* which I should have much liked to see, but our hosts did not seem to think it was possible to go there at present. Many coolies were going backwards and forwards, and I saw women carrying loads of bamboos on their backs just like Lepcha women in Sikkim. Rattan palms, wild bananas and *Aroids* were all abundant in this fine forest, but none of the stemless palms which I saw in Horisha. The hillsides were very steep, and a waterfall opposite was well photographed by Price. I also found a fine *Alpinia* in flower which I have grown in England, *Alpinia Elwesi* (*Bot. Mag.*, t. 8651), and a *Liparis* with large brown flowers (*Bot. Mag.*, t. 8797). Altogether I got fifteen species of orchids in flower in this valley, and Price found a very curious new scitaminous plant. Butterflies, all of common Himalayan genera, were also fairly abundant, but I had not time to collect birds, though I saw a brown dipper, *Cinclus manila*, just like the Himalayan dipper.

On April 1st I got back to Taihoku, and after packing my collection of timber specimens, which made quite a large consignment, I paid a farewell visit to the Governor-General to thank him for all the facilities he had afforded us.

I was invited by the Oriental Society of the island to address a large audience on what we had seen in the island, and though I said that my stay had been too short to form anything more than hasty impressions, which my ignorance of the language must make unreliable, they pressed me so strongly that I did not like to refuse, especially as Mr. Myoshi said that he would translate my words sentence by sentence into Japanese. At the end of the meeting, at which a number of officials in uniform and professors at the College were present, I was asked to sign my name in the visitors' book and to add some sentiment. On the spur of the moment I could think of nothing better than a text in the Bible, the truth of which I had been feeling daily, as my increasing age made me less able than formerly to get about the steep mountain paths on foot. I wrote from the Psalms:

“The days of man are threescore years and ten, and, though men be so strong that they come to fourscore years, yet is their strength then but labour and sorrow.”

Though many of those present understood English, more or less, they did not seem able to take in the meaning of this verse, which seemed plain

enough to me, until a great scholar present remembered some lines of Confucius which expressed in Chinese exactly the same idea. He quoted these lines in Japanese and at once produced the desired effect. I mention this incident only as a proof of the radical difference of the Chinese and Japanese languages and modes of expression from those of any European language. It seemed to me that Mr. Myoshi, who knew and spoke English very well indeed, took nearly twice as long to turn my speech into Japanese as I did to make it in English.

On April 2nd, which, though dull and sunless, was quite a hot day, I went to see a large tea plantation under Japanese Government control at Anpintin, an hour by rail south of Taihoku. They were making black tea for the English market, as well as Formosan oolong, which has quite a peculiar and distinct flavour. Rotary rolling machinery by Jackson and Davidson as well as sirocco drying machines and sifters were in use, but the leaf is almost all grown by small Chinese planters and sold green to the factory. In the small area of the company's tea where the soil is red and rather heavy, the plants were in rows, five feet apart, and the bushes three feet apart in the rows. The bushes were small and badly pruned in comparison with Indian plantations, but were already flushing and nearly ready to pick. As there is a full account of both the tea and camphor industries in Davidson's work on Formosa, I need say no more on this rather technical subject here. On our last day in the island we visited the sulphur springs at Hokoto near Taipeh, where a number of small springs burst out of a barren hillside accompanied by strong jets of steam. The valley below is cultivated with pineapples, and contains a large plantation of young camphor trees. Here there were a number of white lilies in flower growing wild, many having six or seven flowers on a stem. On our last evening we gave a very successful dinner at the hotel to some of the Japanese who had been so friendly to us; the American and British Consuls were present, and we had a very pleasant evening.

On April 4th, we went by rail to Keelung, the principal port and naval station at the north end of the island, and embarked on a fine large Japanese mail steamer which goes once a week to Japan. The boat was well found, with excellent food in European style, though we were the only European passengers. When we got to sea we met a strong north-east wind, with cold cloudy weather for two days. On the 7th we arrived at Moji, a large seaport and coaling station in the north-west end of Kiushu. Here we were met by Mr. Mochizuki, my old companion in 1904, who had been sent to show us something of the forests of Kiushu, which I did not then see. We went by rail about half an hour south through a broken hilly country, leaving the main line at Kashii; we then went three miles to Doi. No jinrikshas could be got, so we walked for about two hours through a pretty country cultivated with rape, beans and winter barley, to the foot of a mountain called Tashi-bani-yama, where there are the remains of what I believe to be virgin forest, now under Government protection. As it was five o'clock and too late to see this forest, we got leave to sleep in a farmhouse at the foot of the mountain. The owner, though quite unprepared to receive guests, made us very comfortable, gave us a very fair dinner and quite good beds. The day had been fine

and sunny but the air fresh, like a June day in England, but soon after going out at seven next day it began to drizzle and turned into a regular wet day.

The forest was composed mainly of very old camphor trees with large spreading limbs, and an undergrowth of bamboo, Aucuba and herbaceous plants, among which I noticed an *Alpinia* with scarlet seeds, which afterwards proved to be *Alpinia japonica*. A fine *Arisæma* was in flower, with numbers of the tall stems of *Lilium cordifolium* with seed pods of last year, *Polygonatum*, violets, and a *Vaccinium* with white berries. *Camellias* and *Magnolia Kobus* were both in flower, *Machilus Thunbergii* and *Cephalotaxus* occurred sparingly. In the interior of the forest we found a small camphor still near a tree which has been photographed as an illustration for a book published by the Forestry Department as the largest wild tree of the species. It had a double trunk about 30 feet in girth, and may have been 100 feet high. It must be very old, but it seems uncertain whether these trees are the remains of a natural forest or were planted centuries ago. *Pinus Thunbergi* is the only conifer common in this district, where it attains a large size. *Juniperus rigida* was common on the drier hillsides, and the wax tree *Rhus succedanea*, oranges and cherries were cultivated trees common here.

We walked back to the station in the rain and after lunch were met by a local forester, who took us to Umi, where there is a very old temple called Umihachiman, supposed to have been built about A.D. 100 to commemorate the birth of a son and heir to Queen Bingo, a very celebrated person in Japanese history.

In the grounds of this temple are some camphor trees of extraordinary age, which the chief priest, Mr. Aoki, assured us were older than the temple itself, and which are the finest trees of their kind that I saw. The biggest has a trunk 42 feet in girth, which seems sound, though its upper branches are dying back. The spread of the branches is about 50 by 30 yards, and the roots at the ground are thirty paces round. The other tree looks older, as a large part of its trunk is decayed and hollow, but new sound wood is growing over the decayed part, as happens in old yew or chestnut trees. On one side is an immense burry growth, and measuring round this the girth of the tree is about 50 feet. Another younger but very fine tree was about 100 by 30 feet. As it came on to rain hard, the chief priest entertained us with tea and cakes, until it was time to catch the train for Hakata, a large town on the east coast, where we slept in a good hotel.

On April 10th, we went by train to Kagoshima at the south of the island, a nine hours' journey through a beautiful country, especially the latter half of the journey where the line ascends the valley of the Kinnagawa river. On both sides were steep hills formerly covered with forest, which has been cut and replanted with *Cryptomeria* and other trees. After two hours we came out into a peculiar country where the hills were bare and open, except in the narrow valleys which were filled with evergreen forest like the sholas on the Nilgiri hills, of which this country somewhat reminded me. At a pass about 2,000 to 3,000 feet *Pinus Thunbergi* was thinly scattered and the large-flowered Anemone like our *Pulsatilla*, but

brownish-red in colour, was in flower. Camellias and a few Azaleas were the only other flowers I could distinguish from the railway. From this pass the line descended through remains of what had been evergreen forest, in which scattered trees of *Abies firma* remained conspicuous, to the flat cultivated country round the head of the bay on which Kagoshima stands. A more beautifully situated city in a more delightful climate can hardly be found anywhere; the great volcano on an island opposite reminded me of the Bay of Naples. We stayed at a really good and very clean Japanese hotel which had, happily for us, not yet attempted to adopt European style or cooking, and dined in the open air with the music of the frogs, most enjoyably.

On the next day we first visited an Industrial Exhibition, where I bought some of the pretty Satsuma china-ware made in the district, and some wooden articles made from the beautifully veined and figured wood of the ancient *Cryptomeria* trees found on the Island of Yakushima thirty miles to the south. *Yakushima suqi* is celebrated as the finest wood in Japan for picture-frames, and many small articles which the Japanese make so cleverly, and for two planks cut from a very old tree of a rich reddish-pink colour, such as are only found in the virgin forest on this island, I had to pay the timber merchant, who before the eruption of 1914 had the best stock of this wood, no less than 102 yen (about £10). I also bought from him a very finely marbled burr of *Machilus Thunbergi* very like Amboyna wood, from which fine table-tops are made. At the Forestry Bureau we had lunch with the forest officers, who with Mr. Mochizuki's kind help arranged for Price to make a trip to the Liukiu islands; and for me to visit the forests on the volcano of Kirishima. We then went to the gardens of Prince Shimura in a lovely valley, a mile north of the city. These gardens are a good example of the old-fashioned nobleman's garden, full of stone lanterns, bronzes, and quaint ponds and tea houses, but I saw no flowers of special interest, except a pure white short-racemed wistaria,* which is called *Shirofugi*, and a large tree of *Podocarpus nageia*. Behind the garden was a grove of what I believe to be *Phyllostachys mitis*, a bamboo which is mainly grown for the edible quality of its young shoots, which, when properly cooked, are a most excellent vegetable, like asparagus with a nutty flavour. Bamboo shoots of other species are largely used for eating in China and at Singapore, and are also made into an admirable pickle. As we came back to the town a boat-race among the students of the college was being held in six-oared gigs, rowed with a very good stroke, and the lookers-on seemed as much excited over the race as a lot of English undergraduates.

In the public park on the hill behind the town I saw among a lot of old Camphor trees five specimens of *Podocarpus macrophylla*, *Actinodaphne laurifolia*, called *Kago-noki* by the Japanese, *Melia japonica*, 80 to 90 feet by 10 feet, *Quercus glauca* and other trees of South Japan. Then we went to a new Dendrological Institute where Professor Kawagoge, who has published a very interesting list of the plants of Yakushima, gave me a good photograph of the *Cycas revoluta* which is only found

* Since introduced under the name of *W. brachybotrys*, but known now as *W. venusta*.

wild on the coast on the east side of the gulf of Kagoshima, but which he thinks must have been introduced there from the Liukiu islands. Outside the gates I saw a fine tree of *Ilex rotunda*, a nearly deciduous species of holly, covered with red berries, which a little way off looked like flowers. The next day I saw Price off to Liukiu, and parted from him with much regret, as during the four months we had been together he had been a most agreeable and congenial companion. After staying some time in Liukiu he returned to Formosa, where he spent some months in botanical exploration. I then started with Mr. Takei for a station called Makisono one and a half hours north of Kagoshima, to visit the volcano of Kirishima. A comfortable chair with four bearers was ready at the station, on which I passed through a pretty hilly country more or less wooded with *Pinus Thunbergi*, evergreen oaks, camphor and other trees, and cultivated with bearded wheat, barley and rape.

At a village school which we passed, the children, who seemed clean, well-fed and clothed, were doing Swedish gymnastic exercises. In this district horses are more used than I have seen elsewhere in Japan, except in Hokkaido, both for carts and pack-saddles, but bulls are also employed for drawing small two-wheeled carts, with solid wooden wheels only one and a half to two feet in diameter.

At about two hours from the station we came to a large Government Tree Nursery, where large quantities of *Cryptomeria*, *Cupressus obtusa*, Camphor trees and oaks were raised in a fine rich volcanic soil. At this elevation, about 1,000 feet, I was told that the temperature in February—the coldest month—might fall to about 22° Fahr., which did not injure the camphor seedlings, and the rainfall is sixty to seventy inches.

On leaving this place we began to ascend to an open country covered with coarse grass, which is burnt annually to improve the pasture, and here we found a large Government Horse Breeding Farm called Makizono, under the direction of a Japanese gentleman, Mr. Nakanishi, who spoke English, and showed me his imported English thoroughbred stallion about sixteen hands high, which I thought too big and leggy to suit the mares of the country. A half-bred stallion bred from one of them had the same character as the sire. At this farm they had a lot of land ploughed and sown with oats, and a selection of English agricultural implements which I thought too heavy for the soil and the cattle which would draw them.

It seems rather the custom of the Japanese Government here, as in Formosa, to start these enterprises with foreign stock, without much regard to their suitability to the country. Japanese do not, as a rule, seem to have much natural aptitude for stock breeding, for which their soil, climate and fodder are rarely suited, and I did not see in any part of Japan which I visited in 1904 any really good cattle, sheep or horses, or any country which seemed well adapted for producing them, as the grasses are too hard and wiry, and there is no really good grazing. Higher up we got into bits of nice forest in which *Acanthopanax ricinifolium* was coming into leaf, and I have proved that this tree, which attains a very large size in Japan, is quite hardy in England. After ascending another three or four miles we came to the hot baths which are beautifully situated

in a lovely valley at about 2,500 feet. The change of climate here from the warm soft air of Kagoshima was very marked, the thermometer in my room falling to 40° at night; and when I went out early next morning a sharp white frost was on the ground, though at ten o'clock it was all gone and a fine, sunny, warm day ensued.

The forest flora here was very interesting, and I can hardly imagine a better station for a botanist who wished to compare the vegetation of the extreme south of the Japanese Empire with that of Koyasan, or Nikko in the centre, or of Hokkaido in the far north. The mixture of temperate and sub-tropical types here is most interesting, as the following list of trees will show:

Abies firma up to 135 feet by 12 feet 10 inches, *Tsuga Sieboldii* up to 100 feet by 10 feet, and *Pinus densiflora*, very like our Scotch pine in habit and colour of the bark, were abundant, the pine attaining 80 to 90 feet by 7 to 9 feet.

Stuartia pseudocamellia is common in dense forest where it forms a tree up to 70 feet by 9 feet, and has a very handsome smooth red or orange-brown bark, which when old becomes mottled with grey.

Magnolia hypoleuca, about 70 feet high, had no leaves or flowers out as yet.

Daphniphyllum macropodum, a small tree with handsome leaves.

Pasania is the largest tree here except *Abies firma*, and often stands alone in land which has been burnt over.

Torreya nucifera (*Kaya*), with the habit of *T. californica*, was common here, but I saw no large trees. I found many small seedlings, but have not been able to cultivate the tree in England.

[Note.—Mr. W. R. Price has very kindly read and revised the account of the journey which he made in company with Mr. Elwes.]

CHAPTER XIX

NEPAL, 1913-1914

NEPAL is unique in this respect, that it remains a solitary instance in the world of a country which is from political reasons alone inaccessible to Europeans. For though during nearly a century our relations with its rulers have been perfectly friendly, and latterly even cordial, and though its present ruler is a man of European culture, speaking perfect English and understanding English customs, politics and civilisation in a way that few Oriental rulers do, he has rigidly adhered to the policy instituted by the all-powerful minister, Jung Bahadur, and has maintained a system of government which may best be described as a paternal despotism founded on the religion and customs of his people.

Though our relations with the Nepalese Government were not at first so uniformly friendly as they have been ever since the Indian Mutiny, when Jung Bahadur came to our assistance with his army, yet we have learnt that it is possible to do what has never been done by any other European Government, to live as neighbours on a frontier of over five hundred miles without any friction or trouble with an Oriental nation distinguished for the bravery and patriotism of its people.

I will refer those who wish to know more of the country to the *Life of Bryan Hodgson* (1896), who resided in Nepal as British Resident for many years, and who was the first to make known to science a great number of its animals and birds, or to the *Imperial Gazetteer of India*, vol. xix. (1908).

We arrived at Goruckpur in the United Provinces on February 6th, and met Colonel Manners Smith, the British Resident, who had kindly invited us to join him in camp at Bikhna Thori on the Nepal frontier, to see a Kheddah which had been arranged to take place near the place where King George had such grand tiger-shooting when he was in India for the Coronation. We arrived by rail and rode up to a camp in the low outer range of hills which enclose a great flat and in places marshy valley, a little higher than the Terai.

The usual Nepalese system of catching elephants differs from that adopted in other parts of India, and is much more dangerous both to the pursuers and to the pursued. It consists of driving the wild elephants into a valley where they can be surrounded, and then, after separating those which it is intended to catch from the herd, overpowering them by special fighting elephants and tying them up separately. In these fights many of the elephants are injured and fatal accidents to the men employed are not uncommon.

The next day we rode on to the large camp which had been formed for the men employed in the elephant-catching operations on the banks of a river, and found that a considerable number of wild elephants had already been surrounded in a forest about four miles in circumference, bounded on the south by the outer range of hills, on the west by a river whose bed was now partly dry and open and partly covered by grass

and reeds high enough to conceal elephants. The force employed to effect this surround consisted of two regiments of Nepalese soldiers commanded by the General-in-Chief of the Nepalese army. But on this occasion the Nepalese Government had determined to try the system of Kheddahs usually adopted in Assam and Southern India by the Indian Government, and had obtained the services of Mr. Armstrong, of the Bengal Police, and of some of the skilled elephant-catchers formerly employed by the Government Kheddah department at Dacca, which has now been disbanded. After the wild elephants, about thirty in number, had been surrounded, a line of guards was immediately stationed at posts fifteen to twenty yards apart all round the forest. At each of these posts three soldiers were on guard, who built themselves grass huts and kept fires burning all night to keep the wild elephants from breaking out. Our camp was on the low banks of a river overlooking the scene of operations and close behind the guard line.

The first thing to do was to select a position for and build a stockade into which the elephants could be driven, and here the old Jemadar from Dacca, a veteran of seventy years who had spent his life in this work, was the best adviser. He insisted on going alone on foot into the ring where tigers and rhinoceri were known to be at large with the wild herd in order to choose the most suitable place. For long experience has shown that wild elephants cannot be driven like cattle, and it was evident, from the frequent attempts which they made all night to break out in a particular direction, where was the best place to build the stockade. This took three days' hard work, as a large number of strong posts fifteen feet long by eight or ten inches diameter had to be fixed in the ground and supported by struts and crossbars strong enough to resist the pressure of the herd when driven in. The stockade was oblong, about fifteen by twenty yards, with a falling gate on one side suspended by ropes which are cut to let it drop. From the entrance a narrow lane of strong posts extended for 200 yards, gradually widening into two wings which opened out to twenty yards wide, and were extended by a line of cloths hung on poles to form a lead into the mouth of the alley. The walls of the stockade and the lane leading to it were covered by grass and branches, so that the elephants might not suspect danger too soon.

During the four nights that we were in camp waiting for the stockade to be built, there were constant alarms at various points on the line, as at night the wild herd, after drinking in the river where we could often see their backs and hear their trumpeting and screams from our tents, made efforts to find a weak spot in the guard line. On the second night a wild tusker supposed to be a rogue broke into the surrounded area from the outside and made the enclosed herd very uneasy. This tusker was very bold, and one night just after dinner he came down and stood within twenty yards of the fires, where a crowd of excited men were yelling and firing blank charges in his face, and we quite expected that he would attack and break out. But though we saw him quite close in the moonlight he eventually retired and the camp became quiet again.

On February 12th, after several alarms in the course of the night, which must have been a trying and anxious one for the guards, who had now been

for four consecutive days on duty, Mr. Armstrong announced that all was ready, and that about eleven o'clock, when the elephants were generally quietest, the drive would take place. Two platforms had been erected above the stockade, into which we climbed, and the driving party under the command of Mr. Armstrong and the old Jemadar were mustered. The Nepalese were selected from the most experienced jungle men, and between every two of them one of the Dacca men accustomed to this work was placed. Absolute silence was ordered when the party marched off in two lines which spread out from the stockade and swept the whole of the forest within the guard line, and, when the leaders met on the far side perhaps a mile away from the stockade, gradually closed in. After waiting an hour or so we heard a great noise accompanied by many shots from the guard line, which told us that the elephants were on the move, and the noise came nearer and nearer till we thought that the herd must be within the wings of the stockade. But after a time the noise died down and for an hour nothing more was heard. The same thing happened again, and at last Mr. Armstrong came back to the stockade very hot from his exertions and told us that the Nepalese drivers were so excited and keen that he could not keep them in order, and that on the first occasion the elephants were on the point of entering the wings but were so frightened by the noise that they broke back. After a consultation it was decided, on the advice of the Jemadar, to move the cloth screens to another position where the grass was thicker, and wait a bit before trying another drive. This was done, and about 4 p.m. a final and successful effort was made. The elephants came on within the screens, and then Armstrong and his men lit grass fires behind them and, by dint of firing and yelling, got them on the move towards the alley into which an old cow first came rushing down. The others followed her, and, as soon as they were all within the wider part of the alley, the crowd of men yelling and firing rushed them forward in a long line. We could only see their backs as they came down the alley one after another and entered the stockade with a rush. The rope which held up the gate was cut a little too soon, shutting out one or two of the hindmost elephants, but these were determined to follow their companions, and pushed their way through the gate, which was so hung as to push inwards. The whole herd was then inside, and until it was dark they continued to go round and round in a dense crowd, whilst the men who surrounded the stockade prodded their trunks with spears or fired blank cartridges in their faces when any of the larger ones tried to force their way through. It was very curious to see the way in which the youngest elephants, of which there were three only a few months old, managed to save themselves from being trodden down by keeping between their mothers' forelegs, and the care which the dams took to protect them. As it was then too late to begin to tie up the animals, we left the stockade at dark to the care of the guards, who had now left their posts and come to the stockade.

Next morning we returned to see the process of roping and leading out the elephants. But though several of the finest and strongest tame ones were brought into the enclosure, the mahouts seemed unused to the work they now had to do in such a dense crowd of elephants. There

was not room for the noosers to go in on foot, and the constant movement of the crowd surging round and round made it very difficult to get nooses on their feet from the outside. This work requires experience, which the Nepalese had not had. But though all the mahouts had spears with which to prick the trunks of any wild ones which might attempt to touch them, I never saw one offer to do so. Many of the elephants now seemed very tired and thirsty, as they well might be after such days and nights as they had endured, and we never thought that the young ones would have survived. But though it took three days before the whole thirty-three elephants were finally tied up and pulled out of the enclosure, not one was seriously hurt, though several of the oldest were released as not worth the trouble of training.

Ten days later we arrived at Raxaul, a frontier station a little to the east of Bikhathori, where the Resident has a bungalow, and where he had made arrangements for our journey to Khatmandu. The first stage, of thirty miles through the level plain of the Terai, we made in dhoolies carried by bearers, and at daylight we found ourselves in the sal forest near Chuna, where the outer range of hills begins. Here we breakfasted and went on horseback over a low rocky sandstone range in which *Pinus longifolia* is a notable tree. Passing through a narrow gorge where in many places the dry river-bed is the only road, sometimes impassable in the rainy season, we crossed an open valley where the cotton trees, *Bombax malabaricum*, were of great size. We then followed the banks of a river along a road practicable for bullock-carts and wooded with tropical trees, but not nearly so luxuriant or so varied in its vegetation as a valley in Sikkim of similar elevation would have been. The large white flowers of a shrubby climber called *Beaumontia* were at this season the only striking ones I saw, and along the road there were but few birds to be seen as numbers of bullock-carts were constantly passing.

In the evening we reached Bhimpedi, a large village at the foot of a steep range of mountains, over which the path is quite impracticable except for coolies, and here we were met by a party of men with dhoolies and torches, who surpassed all the bearers I have ever seen in their power. For to carry a man of my weight in the dark up a winding path on a gradient of thirty to forty degrees and covered with rolling stones was a task I should hardly have thought possible till I saw it done, and they only stopped for a few moments to relieve each other on an ascent of over 2,000 feet. Near the top of this mountain Colonel Manners Smith has another bungalow at Sisagarhi, between 5,000 and 6,000 feet above the sea, where we found dinner and beds ready.

Next morning we had a fine view over the outer hills, and found rhododendrons in flower and evergreen oaks all round us on the dry grassy hillsides, reminding me far more of Chakrata in the North-West Himalaya than of anything in Sikkim. Next morning we went on in the same dhoolies, and after crossing the ridge at about 7,000 feet descended by a very steep rocky path through a fairly thick forest on the north side, where, though epiphytes, climbing plants and ferns were numerous, the whole aspect of the vegetation was utterly unlike the forest of Sikkim. At the foot of this mountain we found ponies kindly sent by the Maharajah; we turned

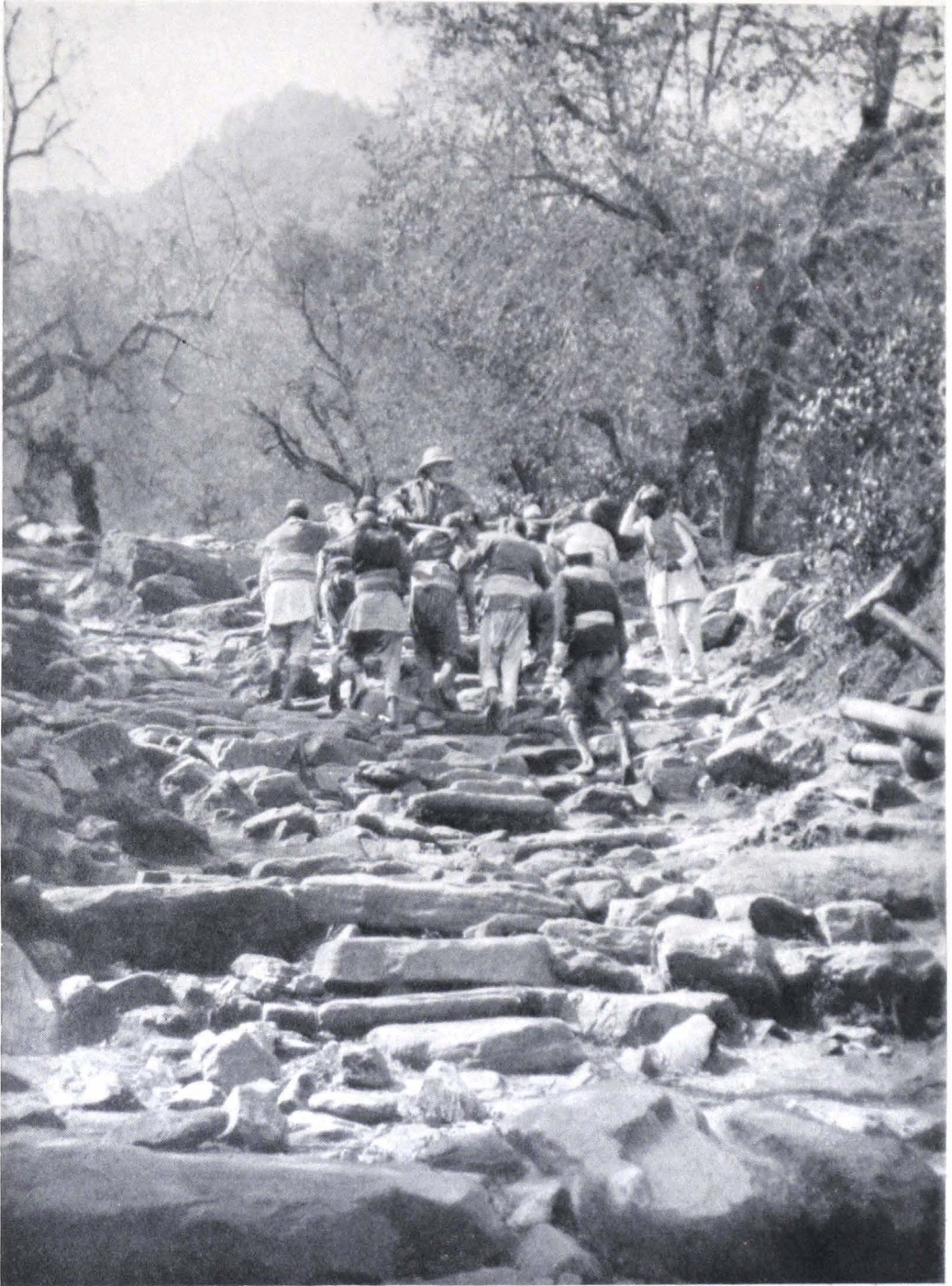


FIG. 13.—THE HIGH ROAD TO KHATMANDU, NEPAL.

north-west up an open dry valley cultivated in places with wheat and mustard in small terraced and irrigated fields, and passed over bare grassy downs on which a plantation of *Pinus excelsa* had been made. The villagers' houses were built of brick and roofed with tiles, mostly two-storied, the upper floor being inhabited by the people and the lower used for cattle and stores. A small primrose was one of the first signs of spring. Crowds of pilgrims on their way from the plains of India to a religious festival at Khatmandu were on the road, nearly all walking, though a few were carried on coolies' backs. Among them were large numbers of women who caused my companion, new to India, to remark that this was the only country he had ever seen where it was possible to pass thousands of women without a smile on the face of one of them.

In the afternoon we ascended another steep ridge through forest mainly of evergreen oak, and at the top had our first view of the great open valley of Khatmandu, with the snowy Himalaya mountains in the background. The great open valley, terraced and cultivated wherever possible, with the city of Khatmandu in the middle of it, and bare mountains covered with brown grass and scrub on the south exposure, formed a scene which, though beautiful in itself, was so unlike and so very inferior in grandeur to the scenery of Sikkim that I could hardly believe I was only two hundred miles to the west of that enchanting country. Pilgrims and coolies carrying immense burdens of ironware and European goods on the way to the valley crowded the path, whilst those returning were mostly laden with coarse dirty wool from the interior. The last descent was so steep and difficult that a horse-dealer bringing horses from Kabul had some difficulty in getting them down. At the bottom we found a well-appointed pair-horse carriage waiting to take us to the Residency, where we were hospitably received by Colonel Manners Smith.

After many years of travel in Asiatic countries, including Asia Minor, Siberia, Japan, Formosa, China, Java and the Malay Peninsula, and an intimate knowledge of Sikkim and other parts of India dating back to 1870, I formed the opinion that the government of Nepal is a form of government well suited to the ideas of Oriental peoples. Though the rulers of Nepal have rigidly kept their country free from European education and commerce, and have strictly adhered to the tenets of their own religion and customs, yet the facts that the people appear healthy, happy and not over-taxed, that the standing army is one of which any Oriental State may be proud, and that law and order prevail to an extent which has kept the relations of their people and ours peaceable and friendly for a very long period over a very long frontier, prove that such a form of government has advantages which modern reformers cannot overlook. And when the internal condition of Nepal is compared with what it was in Brian Hodgson's time, when bloody quarrels among the ruling chiefs and members of the Royal Family were common, one must admit that for a country where the land suitable for cultivation is insufficient for the maintenance of an increasing population, and where the natural products offer few openings for trade or manufactures, Nepal is in many respects fortunate. The fact that we are able to recruit and maintain no less than twenty battalions of the best native infantry in India entirely drawn from

its population, and that the labourers employed in the large and important tea industry of British Sikkim have been almost entirely supplied by Nepalese immigration, proves the importance to British India of our friendly relations with Nepal.

The Maharajah has done much to improve the native breeds of cattle and has imported from India and Europe bulls of various breeds with this object. He is also trying to improve the sheep with rams from my own flock. The native sheep are a large coarse-woolled breed, similar to those kept by the Nepalese on the frontiers of Sikkim, and commonly brought to Darjeeling for mutton, and are able to endure the cold and wet climate of the higher ranges better probably than the improved breeds in England would do. It is not a country generally suited to sheep, though goats are numerous. In Nepal most of the cultivation is done as in Sikkim by hand labour, and irrigation is general wherever water can be brought. In the dry weather it was impossible to judge of the crops, but the rice and maize stubble did not indicate rich good soil as in Sikkim, and I believe that the area of land available for cultivation at healthy elevations is in most parts of the country too small to allow much increase in the population, who are poor and ill-paid as compared with those who emigrate in increasing numbers to Sikkim and the frontier districts of Assam.

The forests of Nepal do not seem to have received from the Government anything like the attention they deserve, as the growing scarcity of timber in Bengal must make them valuable in the future if they were properly protected. A partial survey has recently been made by a native officer lent by the Indian Forest Department, but I could not hear that anything had as yet been done to bring the forests under systematic management. Neither tea nor camphor, both of which would no doubt grow as well as they do in Sikkim, are grown, though I believe that camphor might become a valuable and profitable product.

Of the natural history of Nepal I can say little from personal observation, because we were not able to visit the mountains of the interior, where are found a great variety of birds and animals which have been described many years ago by Hodgson.

In the Maharajah's palace, which is a large modern building in European style, I especially admired the very delicate carving which is done by native carvers in a wood known as *Dar* (*Boehmeria regulosa*). This is a very close-grained red wood easy to work, and found along the lower hills, but not usually attaining a large size. The immense quantity of fine wood carving with which the older houses of Khatmandu are adorned shows the talent of the Newars in this branch of art, but this seems to be a dying if not a dead industry, as there are now no professional carvers, except those employed by the Maharajah, and no shops where such beautiful work can be procured. The same seems to be true of the metal workers in copper, brass and silver, who now work only to order, and I cannot help thinking that these arts might be encouraged by making an outlet for their work in British India, where there is now a good demand among tourists and residents for the fine metal work brought from Lhasa, much of which is similar in character to that of Nepal.

To most travellers the buildings, temples and ancient monuments of

the towns of Khatmandu and Bhitgaon are probably the greatest attraction in Nepal, as their architecture is unique. The special interest of these wonderful buildings is that they illustrate the art of the Newars as applied to their religion, which has been described as a coalition of Brahmanism and Buddhism. In the words of Fergusson, Nepal presents a complete microcosm of India as it was in the seventh century when the Buddhist and Brahmanical religions flourished side by side, and as Nepal has remained quite uninfluenced either in its religion or in its art by the Mahomedan conquest of India, its ancient buildings are unique in their strongly marked Chinese character. All this is due to the Newars, the original inhabitants of the valley of Nepal, and from the time when the warlike race of Gurkhas coming from the west in 1769 subdued the more peaceful and artistic Newars, their art began to languish. Such beautiful woodwork can be seen nowhere else, and unless steps are taken to protect some of the best of it from the influence of the weather, it is to be feared that its decay is only a question of time.

CHAPTER XX

THE TREES OF GREAT BRITAIN

As this work has been the most interesting to myself, and, I venture to think, the most complete and useful of all the work I ever did, some account of it may have interest to those who have a taste for Arboriculture and Forestry, a branch of Science which was until recently hardly recognised in England. When I first took it up there was not a single Fellow of the Royal Society who represented Forestry, and though many English landowners devoted much time and money to improving and beautifying their estates by planting, there was no work in existence more recent than Loudon's, published in 1838, which gave a complete account of the trees which in our islands are so rich and varied.

I had planted a considerable area of larch on land which had gone out of cultivation during the great agricultural depression which commenced in 1879, but these plantations had suffered so severely from the diseases which became general after the disastrous seasons of 1879 to 1881 that I had almost determined to invest no more capital in what seemed such a disastrous enterprise. But the drier and warmer summers which occurred between 1887 and 1900 convinced me that with better knowledge of trees something might still be done.

In October, 1900, I was staying with the late Hon. Charles Ellis at Frensham Hall near Haslemere, a district in which trees generally, and conifers especially, thrive better than in most parts of England, and then began to collect the seeds which ripened better than usual in that year on many exotic trees which rarely produce fertile seed in England. My idea then was to find out by experiment whether the seeds ripened in England would produce trees more or less vigorous and healthy than those imported from abroad, which then, and until 1915, were almost the only source on which our nurserymen depended for their supply of tree seeds.

At several places which I visited in that autumn, among which Tortworth was by far the most prolific, and from numerous friends living in all parts of the country, I got together home-grown seed of nearly a hundred and fifty species and varieties of trees; and when I saw that this experiment was likely to lead to a considerable increase in our knowledge which might be useful to many landowners, who were as generally ignorant of the natural history of trees as I was myself, I conceived the idea of commencing a work on the subject. I was fortunate in having the support and assistance of several friends who had always been interested in trees and who had planted exotic trees for a long period, among whom the Earl of Ducie, the late Sir Charles Strickland and Sir Hugh Beevor were prominent; and I had sufficient knowledge of horticulture and agriculture to give me a fair start in an undertaking which grew in interest and importance as my knowledge of its difficulties increased.

It seemed to me that though Loudon's book was, at the time it was published, incomparable in its minute detail, yet it was too much a compilation, too much based on published and written reports, often inac-

curate when printed and now out of date; and that in order to write with real authority it was necessary to begin *de novo*, by following up the life-history of every tree which had been cultivated in this country from the seed to the stage at which it was converted or convertible into timber. Another point which soon became evident was that the nomenclature of trees was often confused and incorrect, more especially in nurserymen's catalogues and in the timber trade, and that an immense deal of research in herbaria, arboretums and libraries, both at home and abroad, would be necessary to come up to the high standard which I set up for myself.

As my time was too much occupied with various duties, interests and pleasures to devote it entirely to a new study, I looked about for a colleague who would help me; and at the suggestion of Sir W. Thiselton Dyer, then Director of Kew Gardens, I made a proposal to Dr. Augustine Henry, who was living at Kew and had recently passed through the Forestry School at Nancy, after returning from China, where he had lived for twenty years and collected plants with great energy and success. I here wish to say that, though joint authorship is not always successful, yet I am firmly convinced that when two men are able to work together continuously on as pleasant a footing as we worked together for twelve years, or as Mr. F. D. Godman worked during his whole life with my lamented friend Osbert Salvin, an immense advantage is gained in the results of the work. Because no one is so good a critic of the deficiencies, errors and omissions of an author as one who is himself an authority on the same subject, and as I should have been quite unable myself to give the immense labour which Henry gave to the study of trees in the unrivalled herbarium, library and arboretum of Kew, and to elaborate the botanical descriptions as he did, we agreed that the work should be divided into two parts for which each author should be personally responsible, and which, though subject to the careful revision, additions and suggestions of the other, should be separately signed when printed with the initials of the man who mainly wrote it. This plan we carried out to the end, with what success I leave others to judge; and I can only say that though we did not always see things eye to eye, or agree about minor details, we never had a single serious case of difference during the progress of the work.

My previous experience in publishing privately an important work on the Lilies had also proved to me that where an author is prepared and able to finance a work of this size and cost himself, he will gain in many ways by dispensing with a publisher. No one can really tell when he begins a work of this magnitude what it will grow to, what it will cost, or how long it will take. If it is all written out ready for publication as ordinary books are written, the loss of knowledge will be immense, because one learns as one goes and fresh sources of knowledge are constantly being opened up in all parts of the world, by the fact of one's own researches bringing one into correspondence with many people whom one would not otherwise know till it was too late to utilise and incorporate their knowledge. One of the criticisms which was made by the reviewers of the early volumes of our work was the lack of so-called order. That was true as far as botanical sequence went, but as the arrangement is purely

a matter of convenience, genera and species could be taken up in whatever order our knowledge best enabled us to deal with them. I am sure that if we had not so acted and had tried to do the really difficult genera at the beginning, the value of the book would have been vastly diminished, whilst such a full index as was published with the last part makes the reader who wishes to find a particular tree quite independent of the order in which they were published.

In publishing work of this magnitude privately, a great deal depends on the printer, and I was fortunate enough to fall into the hands of Messrs. R. and R. Clark of Edinburgh, with whom I had the pleasantest relations throughout, and who took an unusual amount of pains in advising me about various little details, and were most generous with their type, which enabled me to keep proofs standing for a much longer time than usual, and then revise, add and polish a proof in a way which I can never do so well in manuscript. Their compositors and reader were extremely efficient, and as anyone knows who has had experience of printing a large number of references to scientific works in many languages, and making a great number of footnotes fit in their proper pages, this sort of work cannot be entrusted to any but highly skilled men. I was much indebted on one occasion to a Highlander in Messrs. Clark's employ who was a Gaelic scholar, and who called my attention to what he believed to be a mistake in the Gaelic name of a tree. I replied that we had given it on the authority of a distinguished Gaelic scholar in Ireland. He maintained his objection that the name was not an original Gaelic word but one that had probably been coined for a tree not truly indigenous in either Scotland or Ireland. I suggested that the Professor of Gaelic in the University of Edinburgh would be the best person to consult on the matter. So we went off then and there to see him, and after consulting the best dictionaries the professor supported the opinion of the printer, which to my mind is the best evidence that the tree is introduced and not native (cf. *Trees of Great Britain*, vol. i., p. 12, note 1).

When, after four years' work, we had at last got Volume I. ready to publish, my friend Sir Joseph Hooker, then in his ninetieth year, asked me to show him some of the proofs, and I took down the first article in print to his house at Sunningdale. After lunch he pushed up his spectacles on to his forehead and read through the twenty-eight pages without a remark. When he had finished he congratulated me and said that he should not have thought it possible to say so much that was new and interesting to him about so common and well known a tree as the Beech. He called my attention to the misspelling of Lyell's name in a footnote, and also to a supposed error in the county to which I had assigned a well-known place, but we found on referring to a large-scale map that the place in question was on the border of two counties and that I was correct in this case. I mention this only to show the remarkable keenness of intellect which Sir Joseph retained almost to the end of one of the most active and industrious lives on record.

Proof reading is a work which requires the very closest attention, and though I am told that the errata in our book are unusually few and unimportant, yet however many times one goes over the proofs, it is almost

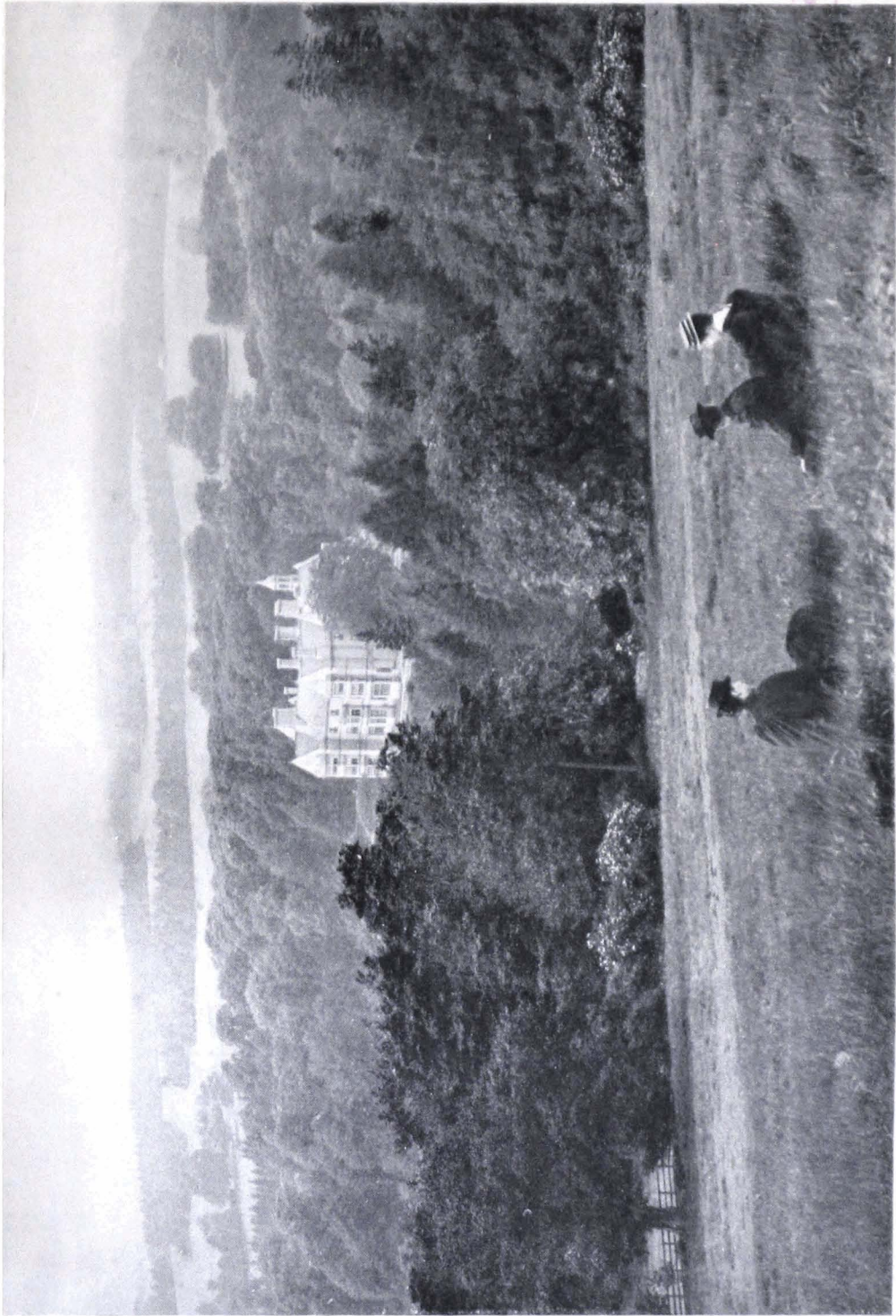


FIG. 14.—COLESBORNE FROM THE HILL.

CLAYTON

impossible to avoid them entirely in work of this character. I am greatly indebted to Sir William Dyer, who was good enough to read all the proofs after the first volume, and to suggest many little corrections which his exceptional knowledge of literature, persons and places detected as desirable. Another gentleman who was previously unknown to me, Mr. Palmer, was also extremely helpful in correcting my proofs, and detected the misplacement of a letter, a comma or a hyphen, in a manner which the sharpest-sighted press reader would envy.

The pleasantest part of my own work was hunting up, and personally visiting, every tree which had been recorded in print of exceptional size, interest or rarity; for I found it unsafe to accept any identifications or measurements without verifying them, and, though I was greatly assisted by others in the discovery of trees worthy of record in a few counties, I found that the remarkable trees of England generally had been most insufficiently and often inaccurately described. Though there is hardly a county in England in which I could not find an ornithologist or an entomologist who knew his own district like his pocket, and could guide a stranger to see anything of interest in his own line of study, I found whole groups of counties where the trees had never been examined by anyone, not even by the local botanists to whom one would have thought they would specially appeal. Worcestershire, Norfolk and Perthshire are perhaps the only counties which had been well investigated, and though I travelled many thousands of miles by rail, and wore out two motor-cars, in visiting over six hundred places in Great Britain in order to describe, measure and photograph the most interesting trees which I could hear of, I have probably overlooked in the suburban counties, and perhaps in Wales and the North of England, a few which ought to have been mentioned. I must say that during the ten years which were occupied in this delightful work I received a large amount of help and guidance from the owners, agents and foresters alike, and formed many acquaintances and some friendships with men I should otherwise never have met. With one single exception I was well received everywhere, though in a great majority of cases I was able to get little information from those on the spot as to the age and history of rare and important trees.

In many places properties had changed owners; in others no records had been kept of the dates of planting. Many of the trees recorded by Strutt, Loudon and others had died or disappeared, and in other cases the previously published measurements were grossly exaggerated or incorrect, and this applies specially to a publication by the Highland Society in 1860 on the rare and remarkable trees of Scotland.

Anyone who examines carefully the photographs which I have published of selected trees will be struck by two facts. One is that the finest individual specimens are not to be found as one would expect in a few places, where the soil and climate is especially favourable to their development, and where past and present owners have planted with exceptional care and knowledge, but are scattered over almost the whole of Great Britain and Ireland. This is especially true of some of the deciduous trees of the United States, which were much more general in former times

than since the taste for conifers sprang up in the thirties and forties of the last century. Of a few of them such as the Tupelo tree, the Persimmon, the Sassafras, only one or two have attained large dimensions. Many of the Japanese trees which in their native forest attain an immense size, though quite capable of enduring the most severe frosts which occur from time to time in this country, seem quite unable to develop into timber trees here. But the recent introductions from Western China which we owe mainly to Mr. Wilson's indefatigable labours, though too recently planted to enable one to judge of their eventual success, seem on the other hand to be quite at home and better adapted to our soil and climate than their nearest Japanese allies.

The other point that my pictures bring out clearly is the great difficulty of getting really fine photographs of trees unless their position is favourable and the weather quite perfect. I spared no pains or expense in procuring the services of the best photographers I could find, as I soon realised that I had neither the technical ability nor time to do my own photography. In my earlier journeys I used to take a professional artist with me, Mr. Wallis of Kew and Mr. Foster of Burford being my best helpers, but the weather and the lack of time to wait for a favourable light often made their negatives far from perfect; and I found by degrees that it was better to visit the places first, select those trees most worthy of illustration, note the position and time of day from which the best view could be obtained, and leave the work to the best local photographer who could select the most favourable weather for his visit.

In some cases such as the Queen Beech at Ashridge, though several attempts were made by skilful photographers, the best negative fails to do justice to the subject, as will be seen by comparing the plate No. 3 with the coloured frontispiece drawn by an artist fifty years previously. Such artists are now very rarely found, and it is very curious how few even among the best draughtsmen seem capable of putting on paper the outlines of trees in a manner which enables one to recognise what they are. Oaks, beeches, Scots pine and birch trees are about the only kinds which one often sees at all well reproduced in landscape, and yet it is astonishing how a person well acquainted with trees can recognise them at a distance by their outlines and general appearance.

When travelling in other countries I often regretted that I had not taken up photography seriously, for though in North America and Japan I spent a good deal of money in obtaining negatives of some of the most remarkable trees, I did not always get the negatives that I had paid for or they were unsuitable for reproduction. Thus though, when examined with a glass, there are many quite first-class pictures in our work, there are also a proportion which I would not have used if I could have got any better.

During the numerous journeys which I made in all parts of England I came across a great many interesting people and places, and saw a great many rural beauties which the ordinary tourist never dreams of. But perhaps what struck me most forcibly was the fact that not only on great estates whose owners for centuries have looked on their trees not as a source of income but as a heritage to be preserved and cherished, but

also in the homes of comparatively small squires, the love of trees is greater than in any other country I have visited. Traditions have grown up in many places which are not always supported by facts, but the truth of which one dared not question. I will mention one or two cases.

I was invited by the late Mr. Squarey, a land agent whose memory will long be cherished by his numerous clients and admirers in Wilts and the adjoining counties, to visit Wardour Castle, the residence of Lord Arundell of Wardour, the chief of a very ancient Catholic house, and in some ways typical rather of a French nobleman of the sixteenth century than of a modern British peer. He showed me the celebrated "Iron Tree" which grows close to the ruins of Wardour Castle, which was besieged, sacked and burned by the Parliamentary troops in 1643. He informed me, and he fully believed the truth of the family tradition, that this very remarkable tree had been brought from Maryland by Lord Baltimore about 1632, and had been cut down by the besiegers of the castle. He also said that the name of "Iron Tree" came with it from America, where the Hornbeam is known by that name. But whatever may have been the fate of the original "Iron Tree," it is certain that the one now standing which is figured on Plate 248 of our book is not an American tree at all, but a tree known as *Zelkova crenata*, a native of Transcaucasia and not introduced to Europe till 1760. This wonderful tree produces no seed, but suckers in abundance, of which Lord Arundell gave me two, one of which is now growing at Colesborne and the other at Tortworth Court.

Many of the traditions as to the age of trees, especially oaks and yew trees, are equally incorrect, and there is no doubt that many of these are not half as old as they look or are reputed to be. As in Japan, where anything so old that its history is unknown is commonly reputed to be a thousand years old, so it is with some trees in England, where I do not believe that any tree exists or ever has existed which is much more than half a thousand years old. It is true that some trees, of which the Sweet Chestnut and Yew are typical, and I believe also the Lime tree, will continue to push forth living growths from and around the stump or wreck of a tree which has long ago decayed, of which the Tortworth Chestnut is a good instance. But when once a tree becomes hollow it usually begins to decay fast, and several trees which looked sound and healthy when I first knew them only ten to fifteen years ago are now fast declining in vigour, whilst others, among them the great Elm in Magdalen Park, Oxford, which only a few years since was the largest tree in Great Britain, have been blown down or struck by lightning.

And it is a sad fact that the timber in many of our finest historic deer parks, unrivalled in Europe for size and beauty, is in many places declining in vigour, and decaying, whilst no young trees are growing up under conditions which will enable them to rival the giants of the past. Where shall we find in the next century such oaks as those around Powys Castle, in Bagots Park or in Kyre Park, and many others; such wonderful Yews as those in the Close Walks at Midhurst; such Beech trees as in Ashridge or Knole Parks; such Ash as in Cobham Park; or best of all such Elms unequalled and unrivalled for beauty in any other country as are found

in many parks and pleasure grounds in the counties watered by the Thames and Severn? If our book serves no other purpose than to put on record the trees of the past, and to show what England has produced and may produce again if the conditions allow it, it will have fulfilled the main object with which it was written. But I hope and believe that it also may save a great waste of public and private money caused by planting the wrong trees in the wrong places, and from depending on the often ignorant and self-interested advice of men who call themselves experts but really know very little of the subject. Such men are happily not so common as they were, but, though most tree planters will have to buy their experience by failures, I can only hope that they will not buy it so dearly as I have done.

But however numerous the failures may be, there is no doubt that tree planting in England has entered on a period of growing interest and activity, and that the knowledge which is now available, but which our ancestors had not got, may enable us to depend less on German nurserymen for their seed supplies, and less on foreign imports for our timber, and if this is so I shall believe that I have not lived in vain. My great regret is that the necessary cost of the book makes it beyond the means of many who would probably make more use of it than a good many subscribers who took it more for the interest of the illustrations than for the letterpress.

Notwithstanding the fact that I have not spent a shilling on advertising, or given away a single Press copy for review, I have been pleased and surprised to find that our book has much more than covered the expenses of its publication, and that instead of falling in value as is too often the case with costly illustrated works of this character, it is now nearly out of print and sells at auction for more than the subscription price. Another very satisfactory feature has been the almost total absence of bad debts. It is true that I never asked anyone to take it who did not really want it, and that my sole agent for its sale through booksellers at home and abroad has been the great house of Quaritch, yet it must always be a satisfaction to any author to know that he has given something to his subscribers which is worth as much as or more than it cost.

CHAPTER XXI

RURAL LIFE AND RURAL PROBLEMS

October 11th (1896). Hunting in the morning at Sapperton, which I hear has again been sold, at what price does not transpire. How seldom does a property like this remain long in the same hands when once the original family connection has gone. There is now not a single property of any size adjoining my own except Church and college property which has not been sold once, twice, three or even four times since I can remember, say in forty years. Fresh capital is constantly coming out of trade and into land. I have estimated that £800,000 at least, probably much more, has been so transferred from a profitable to an unprofitable business within a radius of eighty miles of my own house within the last twenty-five years. What do these investments now bring in? I should not like to estimate it at 1 per cent., but such is the inherent desire to possess land and the inherent love of country life and sport in England that there are always fresh people ready to embark on the business of landowning and farming. And after all the capital is sunk, it does not go out of the country as if it was sunk in Colorado mines, villas at Nice or gaming tables at Monte Carlo, or any of the thousand and one ways of spending one's money which now exist. The labourers, tradesmen and tax collectors of England have got it if the owners have lost it, and the country, instead of becoming a desert as it certainly would have done if it had lived on its own resources, remains smiling and outwardly prosperous.

Of the thousands of families who have struggled on and been finally beat by a combination of circumstances beyond their own control, and who have disappeared and been lost in the great crowd of unfortunates who hide their heads in our towns, what do our legislators think or seemingly care? "A lot of ignorant farmers," they have fought their fight as doggedly as ever soldier did, and been beaten by so-called Free Trade, and their places are now filled by a different class of men who in their turn will, many of them, fall as their predecessors have done. But the late owner of Sapperton, whatever his failings may have been, was, at least, a man who believed in the land and who spent and lost his all in the land on which he was bred, and who should have deserved better of his country than many of those who throw dirt on his class.

In the afternoon, cottage rent day. I always make a point of being present in person when cottage rents, which only come once a year, are paid. Whatever advantage there may be in having an agent to collect and go between an owner and his farm tenants, who are very well able to take care of themselves and will soon let you know it if your agent is, as they think, too hard on them, it is different with cottage tenants, who take this opportunity of asking for any little repairs or additions wanted to their houses. In this they are vastly less troublesome and difficult to satisfy than the middle classes. A new range in place of an open hearth, which has now almost disappeared in this district though wood-firing

is abundant and cheap, a coat of whitewash, a few tiles on the roof, or some tough timber to build a new pigsty or hovel, are usually about the extent of their requirements. As usual, my cottage tenants pay their rents cheerfully and punctually. The few exceptions are not the people who have lived their lives on the estate and will die there, but navvies and newcomers who earn higher wages and are often worse off than the old class of agricultural labourers, and who have come into cottages which are no longer wanted for men whose work on the land is gone.

The rents here run from two pounds for the smaller, older and more remote cottages to four pounds for the newer and better ones; a garden is always included and the rates are all paid by the occupiers. It is very unusual in this country and in most others, I believe, for cottage tenants to pay their own rates, but I introduced the system when the franchise was extended twelve years ago, and I think with the best results. Anyhow, there are fewer changes at Michaelmas in this parish than in almost any other about here, and though wages are low I believe that the people are far more comfortable than in Essex and other counties where the wages are very much higher and also more irregular.

What can be worse for a labourer's family than the annual or biennial move which takes place on many farms? For two or three days after Old Michaelmas-day the roads will be full of waggons moving labourers' furniture and goods from one farm to another, often only a few miles, but always with loss, damage and discomfort to the family and furniture, and often only because the farmer and labourer, soured by hard times, cannot or will not make up their little differences by a friendly word. I believe political agitation and the giving of votes to men who are often much too ignorant to understand what they are voting for has done more than anything else to bring about this want of the harmony between master and man which is essential to the well-doing of a farm.

Farmers are only human, and not angels as they ought to be, and what can be more galling to a farmer's feelings than to know that men whom he has known from boyhood, with whom he has never had an ill word, whose families he has helped in sickness, and whose carelessness of work, indifference to their employers' interests, and other little foibles, he has tried to bear with, will go and vote blindly for a man who, the employer rightly or wrongly believes, is the worst enemy of his interests and his class? What would a father think of his own children wilfully putting poison in his food? And yet this is the feeling that many farmers have about their men voting Radical. One of the best-hearted, most kindly and most liberal and successful farmers that I know gave up his business, as he told me, almost entirely on account of this feeling; and it has rankled deep in my own mind and, I fear, made me feel far less kindly to the men than I used to feel.

Anyhow, there are parishes notorious for their political virulence from which I would not hire a labourer willingly, and though I should be the last man to use any influence I may have towards a labourer about his vote, no one can blame me if I try to select the men with whom I have to live and work from those who do believe that what is good for me is good for them also; and from those who do not bring up their children to think

that an employer is a tyrant and a curse to the country as I am afraid the rising generation in some cases are taught to believe. Among my cottage tenants is a woman whose father recently died at the age of eighty—a deaf old man of the old school. He had lived sixty years and I believe never slept out of the cottage which my grandfather built for him when he married, and showed me a rent receipt sixty years old with pride. He was a woodman, and one of the sort who never wanted overlooking, and who did, when working by day work, as much or nearly as much as when working by piece work. How different this is from many of the men nowadays whose one idea is to do as little as can possibly pass muster, and when at piece work scamp it as much as their employer will stand! This constant struggle to get a fair day's work for a fair day's wage is one of the greatest curses, to my mind, of modern farming, but unpleasant as it is it seems to be a necessity of a business in which many operations daily occur which cannot be done by piece work. I must except shepherds, carters and cowmen from the class who have deteriorated, for though it is more and more difficult to get young men to take the places of the old ones, principally on account of the necessary Sunday work, the men who have charge of animals as a rule show as much and often more care for them than their masters. In the course of twenty-one years I have never once had to reprove or discharge a man or boy for cruelty to animals, and both carters and shepherds will take and even steal—though they, perhaps rightly, do not consider it theft—their master's corn if they do not think the allowance is large enough.

It is curious how rapidly the Cotswold dialect is disappearing among the people. Even in the parish of Withington, which used to be celebrated for its broad West Country speech, you hardly hear a man who now talks as old Richard Stallard and others did in the days of my youth. I can remember two or three good stories illustrative of this dialect. There was a clergyman living here, a brother of the late celebrated entomologist Woollaston, who used to come and stay here to collect beetles, and gave the village boys coppers to bring him in specimens. He was a thin, hungry-looking man in appearance, and the story goes that some of the boys were overheard as follows: "A wonder what old Oolaston does with thai bittles?" "Well, a dunnow, but a suppose a yeats em, for a looks as though a meal of vittles was a strainger to he."

Another is the letter of proposal written by a Withington swain to his intended, which ran as follows: "I Garge Perrot to thee Mary Ballinger. If thee be to me as I be to thee, name the day." This is probably the most laconic love-letter on record, but I believe is literally true.

* * * * *

October 14th (1896). Drove into Cirencester and on *via* Bibury to Sherborne to shoot partridges. From the Swan at Bibury, a village now well known from the work of my late friend Arthur Gibbs, I took a trap and was most ably driven by the buxom daughter of the innkeeper. The mill at Bibury is now closed and deserted like nearly all the country mills in this part of England, and I no longer know where to get a sack

of English wheat ground without admixture into a sack of honest English flour.

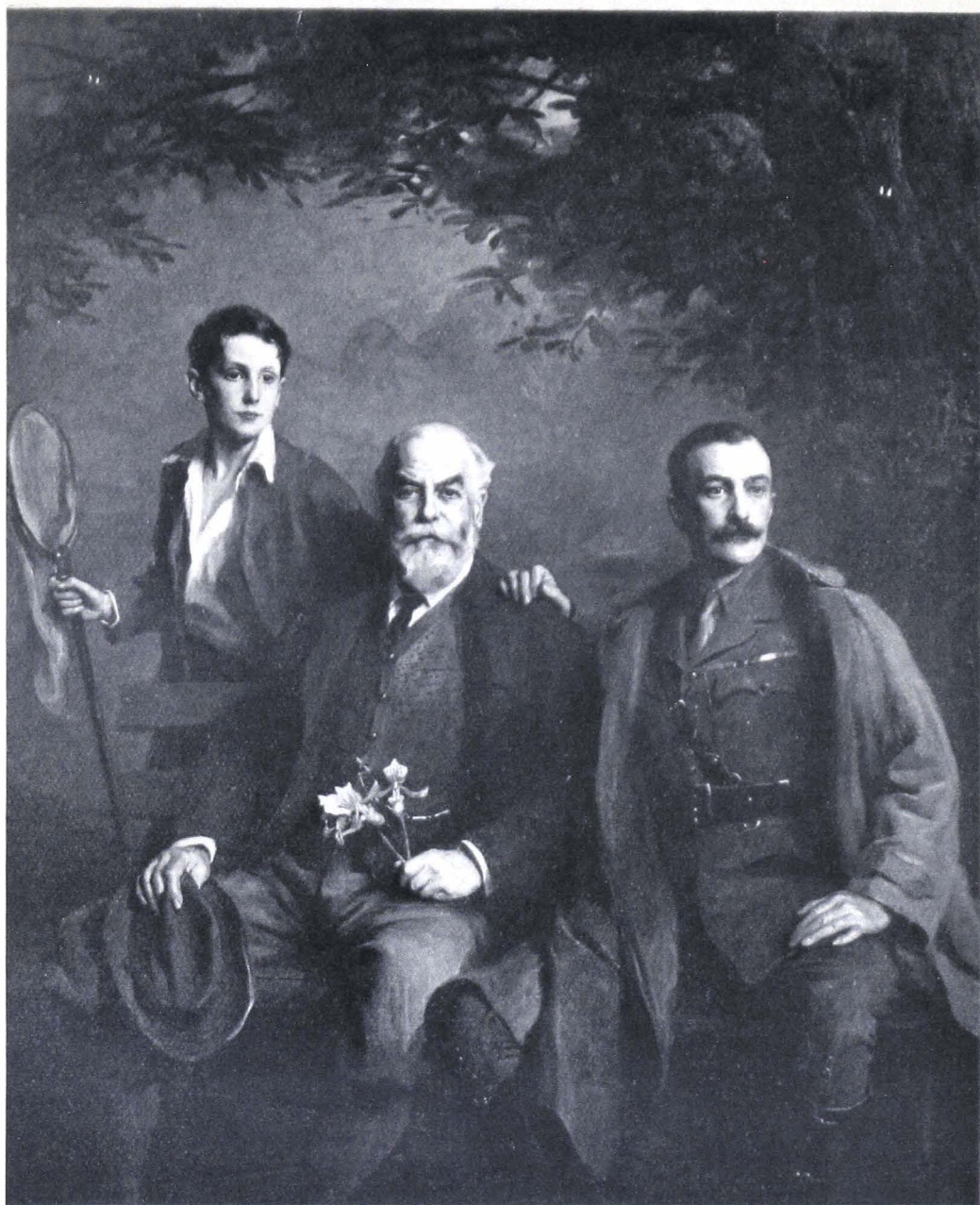
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(*New Year, 1900.*) The first day of a new century is an event which can only happen once in a man's lifetime, and cannot be passed over by any thinking man without very grave reflections as to what the new year as well as the new century may bring forth. January 1st, 1900, finds us at the beginning of a war which has already cost the lives of many good and brave men, and which has hitherto been only a catalogue of misfortunes caused by the want of foresight of those whom long years of comparative peace and prosperity have apparently blinded to the fact that all the conditions of war have changed. The one bright light which has been thrown on the war is the fact that our officers and soldiers have not been enervated by modern luxury, and have not lost the qualities of their forefathers; and that the wonderful skill of modern surgeons together with the excellent organisation of the Army Medical Department assisted by private enterprise have saved from death many who in former wars must have been crippled for life if they had not died of their wounds.

This has been brought home to me by a New Year's present in the ghastly form of a piece of my only son's skull torn from his head by a Boer shell at the battle of Modder River and enclosed in a letter which tells me that he is rapidly recovering from wounds, which were described officially as "very dangerous," and is now on his way home. Another letter tells me that a gallant young friend whom I had only just installed as manager of a farm in Essex, of which I shall often have occasion to speak in this diary, feels that he has a duty to his country as well as to me, and begs my permission to resign his appointment and join the yeomanry in South Africa. Of course I cannot refuse such a request as this, and must make the best arrangement I can to carry it on till his return, which I hope may not be very distant, for I cannot believe that the Boers can continue their present style of fighting for many weeks longer, and though the reorganisation of South Africa may be a long job, it will have to be done by regular and not by irregular forces.

To me, as a farmer, the most striking thing about this war is that though it has already increased the difficulty of getting labourers, which in many counties is the greatest difficulty a farmer has to face next to the extreme uncertainty of the weather; and though coal is going up by leaps and bounds and is now, on January 14th, ten shillings a ton higher than when I laid in my stock in summer, it has not appreciably affected the price of anything I have to sell.

I have lately threshed a lot of oats for which only sixteen shillings a quarter are offered, and though I can sell them to a hunting stable for a little more, the price is anything but a profitable one. My little lot of wheat, the first I have had to sell for years, made only twenty-six and sixpence in December last, and though we hear that meat has gone up in price in the large seaports, owing to the scarcity and increased cost of freight from America, yet we do not get any more for it here even if there was much to sell.



[Painted by Philip Laszlo.]

FIG. 15.—THE AUTHOR WITH HIS SON AND GRANDSON.

Store cattle for some reason which I cannot explain in view of the great scarcity of roots, caused by the drought of last season, are dearer than ever, instead of being cheap, as they always have been when I have, owing to similar droughts in 1887, 1893 and 1895, had to sell because I could not winter my usual stock. Now that, warned by experience, I have got plenty of keep to spare and want to buy, expecting to take advantage of other people's difficulties, I find stores at what seems a prohibitive price.

Farming nowadays seems to me to partake very much of the character of pure gambling, and though I have money at the bank, a lot of hay to spare and more roots than anyone about in proportion to the stock I now have, it seems to me just as much of a gamble to buy in at the prices now prevailing as it would be to buy shares in the De Beers mine on the hope of Kimberley being soon relieved. The margin of profit in farming is now so low and so uncertain if things go well, as compared with the certainty of loss if things go ill, that there is no inducement to do more than just keep things going with as little outlay as possible, and though it is or was always considered bad farming to sell hay off poor land, I shall, though the land is my own, do it without hesitation if I get the chance.

My father, for many years of his life, was always putting capital into his land in the shape of purchased food, manure, labour and so-called improvements of every kind, and now, after fifty years of such farming, the land will not grow half as much corn or a third as much grass in an average season as lots of the so-called poor land in Essex or Hampshire, which has been hard cropped as long as anyone can remember and had little or nothing spent on it.

The old saying that land is a good bank to put your money into, whether true in old times, is certainly untrue of much of the land in England to-day, and though it takes a long time to get people to see it, I am certain that many landowners who have money to spend are now spending a great deal more on their land than it will ever repay, unless we have a complete change in the conditions of English life and prices.

It is, however, necessary to go down to Essex and make some arrangements in the absence of my manager, and this I do with greater pleasure because the weather, after a long spell of alternate frost, snow and heavy rain, has now cleared up, and though I can stand as much bad weather as most people, yet my island farm is a place which is wonderfully improved in winter by fine weather.

On this part of the Essex coast it seems to rain less than almost anywhere in England, and during the four years I have been endeavouring to convert this farm from a state of thorough neglect into a rent-paying concern, we have never till now had the land really wet. The road, for the last two miles to the ferry, is in an awful state, and it seems scandalous that one should have to pay elevenpence in the pound highway rates and get nothing for it. But this is just one of the cases where individuals have to suffer on account of our system of local self-government. I cannot, even if I would, repair and maintain two miles of road through another man's land at my own cost, and to get the interested parties to combine and

agitate until the road is taken over by the highway authority or the county would require about as much diplomacy, local influence and log-rolling as it would to pass a London Water Bill. Anyhow, I as a non-resident have neither the time nor the will to waste on such a job, and as I can send all the hay which my farm produces to market by water and the stock can use their own legs to walk to Rochford or Colchester, as the case may be, I must just put up with a two mile drag through the mud or over the grass at the side, and allow an hour instead of half an hour to reach the station.

The shepherd, a cheery young fellow, meets me at the ferry with the intelligence that all is well with the ewes, which at this moment are the principal part of my stock. It is the only place I had to do with in England where ewes will winter and keep in good condition the whole year round on grass alone. At present I have only two hundred and fifty because a lot of the grass is only newly laid down and not fit to carry sheep, and also because I have found that overstocking is the very worst thing you can do if you want sheep to thrive; but in two or three years' time this farm will carry five hundred easily, besides some bullocks in summer, and make a lot of hay as well. Though the snow has been four inches deep in Gloucestershire there has been little or none here, and the grass is green and growing under the influence of rain and mild sea air. The sheep are blooming, except a few which were not dipped and are apparently suffering from parasites, which cause them to tuck or pull at their sides. I therefore gave instructions to pour some Cooper's dip into their fleeces, as it is now too late in the year to dip them properly.

The next morning I rise an hour before dawn in order to get the morning flight of the wild ducks, which are becoming very numerous on this island since I have kept it quiet. There is a sharp frost, and on going out at 6.30 I find that there is a skin of ice over the brackish water of the long fleet which divides the island in nearly two parts. The eastern sky is just showing the approach of day, a time which to my mind in summer or winter has an intense charm to the sportsman, naturalist or lover of nature. I always pity people to whom early rising is a trial, as it is to many, for it always seems to me that when a man has health and a hot cup of tea or coffee inside him, the hour before sunrise is the most charming hour of the day. There are mornings, no doubt, when fog, rain or wind make it pleasanter indoors than out, but it has always seemed to me that if you go to bed in time to get the necessary seven or eight hours' sleep it matters nothing whether you get up at six, seven or eight o'clock, and as a sportsman I can say that much of my success, especially in wild-fowl shooting and elk-hunting, has been got by early rising.

Though it is still too dark to see, I can hear the rapid "whish" of the ducks' wings as they fly in from their feeding-grounds, and I know no more exciting or delightful sound than this except, perhaps, the "wheaw" of an immense flock of widgeon when one is just pushing a punt over the last few yards of ooze and expecting to make a heavy shot the next moment. My days for this, perhaps the most difficult and exciting of all small game shooting, are now over, however, as there are hardly any places left in England where punting can be carried on except on very rare occasions,

and the exposure to severe cold is so great that it is a trying sport for an elderly man.

The ducks, however, do not leave one much time for reminiscences, as by the time I have taken my stand in a reed shelter or hide by the side of the fleet, the splash of the ducks as they break the thin ice in settling is so plain that I know they are not far off and that others will pitch to them. With eyes and ears intently on the alert I wait a moment longer and can just make out some ducks against the eastern sky as they drop out of the dim light towards the water. A double shot brings down one and then I hear them rising all round me and make a successful right and left at a small flock behind me, which I gather at once, as ducks, if not killed dead, will soon hide themselves in the rushes.

Others keep coming in and I miss one or two shots in the bad light and wing another which falls on the other side of the water. My friend is getting shots in another hide further down the fleet, and keeps the ducks on the move. It is rapidly getting light when a flock of pochards, or dun-birds as they are called on the coast, come rushing over and leave a brace of their number behind them. The ducks, however, have already taken alarm and are off to seek a quieter resting-place, so I walk round the fleet to pick up my winged birds, and on the way get a lovely rocketing shot at a small bunch of teal very high up to which one bird falls, and pick up another single one, probably touched by the same shot, which springs from a ditch on my way back to the farm. By this time it is broad daylight and the partridges are beginning to fly off their roosting-places in the marshes to the young lucerne-field which seems to provide them with ample food here in default of corn. I leave them till after breakfast, which is now ready, and I am sure no one in England enjoys a better breakfast with a better appetite than we do. Just as we have finished, the shepherd comes in saying that two of the ewes which were all right last night are drowned in a ditch, and he suspects that they have been driven and frightened by a dog from a barge which was lying on Paglesham side of the island. I suspect the bargees took advantage of the moon and came ashore to catch a hare, which they do when they get a chance. But even if we knew who they were there is nothing to be done, as however sure we might be, we could prove nothing. These Kent ewes, however, bred on the marshes and better adapted for wintering on them than any other breed of sheep, will seldom or never get into a ditch unless they are driven hard, and though we lose a few weakly lambs every year in the marsh ditches, it is the first time I have had any strong healthy ewes drowned.

After breakfast I go round the farm with my gun, taking the shepherd and carter, who are the only men now regularly employed here in winter, and arrange for putting up fences to divide some of the newly laid down fields from those which have become established. The land is wetter than I have ever seen it, much too wet to plough, though there is a field which must be got on with as soon as it is dry enough. I can never understand how they used to manage, when nearly the whole of this farm was under plough, to get the work done in the winter, as it is quite the most difficult land to manage I have ever had to do with, and though it will grow immense crops of wheat, oats, vetches, lucerne and clover and beans,

which were the principal, if not the only, crops grown here in former times, it has to be treated with great skill and experience, and requires summer fallowing to keep it anything like clean. The soil is what they call brick-earth in Essex, a deep alluvial soil whose fertility seems to be inexhaustible, and though the high cost of labour, and the low price of corn, have forced me to lay it nearly all to grass, it would in any country but England be considered as valuable arable land. Hares and partridges also thrive upon it and the birds never get so wild here as they do in other places. I once shot fifteen brace to my own gun here on the first of February without dogs or keeper, and today, though we are combining business with sport, we pick up ten brace and eleven rabbits, which added to the ducks make a very pretty little winter's bag.

The partridges here, when disturbed, usually take refuge on some rough long grass which has been left for the sheep to pull off during snow or frost, and fly to the sea walls and saltings which are outside the wall and protect it from the wash of the waves. These saltings are covered with a peculiar salt-loving herbage, and are intersected with many winding natural ditches formed by the ebb and flow of the tide, which covers them at high water. The partridges nearly always lie close on the sea banks and saltings and afford most sporting shots as one walks along the top of the wall. They often fall in the salt water, and if only winged hide very close in the mud-holes and ditches. Hares also are very fond of the saltings, though they seem to come there to feed and not to lie, and are usually off before one gets within shot. They must frequently swim over the main channels, which are fifty to one hundred yards wide, as though the greater part of them were drowned in the great flood of November, 1897, stock soon got up again, and now there are so many that we are catching them alive to stock other places with. Shooting hares is poor sport in my judgment, and as they are worth fourteen or fifteen shillings alive they add something to the profits of the farm when treated as live-stock.

All round the island in the main channels oyster boats are at work dredging and clearing the ground, as they say, this part of the Essex coast being celebrated for its oysters, which on account of the scare about typhoid fever are not now so valuable as formerly, and are sold on the spot at twelve shillings per hundred. There cannot, however, be the very slightest risk of infection from oysters which are grown and fattened so far from any possible source of infection as these, and the four hundred per annum which I receive as a customary present from the oystermen for allowing them to lay their catch on my saltings are much appreciated by my friends. The oystermen are a different and generally very superior class of men to the agricultural labourers of this district. Nearly all fine, strong, hardy men, well clothed and spending most of their time in their boats, they have regular work and regular wages all the year round, though some of them work on barges and yachts in summer. The labourers, however, who used to do the work on these marsh farms are anything but a steady or superior class. The strongest and most active of them now mostly work on the brickfields, where they earn very high wages, most of which is spent on eating and drinking; and the casuals whom we

have to employ in haymaking are a very rough lot indeed. The old bailiff who looked after this farm for many years declares that when they paid the men after harvest they used to have two policemen to keep the peace, and I have seen as many as thirty or forty empty beer barrels on the wharf here after harvest time.

In 1896 when I had an enormous crop of grass and could not get men at any price to make it, he engaged a gang of gas-stokers who agreed to make it and stack it at so much per acre. They insisted on having a whole cask of beer carted daily to the field, and by four or five o'clock were often so fuddled that they could not or would not work any more, and treated with scorn our endeavours to ease the heavy work of stacking this long hay by the use of an elevator. As they were earning five or six shillings a day without it and wanted to make the work last as long as possible, it was useless to fight against custom and there was every prospect of a row if I persisted, my bailiff and I had to grin and bear the insolence of these fellows; but I resolved that if I could not get men who were more inclined to work properly than the casual labourers of these parts seemed to be, I would do without them and turn the place into a grazing farm.

January 14th (1900). At home again and had a walk round Rapsgate farm which I have had in hand since Lady-day last owing to the bankruptcy of a tenant who came from the north of England with good credentials as a man of ability and means. I had previously occupied this farm for fourteen years and got it into good condition, though it was in a fearful state of neglect and foulness after the terrible and never-to-be-forgotten season of 1879. Both my father and I had spent a good deal of money on this farm, which, though at a high elevation and somewhat late, is level and contains a large proportion of old pasture, well watered by springs, and capable of growing good lambs and young cattle. I was induced to let it partly by a desire to reduce my holding, and partly by the friction and trouble which was brought about by the violent political agitation from which we suffered for several years but which now happily seems to have died away. The tenant, who at first seemed likely to do well and told his north-country friends that he had got a good holding at a fair rent, soon began, however, to neglect his work, and particularly his stock, and after two years I found that he was pressed by creditors. I therefore gave him two years' notice to leave, and, though at the expiration of his five years' tenancy I had lost no rent, I had an infinity of trouble and expense, and now have to do at my own cost all the things which he ought to have done and again put the farm into a condition fit to let, or occupy it myself. I am not yet sure whether I shall do so, for this reason, that though an owner cannot expect to manage a farm so economically as a working farmer, cannot drive hard bargains with his men, screw the last bit of work out of his horses, and generally act as a man must do who has to get a living out of a farm in these times, and though there is a certain amount of risk and a good deal of personal superintendence required, yet on the other hand you cannot expect first-rate tenants on second-rate land even if you let it for nothing, and you have the chance of making your rent and perhaps a little over in good years, whilst in bad years you may just as well lose directly what you

lose indirectly by changes of tenancy. You also have the sole right of sporting, which in this neighbourhood is a very important item in the value of a farm. If you wish to let it at anything like a decent rent you must occupy the land yourself, because the conflicting interests of agricultural and sporting tenants cannot be reconciled, and there are many farms and parts of farms in this district on which it pays much better to grow ground game than to grow corn. If prices do not materially improve, which seems hardly likely at present, I am strongly inclined to devote more and more of my worst land to game, as game ensures a certain if small return with little or no outlay, and you get rid of a lot of expense which may never be repaid in keeping up fences and buildings, and you get rid of the trouble and annoyance of struggling with bad tenants who cannot or will not carry out the agreements they have made.

After all, why should they as long as landowners can be found, and there are plenty of them, who are forced by their inability to occupy their land themselves to let it to the highest bidder? Agreements in many cases are now a mere form and both owners and occupiers know it. For it is evident that unless a tenant has such a pecuniary or other inducement to stay on his farm, as very many now no longer have, he cares nothing for a notice to quit, whilst the owner, knowing that if he turns out a tenant for breach of agreement he may have to farm it himself or spend a lot of money before he can let it again, allows things to go on as ill or as well as the tenant chooses to do them.

January 17th (1900). Attended the Assessment Committee at Cirencester, postponed in consequence of the death of our vice-chairman, an old and intimate friend of mine who will be a great loss to this neighbourhood. The venerable chairman is also absent from illness, a very unusual event, for I think it is the first time in twenty years or so that I have ever found him absent, and he is now over eighty and has to drive ten miles and back to attend meetings, which may last two, three or four hours. He has done this for sixty years, probably on an average at least once a week. That means one thousand miles a year and fifty days given up to the service of the county without fee or reward, except the knowledge that he is serving his country in the only way in which he is able. It is true that we gave him a testimonial some years ago on his completion of fifty years' membership of the Board of Guardians, now converted into a District Council but consisting of the same men, and I was able to say on that occasion that I had never known, or heard of, a public body which was so entirely free from class, political or religious interest as the one over which he had so long presided.

As long as there are such men and many of them in all parts of rural England the local affairs will be conducted as they are now, not perhaps entirely without friction or individual cases of grumbling, but with absolute honesty. How different from the rural government of any other country of which I have any intimate knowledge, except perhaps Norway! Our meeting is composed of clergymen, farmers and tradesmen, and now that poor Cripps is gone I am the solitary representative of the landowners, so that I must try and attend more regularly than I have done, not because I think that the interests of landowners will be neglected in my absence,

but because I think one is more wanted and can do more for the public interest at the Board than at the Bench, which is here well supplied with Magistrates, and where the business is usually of a very trifling character and grave offences are quite rare. But to business, which always begins here with military punctuality.

First we have a circular letter from a Yorkshire Union inviting our attention and support to a petition on the difficult question of the rating of woodlands. How difficult only those know who have gone into it, as I have, but however unfair and obsolete in many cases the system may be, we can see no use in meddling with it as long as the Royal Commission on Rating is sitting, and the letter is voted "to lie on the table." Then the appeals come on, mostly reductions or slight alterations in the value of land which after twenty years of depression still seems to keep falling in value. Two farms, both quite near the town, containing a large proportion of good grass, some of which if subdivided and let as accommodation land would make two or three pounds an acre, are newly let to young men who look as if they meant business, and show that they well understand the difference between paying rates in a rural parish where they are low and in an urban parish where they are high. The principal difficulty is in arranging the proportionate reduction to be made on the parts of the farms which lie in different parishes about which their respective overseers do not quite agree, but we do our best to reconcile these conflicting interests as fairly as possible, and after a humble lunch of bread, cheese and beer in the boardroom separate to our respective avocations.

Mine is to go to London and settle about the enfranchisement of some copyhold land in Essex, the trustee of which has recently died, and on which a fine is claimed by the lord of the manor. It seems marvellous that such mediæval systems of tenure can have survived to the twentieth century in a country like England. One would suppose that the system, like so many other things in this country, had been originally devised in the interests of the lawyers, who still hold so many interests tied and bound in the net of more or less obsolete legal technicalities. On going into the matter with my solicitor, he quite agrees with me that the land in question, which consists of only a few acres scattered about a property of over seven hundred acres, should be enfranchised whatever it costs, and he tells me I shall be lucky if I get out of it under four hundred pounds. The matter can now be carried out and a legal title given through the Board of Agriculture, but as the lord of the manor is willing to accept as sole valuer a most capable and upright man whom I know and trust thoroughly, we think it may be managed at less expense privately. This is the first and I hope it will be the last time I have to enfranchise a copyhold, and if one could only find some similar means of redeeming tithes, which still hang round the necks of owners of land like a millstone, it would give a great impulse to many improvements in agriculture.

Next I have to go down to meet a man from Lancashire who is looking for a cheap grazing farm in Essex. It is curious that almost invariably during the last few years all the men who come to look at farms are from

the north or extreme west. Whether they have more capital than the local men, or whether it is more easy to conceal their want of capital, is often a doubtful question. Sometimes they turn out utter failures, sometimes they succeed, but without exception they drive hard bargains, and in this case my farm is not good enough or cheap enough for the applicant, he does not say which. Then I interview a party who are come down to inspect some neighbouring land with a view to starting cement works, and who are in treaty for its purchase. What will come of this scheme it is very hard to say. If it succeeds it will completely change the whole of the conditions under which this particular farm is now carried on, and it may lead to a considerable increase in its value. Anyhow I shall have the experiment tried at other people's expense, and time will show how far it is successful.

After a long day in Essex, I get back to London and have time to get some dinner at Waterloo Station before going to Southampton, where the ship in which my wounded son is returning from South Africa is due tomorrow. Waterloo Station and Fenchurch Street are now more inconvenient, crowded and out of date than any other of the London termini. It is indeed a marvel how the enormous traffic at both of them is carried on, and considering how large a number of reserve men in the railway staff are now called up for service in South Africa it is wonderful that the traffic is got through without accident. I find the Station Hotel at Southampton much improved and full of anxious wives, mothers and friends who have come on the same errand as myself. At breakfast Yeomanry Reserve officers who have arrived from the north, and Staff officers are in evidence, and as the *Canada* is supposed to be delayed by fog, we go down to the wharf and watch the embarkation of a battery of artillery which has been in the train all night. The arrangements are admirable. An immense shed allows horses and men to be detrained in shelter, affords ample room for all the baggage to be arranged and sorted; warmed waiting-rooms are partitioned off for invalids and ladies. Tables provided by various benevolent societies are ready with cheap and wholesome refreshments for the men arriving and departing. Every arrangement which experience has shown to facilitate the rapid and orderly embarkation of baggage, men and horses is in working order. The men, who seem to be nearly all reservists, are almost without exception a workmanlike, superior-looking lot, and, I should think, if not so smart in appearance as we have been used to expect, are much more likely to stand the hardships of war than younger men. The horses, on the other hand, are a decidedly scratch lot taken from omnibus companies and other sources, and many of them do not look in very good condition. They are led on board through a gangway in the ship's side on to the upper deck which is entirely fitted up with strong stalls, and with very few exceptions go to their stalls without any trouble. A great number of iron hospital beds are being shipped for which no room seems to have been allotted, and the forepart of the ship is much encumbered with these and other baggage, but no doubt all will be properly stowed before the ship gets out of the Channel.

By three o'clock everything is on board and the ship is cast off amid

the parting cheers and patriotic songs of the friends and relatives who have come to see her off. Next morning the *Canada* arrives soon after nine o'clock, and we have the satisfaction to find our son apparently quite recovered from a very dangerous wound, and though a piece of his skull was absolutely blown off by a fragment of shell, the hole in his forehead is quite healed up.

CHAPTER XXII

FARMING EXPERIENCES IN THE COTSWOLDS

It is always unpleasant after one has given a great deal of time, attention and trouble during the best years of one's life to have to confess that the only result has been the acquisition of a great deal of experience at a very heavy outlay, but such has been my case as regards Agriculture. When the decline in the profits of farming, which began about 1875 and has continued without intermission for twenty-five years, first resulted in the giving up of their farms by tenants who, according to their lights, had done their best to make both ends meet and failed, I was about as ignorant of the practice and principles of agriculture as any other young man of my class and education, who had hunted and shot over his paternal acres and kept his eyes open. I thought that I could do as others had done and as my father had done with more or less success. I realised at the time no better than thousands of more far-seeing, cleverer and better educated men than myself, that almost all the conditions under which the practice and customs of the country had grown up, and which had resulted in a great rise in the income and expenditure of both tenants and landowners during the twenty years which succeeded the Crimean War, were going to be permanently changed.

When, therefore, my father told me in the autumn of 1878 that his trusted steward was obliged to give up a large farm that he had long occupied, and that he wanted my assistance to manage it, I entered on the matter with a light heart. My father, like most other country gentlemen of his time, had always looked on a farm as a necessary part of his occupations and pleasures, and whether it was 300 or 1,000 acres did not very much matter. He had besides his agent a bailiff who had been brought up in the same school, who considered it his duty never to disagree with his employer, who was as careless as most wealthy landowners whether he spent a few hundreds more or less on his farm provided that good hay and oats were supplied to the stables, good mutton and butter to the house, and that when he took a fancy to show a bull, a horse or a pen of sheep, the animals exhibited were at least good enough for him to think they ought to have won if the judges knew their business. Pigs were this worthy's great hobby, and as my father dearly loved a pig either in the sty or on the table, they hit it off admirably. The financial results at the end of the year were not too narrowly criticised, and if a few hundreds had to be put to the farm account to make up a deficiency there was always an increase in the valuation and excellent reasons for the loss. The men as well as the horses went "gently on" and nobody said much if their watches were twenty minutes or half an hour slow in the morning, and if they spent a good deal of time on a wet day smoking under a rick, as long as they came home sober from market and did not mind staying out late when there was a push of work, at haymaking or harvest; and as long as the horses, cattle and sheep looked well, neither the men, the cake bills nor the accounts were ever severely criticised either by my father or his steward.

This sort of thing might go on very comfortably in the sixties, or when only a few hundred acres were farmed for pleasure rather than profit, but when the losses of that awful year 1879 came to be reckoned up and farms which had hitherto been let for fair rents began to come in one after another with heavy bills for acts of husbandry, repairs, purchase of stock, implements, etc., I began to find that the system of farming which I had been brought up to was a very unprofitable business. Anyone who was unlucky enough to have occupied a large area of land in the Midland counties in 1879 must well remember the unequalled disasters of that year, my first year as a farmer. The winter of 1878-79 was bad, the spring worse, and the months which should have been summer but were not, worst of all. Notwithstanding the excessive wet, which lasted until the autumn, there was hardly a turnip as big as an apple on the whole estate, the hay was all spoilt, the corn never ripened, the sheep wasted and died either from fluke or, as a farmer put it to me, they died of hunger with their bellies full because the grass was so watery and in-nutritious from lack of sunshine.

On one of my father's best farms the tenant had given notice to leave at Michaelmas, 1879, and seeing in the previous winter that he was doing no good to himself and would leave his farm in a fearful mess, I offered to take it over at Lady-day if he would give it up with a valuation based on the actual value of the cultivations and growing crops and not according to the custom of the country, which allows an outgoing tenant for the estimated cost of the labour done without much regard as to how it was done and what it is worth by results. Luckily for me, however, the tenant declined this, and when his time expired at Old Michaelmas not one single acre of corn was ripe or cut. I told him he could stop on till Lady-day and realise his crops, such as they were, at his leisure. He offered me his sixty acres of wheat standing at £1 an acre, and I declined it because much of it was so blighted and bad that I did not think it would be worth the cost of harvesting and threshing. And so it turned out, for when at Lady-day the wheat was still in rick and I lent him £50 on it, leaving him to thresh it when he liked, it was eventually only fit for pig food and very bad pig food at that.

I remember in November, 1879, though October was the driest month in the year, seeing foxes found in standing barley. Some of the fields were so bad and the straw so rotten that they were never cut at all, but pigs turned in to get a living as they could. The losses of ewes and lambs were unusually heavy in the following winter, and though we fed almost all the corn that was grown on the farm and had a heavy cake bill as well, the cattle and sheep never got over the effects of those two bad winters with not a summer between.

I then saw that I must make radical changes in the old system, and spared neither time, trouble nor expense in learning as much as possible of the details of what I saw was going for some time to be my principal business. I soon realised that on the Cotswold hills, or at any rate on such poor thin land as most of my father's, a lot of the land could not pay the cost of cultivation on an average of years. I visited the farms of those men who were supposed to have been most successful in laying down land

to grass, but I soon found that however well you prepared the soil and however careful one might be in the seeding, the better and finer grasses would not live and thrive on the poor oolite brash I had to deal with. I found also that the condition of most of the land after 1879 was so foul, especially the farms which successively came on my hands, that it would cost more to clean many fields than they were worth; and that land, which as the saying is had "tumbled down to grass" without any cultivation or sowing at all, was not very inferior in herbage to others which had cost perhaps £3 or £4 an acre for preparation and seed.

Another thing which occupied my attention very seriously at this time was the new plan of making ensilage instead of hay. I made a tour in order to visit places where this system had been tried, so as to learn not only how to make it best and cheapest but also to see the condition of animals which had largely lived upon it. Among these were Lord Walsingham's farm in Norfolk, and a place in Upper Wensleydale in Yorkshire, where I found cattle which had lived the whole winter on ensilage alone in very fair condition, and was assured that a greater number could be so wintered than when they were fed as the custom of the country was, on hay alone. I came to the conclusion that the building of special silos either above or below ground was a useless expense, and would have nothing to do with the various mechanical contrivances for pressing the contents of the silo. I had one of the bays in the stone barns which are found on every Cotswold farm bricked up and cemented inside, bought a lot of dunnage boards from Gloucester corn merchants, and after filling the bay with grass cut short by a chaff-cutter, keeping it well raked level and rammed well down round the wall during the process of filling, covered it with the dunnage boards and weighted it with a dead weight of bricks in rough boxes or old stone rick-staddles hoisted up with a pulley.

This proved such an economical and excellent feeding stuff when mixed in equal proportions with oat-straw chaff that, though I had a good deal of prejudice among my stockmen against the new fodder the first year, I have now made it regularly for every year since 1882 except one very dry year when I had no grass wet or juicy enough to make good silage with. I found that it immensely reduced the consumption of corn and cake, kept my dry cows and store cattle in excellent health and condition through the winter, saved a lot of labour in hauling roots to the yards, converted grass and late oats which would otherwise have been spoilt by the weather into nourishing fodder, and generally was for a late damp climate, as mine was during most of my first fourteen years' farming, one of the greatest improvements in modern practice. I put up a silo at every homestead, and though on one or two occasions people who were new to it complained a bit at first of the smell, all my men finally agreed that it was perfectly harmless. The bad smell which sometimes comes from badly made silage is not the fault of the stuff but the fault of the maker. Though I made some ricks of silage as well during the first few years, I have since given them up, as indeed many others have done since we have had a succession of good haymaking seasons.

In my early farming days I believed that the secret of success was to

keep as much good stock as the farm would carry, and had at one time as many as 1,000 ewes and over 150 head of cattle. During the early eighties, especially in '82 and '83, the price of sheep was very high and wool still fetched a price which made it worth consideration as well as mutton. I soon realised that sheep were the mainstay of a Cotswold farm and paid a great deal of attention to their breeding and management. At that time the Cotswold breed, though not enjoying quite so large a proportion of popular favour as formerly, still made good prices, and I improved the flock which my grandfather had formed with such success that I began to try my hand at breeding rams. For a few years I had Cotswold sheep on the brain, went to all the shows and ram sales, read a paper before the Cirencester Chamber of Agriculture in which I showed to the satisfaction of the older farmers that long-wooled sheep were superior to short-wooled in their own country, and generally began to think myself, in sheep at least, rather a knowing fellow. I gave high prices for Cotswold rams, and, as my father had been chaffed by some believer in the Hampshire down breed about the inferiority of the Cotswold in point of early maturity, determined to show people what the breed could do.

We had a very clever but cantankerous old shepherd who knew how to fat sheep as well as any man in England, and as he insisted that, given good sheep to start with, success would lie with who could feed hardest without losing the firmness and vigour of the sheep, I went to my dear old friend William Lane of Broadfield, the best specimen of a Cotswold farmer I ever knew and only rivalled as a ram-breeder by his neighbour Robert Garne of Aldsworth, and hired for thirty guineas the best ram he could spare for my purpose. I then picked out seventy of my best ewes and put them in the park with him, so as to get some lambs as early as possible. I believe that about a hundred and twenty lambs were the result, and though they did not arrive before February I determined that they should not fail for want of stuffing, and, picking out about twenty of the best when they were weaned, gave them everything they would eat. It is wonderful what a lot healthy lambs will eat if you give them sufficient variety, and the shepherd was always thinking of some fresh delicacy to tempt these pampered appetites.

From week to week the changes were rung on vetches, sainfoin and clover, mangels, carrots and swedes, old hay, new hay, wheat, malt dust, oats, beans, peas and cake; all were lavished on these animals which left as much in their trough as would have fattened a lot of ordinary sheep. Everyone said that it was no use to half do it, and that if my lambs did not get all these luxuries they would be beat by others that did. So we damned the expense and from early morn till late at night the shepherd, who enjoyed this sort of thing thoroughly, was in and out with a bit of this and a bit of that. They certainly did grow amazingly. When the weather got very hot they seemed to feel their heavy fleeces very much and I suggested shearing them. The shepherd admitted that it was a good idea but then "it arn't our custom." No one had ever done such a thing with Cotswold lambs, and what would the judges say? It seemed to me that as the object of a fat-stock show was to show how much good meat

you could put on a beast in a given time without his dying of apoplexy, and not at all to show how much wool you could grow, the judges could not say anything if there was no rule against it. So with many misgivings the lambs were shorn and seemed to like it. They grew and grew, and a month before the show were heavier than any Cotswold lambs we had ever heard of. Of course they were kept very quiet, no one was allowed in the shed, and no one knew what they weighed except the shepherd, the bailiff and myself. We did not want to frighten other exhibitors and lose the glory of beating them. The trouble now was to keep them firm on the back and active and sound on their legs. Week by week they were trimmed over with the shears under our approving eyes. No lady could have paid more attention to her coiffure. A little bit off here and a little puff up there, so as to ensure the symmetrical sausage-like shape so dear to the heart of the British stock-breeder, and to deceive the eye, if not the hand, of anyone but a man experienced himself in such arts.

When at last we called in under promise of secrecy a well-known judge of Cotswold sheep to select the three best out of the ten which remained in the favoured number, and told him their respective weights, he admitted that they were as good as, if not better than, any he had seen before. After long deliberation, a great deal of handling, we picked out three which were as much alike as possible, and as firm on the back as any sheep so overladen with fat could be, and it was agreed that they would be very hard to beat.

At last the Saturday arrived on which they had to go up to London in a horsebox all to themselves, the shepherd with his boxes of cake and his sacks of mangels and corn in charge. A van was engaged at Paddington and we went off to the Agricultural Hall at Islington as full of anxiety mixed with hope as ever an actress on her first appearance in a leading part could have. A fourth lamb was taken as a reserve in case anything should go wrong with the others before the Monday, and I took leave of them at the door of the hall after telling the shepherd not to let them out of his sight until after the judging.

As soon as the doors were open on Monday I came in burning with curiosity to see who were our opponents and found four or five well-known old hands whose shepherds, though evidently a little put out by the new dodge of showing shorn lambs, professed to regard our chance of beating them with scorn. When, however, they were led out, their beautiful topknots of wool hanging over their faces like old sheep, we could see that the judges were impressed by their size and weight, and at last we led them back in triumph with the first prize. Next we had to compete with the wethers and ewes of the same breed for the breed cup, which is given to the best pen of each breed, and again we were triumphant. Last of all came the competition for the best pen of sheep in the show, and as at that time short-wooled and long-wooled sheep competed in the same class I knew that our chance was hopeless, for, unless the long-wooled judge was a man of unusual obstinacy and the long-wooled sheep of quite extraordinary excellence, the champion cup always went to a short-wooled breed. However, to win the breed cup on the first time of showing was beyond my fondest hopes, especially as I had succeeded in showing

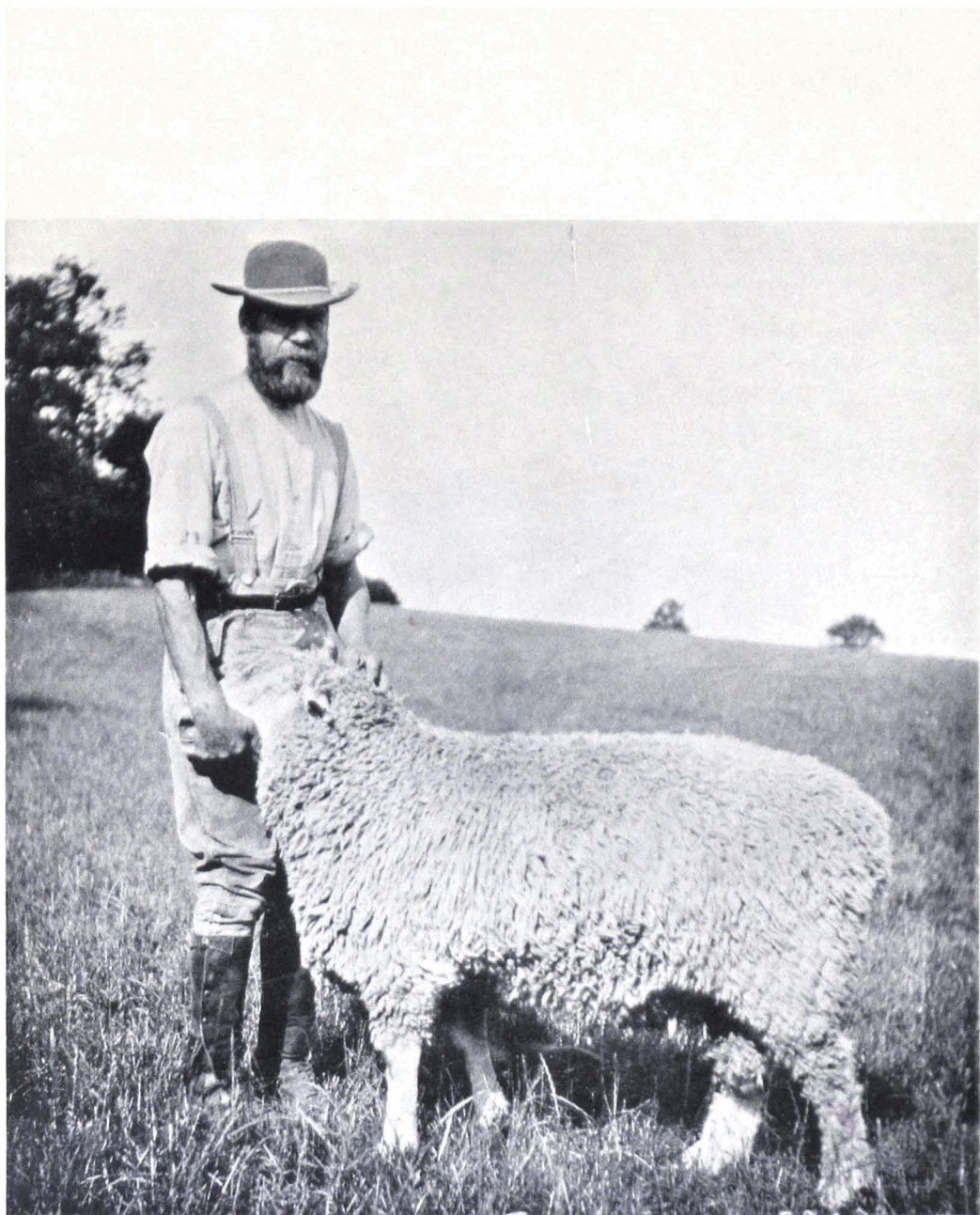


FIG. 16.—SHEPHERD HALL OF COLESBORNE.

PUBLIC

what no one would believe before, that the Cotswold breed could when well managed show more increase of live weight per diem than any other, and that the supposed superiority of the Hampshire downs in this respect was merely a question of feeding and management.

On other occasions in 1884 and 1885 I repeated this success, always with lambs, as I thought that the showing of wether sheep of such immense weights and fatness as all our improved English breeds now attain was a great waste of time and money, and that for a society like the Smithfield Club to encourage the production of animals absolutely useless except to hang as a butcher's advertisement at Christmas meat shows was in principle quite wrong. The Council of the Society, however, with the extreme conservatism which has always marked the governing bodies of our Agricultural Societies and which thoroughly represents the ideas of the average British farmer, would have no such radical reform as this. Though at my suggestion they afterwards consented to divide the large and important class of cross-bred sheep into two so as to give a chance to the breeders of crosses from ewes of small mountain breeds to show what they could do, and though they have made a half-hearted attempt to show the public, by giving prizes for dressed carcasses as well as live animals, what the meat of over-fatted animals is like, the Club still moves like the Royal Agricultural Society on ideas many of which are obsolete.

My object in showing was like that of most people who breed for profit, to advertise the flock and enable me to sell rams, and for two or three years I had every reason to be satisfied with the results. But just as I began to know a little about the many obstacles which await the man who tries to move with or perhaps a little in advance of the times, the demand for heavy fat mutton began to fall off, and the popular taste moved rapidly in the direction of smaller and leaner mutton.

One of my first show lambs realised in Cirencester no less than £5 10s., being at ten months old 132 pounds dressed, at 10d. a pound. In 1882 I sold my culled ram tegs in the wool in the first week in February for £4 12s. apiece, and wool still made up to 30s. a tod. The year's clip used to represent quite a nice fat cheque, and though some of one's inferior rams had to go to the butcher they were always worth £5 to kill, whilst the better ones made at Gloucester market an average of £11. This paid very well, but when Australian mutton began to come in and the colliers and iron-workers, instead of ordering a thirty pound quarter of mutton for their week's consumption, wanted small joints two or three times a week, and no longer digested the thick layers of fat with which our sheep's backs and ribs were covered, the home demand for pure-bred Cotswolds fell off immensely.

There was still a local demand for Cotswold rams for crossing purposes which was over-supplied, and though ram breeders did their best to keep up a rather fictitious average price at their sales by buying fifty-guinea rams from each other, yet I saw that unless I could create a better demand for them from abroad or in Scotland the prices would go on falling. So I entered my sheep in the International Stock Shows at Hanover and Hamburg, won prizes and sold a certain number of rams in Germany and Russia, and looked about for customers in the Argentine

and North America. In the palmy days of Cotswold sheep these used to be numerous and rich. William Lane used to tell me how three Kentucky gentlemen arrived at his farm one day and went away with three ram lambs for which they paid him £210. Another friend, who was a great cricketer, related how, when he had a shire stallion to sell, an American came to his house when he was away at a cricket match and after looking at the horse, for which he was asking £100, followed him to the cricket ground and accosted him just as he came off the field in a bad humour at having been run out. My friend said he had come there not to sell horses but to play cricket, and promptly asked £150, which he eventually got, the most profitable run out he ever had. I could tell how an Irishman from the Argentine came to Colesborne when I was in Norway and paid my bailiff £115 for seven rams, which was £35 more than I should have taken for them.

But these sort of customers were few and far between. Germans would come or write and want to get the pick of one's sheep at £7, and as they did not know which were the best we generally managed to suit them at a little more than this, though I always took care to get the money before the sheep left the place. German dealers are especially hard to bargain with, and at Hamburg they combined to prevent anyone selling direct to the people who wanted them. In fact there is nearly as much coping about the business as in horse-dealing, and as year by year my sheep got better, but the prices got worse, I found it a difficult matter to dispose of shearlings.

So I bought some first-class blackfaced Scotch ewes, crossed them with Cotswolds and produced an animal which I flattered myself was superior to the Leicester or Wensleydale cross. Professor Wallace, who was then Professor of Agriculture at the Cirencester College and by far the most practical and able Professor of Agriculture I ever knew, took a lot of my ram lambs to use on his sheep farm in Dumfriesshire, and found them as hardy and in some ways better than the Yorkshire rams he had previously used. Mr. Tetley, a Yorkshire wool buyer and manufacturer, said the wool of the Cotswold blackfaced cross was the best cross-bred wool he had ever bought, and took a number of rams to place among his neighbours.

Fortified by these opinions, I accepted an invitation from Mr. Elliot of Clifton Park, near Kelso, to go and stay with him, and sent a lot of rams with a cross-bred wether as a sample of their produce to the great Kelso ram sales in September. This sale is the meeting-place of all the breeders in Scotland, Ireland and the North of England, and some of the most knowing sheep-men in the world are there. As no one had seen the cross before, my wether was the object of much curiosity and speculation as to his weight. I had been killing his fellows for my own table and had a pretty firm belief that he would dress over 100 pounds. But this idea was laughed to scorn by the knowing ones, and as I was willing to back my opinion I got on several small bets and it was arranged that he should be killed the next day to see who was right. Some men went as low as ten stone, most about eleven, one or two allowed he might be as much as twelve, but only one, a butcher of Jedburgh, agreed with me. So

when next day the scales showed that his dead-weight was 104 pounds I pocketed the half-crowns and laughed at the Scotchmen. But though they were willing to try a ram or two on low terms, they were too canny to embark in a new cross till they knew more about it; and after paying expenses I did not have much of an average. I had a very pleasant visit, however, and learnt a good deal from Mr. Elliot's experiments in laying land down to grass, a subject in which he has for many years been a great enthusiast. I also had what I think was the best day's partridge shooting I ever enjoyed, and it is worth describing to show how good the sport in this country is.

Mr. Elliot was not a very keen sportsman at the time and was more anxious in the morning to show me his grass fields than to look for partridges, so that when we came into lunch I had only killed a brace. As he did not care to go on after lunch I hurried back with the keeper to where I knew there were plenty of birds, and, as often happens when one is shooting alone and can pick one's birds without regard to another gun, shot well and steadily. We had a clever old pointer and a good retriever, and before the birds left the turnips we had more than the keeper could carry. We then went to some fields where the barley was in stook. The birds lay beautifully, and I remember one particular narrow field where the dog found six lots and I got six rights and lefts successively and picked up thirteen birds. I came home much pleased at 6.30 with thirty-two brace to my own gun all killed after lunch. Two or three years afterwards I was shooting the same ground with a new keeper, and when we came into this field he said to me, "They're telling me this is a grand place for birds; there was a man from the south killed thirty-two brace in this field without missing a shot."

To return, however, to our sheep. I had good opportunities on different farms of trying various crosses, and was asked later to contribute an article on "Cross-bred Sheep" to the *Journal of the Royal Agricultural Society*. This paper was published in 1890 and attracted a good deal of favourable comment in the agricultural papers as a practical and not theoretical paper. Extracts from it were copied and translated in the French, American and Scotch papers, and if anything would have made the Cotswold breed popular abroad this ought to have done it.

But by this time the Lincolns, whose wool has always been of a brighter and more lustrous character than ours, mostly in consequence of their better soil and partly because the Lincoln breeders have paid more attention to the quality than the Cotswold men have done, began to take a prominent position among the New Zealand and Argentine breeders of mutton for export, and whilst the Lincoln rams were in great demand ours were a drug on the market. No doubt the favour with which Lincolns are regarded by foreign wool-growers is partly due to the fact that they are always shown with their wool artificially greased, which gives it a much softer feel, whilst our sheep are shown clean-washed. But when wool got down to £1 a tod, and culled ram tegs, which in 1883 had made 92s., got down to 42s., I thought it was time to give them up, and have now crossed my few remaining ewes and gone out of ram-breeding. Other much older and better judges than myself still breed Cotswolds,

though in greatly diminished numbers, but the last of the annual ram sales at the home of the breeder, that of the late Robert Garne of Aldsworth, has now ceased; and these gatherings, which afforded such a pleasant outing and such a hospitable entertainment to friends, neighbours and customers, are a memory of the past in Gloucestershire.

There are many curious tales told in the Cotswolds as to the way in which wool was hoarded by some rich farmers in the sixties and seventies when it sometimes fetched 2s. 6d. a pound and even more, and was reckoned to pay the rent of an average Cotswold farm when rents were 20s. to 30s. an acre. I knew a man, now deceased, who was said to have kept wool for some of which he had refused 60s. a tod (28 pounds) till it was seventeen years old, and had two empty cottages with the windows bricked up, full of wool. As prices went lower and lower he became more and more obstinate, and at last when he had to sell, no one would make a firm offer till it had been all opened out, as the quality was much injured by such long keeping. A good deal turned out rotten, but no one was told how much. It was also told how, after weighing a lot of wool at home in the presence of the buyer, tod by tod as usual, and sending it off packed in large sheets to the station, the same farmer, finding the station weight more than he thought it ought to be, opened a sheet, took out some fleeces and went home with them in his trap, and this after losing thousands of pounds by hoarding it.

Wool buyers were difficult people to deal with when I began farming. There were then no auction sales for wool, and however much pains you took in getting up your wool they would never allow that it could be worth even a farthing a pound more than that of your more careless neighbours. As it had all to be weighed tod by tod in clumsy swinging scales, and half a pound draught allowed to the buyer on each weighing, there was room for a good deal of manipulation on the part of the weigher, who tried to make each weighing as heavy as possible so as to give fewer half pounds in. I always saw the wool weighed myself, and it took sometimes the best part of a day. On the one side of the scale was $28\frac{1}{2}$ pounds, on the other one put two, three or four fleeces, adding as many pounds as necessary to the balance as it would just draw, and calling out so many pounds over or under as the case might be. The buyer on one side and my bailiff on the other booked the weights as they were called out. It is obvious that this sort of thing, repeated some hundreds of times, gives rise to little differences which entail a certain amount of give and take to settle fairly. I sold once to a man whom I had not previously dealt with and from whom I squeezed the last farthing per pound. Whether he had given a farthing too much in the hope of securing what he had been told was a high-class lot, or whether the market was falling, or he thought that he could arrange matters with my steward in my absence, I do not know. But when we came to weigh I found he wanted nearer a pound than half a pound draught on each tod, and was very angry because I would not give it him. This led to a row and very nearly ended in my kicking him out, but he thought better of it and we got through an unpleasant task at last in peace.

There was another buyer from Stroud, a most curious character, of whom my steward said that unless he was either quite drunk or quite sober it

was impossible to weigh wool with him. Usually he was between the two states, but on one occasion when he was just on enough to be merry my friend Faunce de Laune, a great Kentish sheep-breeder, sat for hours roaring with laughter at his ways and jokes, all in the broadest possible Cotswold dialect. I knew no one who can speak Gloucestershire like that now. There are a few villages where the old people still talk it fairly, but not as they did before the days of railways and schools.

Of late years I have given up the old practice of selling at home and have sent my wool to my friend Mr. J. W. Turner of Bradford, who does his best with a very difficult business. But though you get rid of a good deal of trouble and some risk in this way, it has always seemed to me that prices are as high if not higher at the auction sales in the south and west of England, where most people now market their wool, as at Bradford where it is mostly sorted.

During my first ten years' farming I used oxen for ploughing, as was general in the Cotswold hills. Six were driven in a team, with collars, not yokes, but I never heard why collars were preferred. It was the custom and that was enough reason for anything in rural England. Herefords were the favourite breed, as it was found that they kept their condition better on coarse food than any other breed. A few farmers bred them, but most bought them at two years old, say for about £15 each, and after working them four seasons sold them in autumn to feeders, or in the spring to Somersetshire graziers. These bullocks used to be of great size and weight, and a very usual price for them when fairly fresh was £30 apiece, whilst when fat they made £40 to £50. As they lived in winter almost entirely on straw, with a little meal the first year or two, and in summer grazed the roughest pastures, they did not cost much to keep, and kept growing into money. Six in a double plough would do as much as four horses, and though slow, seemed to get over the work as fast because they were never taken off for other jobs; and the effect of six heavy oxen treading the land was almost as good as a roll on our light but rather sticky soil.

But when the same popular taste which no longer favoured Cotswold mutton protested against big beef also, the demand for these heavy bullocks fell off until I have seen them sold for £18 to £20, whilst little ripe two or three year old steers, half their age and half their weight, made nearly as much. As I laid down the worst of my arable land by degrees, or let it tumble down, and straw became less abundant, I had to scheme—not how to get rid of it as rapidly as possible, as some Wiltshire farmers used to do by “making it down” into something which resembled much in an open yard—but to economise it as much as possible. So I gave up ploughing with oxen by degrees, and built Dutch barns to cover my hay and corn and save thatching. This is one of the few innovations in agriculture which has been really profitable, and I believe that two of my original barns, now twenty years old, have saved their cost three or four times over. Dutch barns are one of the few permanent erections which I have known Cotswold tenant farmers put up at their own cost, for whatever may be the desire among tenant farmers in some more favoured counties, I can only say that an “unexhausted improve-

ment " is one of the very rarest things which valuers have to deal with in the Cotswolds, whilst dilapidations of every kind are an almost certain source of claim when a tenant is leaving, and are seldom or never valued at a sufficient price.

Now having been a tenant farmer myself and had to consider all these points from a tenant farmer's point of view, I think I can understand them better than many Members of Parliament seem to do; and I have come to the conclusion that any attempts by legislation to encourage tenants to do what is really owner's work will be a failure, except in districts where agriculture is, from some exceptional combination of circumstances, more permanently profitable than it is wherever I have tried it. Fixity of tenure or anything approaching it is a mere chimera as long as agriculture remains one of the most speculative and hazardous occupations a man can embark on. It cannot be reasonable to give every man who takes a farm and who may be (now generally is) a stranger to the district, knowing far less of what a farm really wants than the owner, power to spend money on ideas which he may really think will be profitable but often turn out exactly the reverse. If a man is so much in advance of average tenant farmers that he cannot put up with the average equipment of a farm, and cannot persuade the landlord to spend what he thinks necessary, he had much better change his landlord or buy his own land. The scarcity of really capable, honest and businesslike farmers having sufficient capital to stock and work their land properly is now far less than that of the landowners who would be delighted to meet with them and do everything in reason to keep them.

But there is a very large proportion of land in England, perhaps the largest proportion, which is not good enough to attract such men even if they had it for nothing, and owners of such land must put up with a class of tenants who are not desirous of making improvements which they cannot exhaust quickly. On most of the land I have had to do with it is a work of many years really to improve either arable or pasture land to an extent which leaves it permanently better for a successor, and any tenant who has two years' notice to quit, as most of them now insist on having, can easily take out a good deal of what he has put in. If his landlord is foolish enough so to treat him that it is worth his while to do it, he has only himself to blame; but such cases are very rare in practice though not in theory, and a landowner who once gets the name of dealing harshly or unfairly with his tenants will soon find himself without any who are worth having.

The modern race of tenant farmers are a very curious set of men to deal with, and require a great deal of tact to keep on good terms with. Few of those who occupy moderate or poor land are men of business habits and still fewer believe in improvements or high farming. Why should they? I do not believe in it myself on poor or middling class land. When I began farming I was taught to believe that the better you did your land, the bigger crops you grew and the more stock you kept, the better farmer you were; but I have long ago discovered that this is not the case under modern conditions. When I farmed so, I lost money steadily; now that I only plough a little of my best land and try in every way to

spend as little as possible, growing what the seasons and the land will produce as cheaply as possible, and in fact never spending a shilling unless I see a very good chance of getting back one and sixpence, I can at least make both ends meet, and if I do not make much in a good year I do not lose much in a bad one.

It has come home to me by slow degrees that all the skill, all the science, all the labour, all the capital, which you may put into middling and poor land will produce no return unless the season is favourable. Recurrent droughts, long snowy winters, floods, wet summers and harsh cold springs, alternating with one another, have checked the desire to farm high, which I suppose every man with capital, energy and a love for the work has when he begins farming. As Professor Wallace of Edinburgh University had the courage to tell his students, it is not the farmer who grows the biggest crops and breeds the best stock who is now the best farmer. We do not farm out of a philanthropic desire to feed the country below cost price, as many people seem to imagine: nor do many of us breed animals solely to look at, as a good many of the public, by the modern system of showing, encourage us to do. Therefore the man who employs many labourers at good wages, has many fine horses and fat cows, and may, by spending £1 to get 15s., and by growing on an acre £10 worth of corn at a cost of £10 10s., be a far worse farmer than a man who scratches the earth in a primitive way and lets his stock live on what the land naturally produces, if he produces on an acre £1 worth of produce at a cost of 18s.

This is the tendency, and a rapidly growing one, of the rising generation of owners and occupiers of middling and poor land. Many of them are, and have been for years, living to some extent on the capital invested by their predecessors in buildings, fences, drains and work of many kinds, which in former times were profitable improvements but now only too often turn out a loss. Taught by experience, the rising generation does not and will not continue such an expenditure. The country gets steadily poorer, and as the buildings and cottages get more and more dilapidated land continues to go out of cultivation, local tradesmen and the small businesses of millers, blacksmiths and harness makers gradually die out or emigrate to towns from lack of local support, and the villages fall into the condition in which so many are now found where no landowner having means and a source of income outside his landed interest lives, and where there is nothing to keep the lads and young men and girls from going as soon as they are old enough to earn a living.

This state of things is not a picture drawn by a special correspondent who is sent out to write up the preconceived ideas of his editor. It is a sad though true picture of many English villages today. Only two influences are at work to check it, on which I shall have a good deal to say.

By Michaelmas '86 I had no less than five large farms, amounting altogether to about 2,500 acres, in hand. Either the rents which were offered for them were so low or the would-be takers so undesirable, that I thought it better to keep them in hand for a bit till I knew what they really were worth, and then only to let such parts as I had found were capable of growing fair crops in ordinary seasons. A great deal of my

land is what they call season land, which, though not poor in the sense of barrenness, is on account of its nature and of the elevation and climate of the locality unable to stand either drought or long-continued wet and cold, and therefore is only fertile in genial seasons, which in the eighties were conspicuous by their absence. I rarely finished harvest at that time till the end of September, and sometimes not till October; and though I did my best to hasten the deliberate operations of the farm and sow early, I found that we were often three weeks or a month behind Hampshire, Essex or Norfolk. No one realises till he has tried what an immense advantage early seasons give in cleaning and cropping the land; but early sowing will not do in a late climate, and though the best crop of wheat I ever grew (forty-two bushels to the acre without manure) was sown in the second week of September, I found that some of my more dilatory neighbours often did nearly as well. It is no use being in a hurry in farming, you cannot hurry either the men, the cattle or the weather, on which your success mainly depends; and when a man cannot learn to look on the hindrances which constantly thwart his efforts to get on, if not with perfect equanimity at least without making himself miserable, he is not fit for a farmer.

I found that with so much corn to thresh it was almost necessary to have an engine of my own, and after much deliberation and inquiry, invested in a new locomotive by Fowler, a fine powerful and well-built engine, which after using for twelve or thirteen years I finally sold for half what it cost me. It is a wonder we did not bring her to grief in going up and down some of the steep hills, where more than once I have seen the water running out of the boiler on a grade of perhaps one in four. Though my driver was a farm labourer, who had only had a week's training from Fowler's man who came down with the engine, he never had the least accident, and besides the threshing used to haul an eight-ton truck of coal from Cheltenham. It became a question whether it was necessary to take out a £10 licence for my engine, as, though engines used for agricultural purposes only were exempt, the authorities differed as to whether hauling coal for a farmer's fire, or bricks to build a farm labourer's house, were bona fide agricultural purposes. I declined to pay, however, and the matter was never pressed.

Other landowners in the neighbourhood were farming largely at this time. Some had such large areas of their property in hand that I could ride ten miles between Cirencester and Cheltenham on land occupied by the owners.

My nearest neighbour, a retired mill-owner, who had more money to spend than most landowners, spent it without stint, or rather his agent did, and rebuilt all his farm buildings, laid on water over the whole estate, and topped his walls with such big and sharp-edged stones that when the hounds went over his land I often wished that he was a hunting man like his predecessor, who was the best neighbour I ever had. So many little questions which arise between neighbours about boundary fences, locked gates, rights of way, game and so on, lead to friction with your neighbours if they are not neighbourly; and I very nearly had what might have been a costly lawsuit if I had not been well advised by my friend

Mr. Robert Elliott, now President of the Incorporated Law Society and a most able man in his profession.

I am confident that a great many of the misfortunes which have overtaken the landowners and tenant farmers of England during the last twenty years might have been, to some extent at least, avoided if they had been brought up with a better knowledge of their own business, and taught when young to look into the details of the management of their property themselves. However able their agents may be, and however honest, their interest and inclination must always be on the side of expenditure, which no doubt they believe will prove profitable, but which recent experience shows is very often the reverse. The numerous statements and accounts which have been given in evidence and printed in the reports of the Commission on Agriculture, and on other occasions, will prove that those landowners who have spent their income most freely on so-called improvements have rarely reaped any adequate reward.

That most remarkable book which the Duke of Bedford has published, *The History of a Great Agricultural Estate*, will show that however magnificent may have been his policy and that of his ancestors, however much they may have deserved, as they certainly do, to be looked on as benefactors to their tenants and the country, this system is ruinous to anyone who has not other sources of income. Philanthropy it may be, but it is not business; and yet this sort of thing is going on all over England in a smaller way on hundreds or thousands of estates. How long it will last is a problem I cannot attempt to solve, but though it has averted a state of things which even the most advanced Radical cannot look forward to with complacency, it has not made and will not make the farmers of England either contented or prosperous.

I am inclined to think that the tendency of modern agriculture will be towards the subdivision of farms into small holdings only where the land is really good enough to justify the outlay on new buildings, and situated near enough to towns to make the produce saleable in a small way. Whatever co-operation may do in Denmark to make the disposal of the produce of small farms more easy, it seems in England to be checked by many influences which do not prevail in other countries. Notwithstanding all the preaching and all the writing from those who are not landowners and who have not looked enough below the surface to see that small cultivators abroad are not the paragons of prosperity and virtue they are often supposed to be, small holdings do not increase, and indeed hardly exist in those districts where my own property lies; and the few really small farmers that remain are mostly living a harder life and making less by it than they would do if they were willing to work for others instead of for themselves.

Whether the economy, both in the production and disposal of grain and stock in large quantities which very large farms have, will tend towards their extension and to the formation of agricultural companies, is more doubtful. Farmers seem more unwilling and more unable to combine than any other class. Bona fide co-operation between the landowner and the labourer would be no doubt the best solution of the many difficulties which surround us, but, though several attempts have been made

to introduce the system, I am not aware that it has anywhere stood the test of two or three successive bad seasons or that it is spreading.

A certain gentleman of note as a manufacturer bought a large farm in the Cotswold hills and tried the experiment. The rules under which his manager and labourers were to participate in the profits of the farm and gradually invest these profits in the capital employed were admirably conceived and drawn up. But the scheme failed because the men had not enough confidence in the profits of the business to leave their shares in it, and perhaps they were right. They knew, as farmers know, that a bad season or two might swallow up the fruits of three or four years' hard work, and when they had got a few pounds added to their wages at the end of a good year they preferred to take them out rather than to leave them invested in the farm.

I paid a visit to this farm about ten years ago with my farm manager to see how it worked. We found the manager out and were able to discuss the working of the scheme with the shepherd, the carter and some of the labourers in private. We particularly enquired whether the knowledge that they would all receive a share of the profit, if any, made the men individually work harder or better, and encourage the others to do so; and whether they wasted less time in beginning and leaving off work, took more care of stock implements, and generally tried to avoid the many little acts of neglect and waste which are so trying to the temper and pocket of an employer. They told us that it might be so with one or two who had been there longest, but that most of those with whom the scheme was begun had left, and they did not see much difference as long as the bailiff was absolute master and the men had nothing to say in the general management of the farm. When the gentleman died, his trustees were unable to carry on the co-operative system, which indeed had failed in all but the name.

More recently another attempt was made in a parish in this county, and as this village had a most successful co-operative shop, the idea of co-operation was better understood by the labourers. The capital was mostly provided by a gentleman of means in the district, who took much interest in the scheme and who has given much assistance on the board of management. As a small shareholder myself I can say that it has paid a very fair interest on the original capital, this being due however, as I think, much more to the ability of the manager, who is himself a considerable shareholder, than to the labourers, of whom only a few are shareholders themselves.

I had already tried to form an association among the landowners of the district which I thought must prove mutually beneficial in meeting the difficulties which surrounded us, and in deciding how best to deal with various questions affecting our common interests which from time to time arose. But though a good many of the most influential were willing to join it, there was so much apathy and unwillingness to recognise these common interests among others, that the idea did not, in the absence of an energetic secretary, produce any practical result.

When, however, a little later the late Lord Winchilsea, at a speech made at a great meeting held in St. James's Hall, first publicly brought out

his idea of a National Agricultural Union, I saw that he was a man who was eminently fitted in some ways to inspire a national movement which should combine landowners, tenant farmers and labourers for their mutual benefit. Lord Winchilsea was so highly blessed with a personal charm, so able and eloquent a speaker, that he won my heart at once, as he did that of many others, and I determined to do all I could to support a scheme which seemed so likely to have a great future.

A council was soon formed and a prospectus embodying the aims, principles and proposed rules of the Union was circulated. Subscriptions and members poured in from all parts of England, and many men already known as local leaders in the agricultural world attended our committee meetings and promised their support. Meetings were held in all parts of England at which Lord Winchilsea's eloquent and sympathetic speeches carried all before them. Rural councils were formed in many counties and our village associations were soon numbered by hundreds. A newspaper, for which Lord Winchilsea himself found the capital and of which he was himself editor, became the official organ of the Union; and for some time it really looked to me and to many others as if the Union would ultimately have great weight in political elections and still greater influence in improving the conditions of rural life and business. But I soon began to see certain influences at work which have since gone far to check the success of the Union. In the first place we could not succeed in getting the Council of the Associated Chambers of Agriculture, who were the representatives of the tenant farmers' and to a much smaller extent of the landowners' interests, to amalgamate with the N.A.U. They had a number of excellent practical men of business who were not so readily carried away by Lord Winchilsea's eloquence as I was, and a secretary who would have been from his ability and experience of the greatest help to us. However well such an organisation may be started, its eventual success must depend to a great extent on the organising powers, tact and business capacity of the secretary. Lord Winchilsea perhaps tried to do too much himself, and certainly for the first two or three years gave up his whole time and great energy to the Union, speaking at innumerable meetings and attending constantly at councils and committees. His physical strength was sorely taxed by this great amount of work, and he seemed to me too ready to listen to and to admit on our agenda the ideas of men who had unpractical fads of their own to bring before the public, and sometimes logs of their own to roll, which were allowed to divert the attention and waste the time of our council. We also found that, though a great many of the existing farmers' associations were willing to join and support our Union, they did not wish to be swallowed up by it, and were not always thoroughly in accordance with our views as to admitting the labourers to as full a share in our councils as both Lord Winchilsea and I wished and hoped for.

We had not always realised how extremely different are the difficulties and aims of agriculturists in different parts of the kingdom. Lincolnshire, Notts and Yorkshire, where a great deal of our strength lay and where Lord Winchilsea's personal connections and property gave him the greatest hold, were living under very different conditions to those which

prevailed in the western counties. Tenant farmers came in more slowly than landowners and labourers, and seemed to have little faith in the amalgamation of the upper and the lower millstones between which they have to grind. Most of the great landowners and their agents also held aloof from active participation, though a few of them helped our funds by liberal donations and subscriptions. But the real leaders, both among landowners and farmers, could not be brought to see that their hearty support and active assistance would do more to promote agricultural prosperity than the cattle shows, which the County and National Agricultural Societies seem to look on as the one object of their existence. I do not remember that either the Royal, the Western Counties, the Home Counties, or the Highland Societies ever gave us the slightest recognition or help as corporate associations, though some of their individual members joined the N.A.U.

Our first two or three annual meetings at the St. James's Hall were packed by an enthusiastic attendance from all parts of the country, and on one of these occasions I succeeded in bringing the house down by a happily expressed phrase or two, which made me realise for the first time the pleasure which other men who have the gift of natural eloquence must always feel in addressing a large and sympathetic audience.

I found, however, as time went on, that it was impossible to give that constant personal attention at committees in London which one must give if one puts one's heart into a work like this, and my own attendance and interest, like that of others who had started full of hope, fell off from various causes.

Lord Winchelsea, who had worked harder than his constitution would bear, fell ill; his continued absence deprived us of a leader who was the soul of the Union, and in 1898 his death threw a cloud of grief over the numerous supporters who realised his self-devotion in this matter, and left the N.A.U. without a leading spirit. It still survives and may yet be regenerated when a new man comes forward who can galvanise into activity the slow pulse of the rural population; but the difficulty of effectively organising the agricultural forces of all England into a common body for united action is and probably always will be insuperable.

The extension of the vote to agricultural labourers in 1885 produced a very great change in the relations between master and servant, which had so long been of a very fairly satisfactory character on most Cotswold farms. The Agricultural Labourers' Union had never become very influential in the district, and except on one or two occasions where the want of tact, or unpopularity of a farmer, had caused temporary or partial strikes among the labourers in a certain small area, farmers and men had got on without any outward and visible symptoms of ill-feeling.

Though some of the farmers had grown up during a period when the men were very much more kept under than they are now, and treated them with scant consideration when dispute arose, yet on the whole they were not tyrannical nor unjust in daily life, nor wanting in kindness and liberality when sickness or accident threw men out of work. But as the bad times reduced their means and soured their tempers, they reduced wages when they could and perhaps were not so easy to get on with.

When the first election under the new franchise came on, we had a candidate of the very highest qualifications in Sir John Dorington, M.P. for Stroud, whose knowledge of local government questions was incomparable; and whose time and energy and talents had for many years been freely given to the county of which he was Chairman of Quarter Sessions. He was opposed in the Radical interest by the late Mr. James Winterbotham, who combined a good deal of eloquence of the type best calculated to attract an unlearned audience with undoubted belief in the principles which he professed. Though I had always been on good terms with my own men I did not expect that they would be able to see the fallacy of the arguments which were addressed to them, and I thought it would be only natural if they went for what every one told them were their own interests. I refrained from personally canvassing or trying to induce them to vote for the Conservative candidate, but did what I could to support him at public meetings.

My farm manager, a Scotsman, who had been brought up a strong Radical in his native country of Aberdeenshire, where the higher education of the people gives them a much clearer insight into politics than our people have, had modified his political views since he came south, where he said Liberals were liberal in name but not in practice. He visited with me a meeting in a neighbouring village at which Sir John Dorington, by an unwise allusion to Gladstone, who was then looked upon as a sort of god by the Radicals, brought out a strong opposition which led to blows and very nearly ended in a free fight between the rival parties. My manager was very indignant and anxious to join in chucking out the interrupters, but I restrained him. As we drove home he said to me in the accent of the North which always comes back to Scotsmen when excited, "Yon fellows may caal themselves Leeberals in this country, but I caal them saavages." After this he became a strong supporter of our side, and was one of the few on whom I could really rely when things became warm as they did later.

In the end, however, Sir John Dorington was beaten by a considerable majority, the labourers voting almost solid for the Radical candidate. Though much disgusted we were not dismayed, as it seemed only natural that men as yet quite devoid of political knowledge, assured by people whom they had not yet recognised as false friends of the personal benefit they would receive if the Liberals got in, should have believed some if not all of what they heard. However well you may think you know the ideas and wants of agricultural labourers, you will seldom find one who, on matters like this, will really open his heart to his employer, and the less you talk politics to them the better. Some of them have found out by this time who are their best friends, and others have lost interest in politics which they cannot understand. How little they often know, and how easily their vote is turned by some notion which you would never dream of, is shown by the case of two servants of my own. One of them refused to vote for the Conservatives because they had not hung Cetewayo after the Zulu War; the other because he did not see why Ministers should receive £5,000 a year as he heard they did.

Employers felt that a barrier was raised between them and their men

by politics which had never existed before, and that the same men who for many years had faithfully attended to their employers' interests, and with whom they were on friendly, not to say intimate, terms, were now going to nullify their political power, and support a party whom many of them, with some reason, looked on as most dangerous enemies. I must own to having felt this very much myself.

CHAPTER XXIII

THE DEER FORESTS OF SCOTLAND*

THE report of the Committee of which Sir John Stirling Maxwell was chairman, appointed in 1919 to enquire into the economic condition of the land devoted to deer forests, has lately been published. The enquiry seems to have been conducted in a more business-like manner and at less expense than is often the case in similar enquiries; and though there has been from time to time a good deal of demand from crofters, and from political agitators, for the restriction of deer forests, the Commission has found little cause to condemn the present use of the very large areas in which deer are preserved for purposes of sport; and their recommendations are agreed to and signed by all its members.

I do not find any allusion in the report to a very remarkable book on *Public Administration in the Highlands and Islands of Scotland*, by J. P. Day, University of London Press, 1918, in which the difficulties met with by the Government at various periods in attempts to improve the conditions of the crofters by giving them more land and by assisting emigration are given in great detail. Nothing can be more disheartening than the general results of these well-meant endeavours. They seem to show that the want of energy, industry and perseverance of the crofting population, especially in the islands, makes them a very difficult people to help. These weaknesses of character are no doubt due to three primary causes. First, overcrowding, which has produced fatal results and has led to the migration of many of the men who had any real desire for better conditions; secondly, bad climatic conditions; and, thirdly, race, which together have produced the same effects in the West of Scotland as in the West of Ireland. I quote the following from the book in question (pp. 202-204): "Of the land of the crofting counties, over one-half (54 per cent.) is mountain and heathland used for grazing; about a third (32·5 per cent.) is devoted to deer forests and grouse moors; only about one-eighth of this is under 1,000 feet above sea-level." . . . "Deer forests appear to have existed in Northern Scotland from very early days, and documents of the early seventeenth century show that some at least were then strictly preserved; but the practice of Highland proprietors letting the rights of shooting over their estates began in the early years of the nineteenth century." Lord Malmesbury's *Memoirs* give 1833 as the first year deer forests were "made and rented." "This new branch of trade or commerce," states a writer in the *Inverness Courier* of 1841, "has added greatly to the rental of many Highland estates. Instances are not rare of the shooting letting as high as the grazing of a mountain district. The yearly marketable value of the sport over a Highland property may at present be reckoned at something like the following rate, grouse being the unit or standard of value, viz.:

* Reprinted from *The Scotsman* of May 27, 1922, by kind permission of the Proprietors.

- One red deer equal to 100 brace of grouse.
- One roe deer equal to 20 brace of grouse.
- One salmon angled equal to 20 brace of grouse.
- One mountain hare equal to one brace of grouse.
- One brace of grouse equal to five shillings.

Thus a shooting supposed capable of producing on an average of seasons, with fair sportsmen, 500 brace of grouse, would let at £125. (Note.—This might today be quadrupled.) If the house accommodation is good, or the moor of high reputation, a larger sum may be obtained, and we have known 10s. a brace offered for a month's shooting." It was added that fifteen years' purchase was considered the value of the game on an estate.

The sport rapidly became fashionable; in 1844 there is a list of about ninety shooting tenants, and the number steadily rose year by year. Sporting rents increased very considerably in value, and since the price of wool and sheep began to fall, with increased importation from the colonies, it became advantageous to the proprietors in many cases to substitute deer for sheep. Another factor was a change in the public taste for prime mutton, which, about forty years ago, was two-year-old wedders. When the taste for old mutton disappeared, the growing of wedders became comparatively unprofitable, and the higher lands of north-west Scotland, which formerly carried a wedder, but are unsuitable for a ewe, stock became unlettable for sheep.

In 1872 a Select Committee of the House of Commons was appointed to enquire into the laws for the protection of deer in Scotland, and, generally, to ascertain whether this substitution was against the interests of the community. They reported in 1873 that the deer forests had not tended to the depopulation of the country, nor had the food supply of the nation been diminished by the displacement of sheep for deer, while they estimated the number of sheep actually displaced by deer as below 400,000. Nevertheless the idea that the homes of hundreds of crofters had been pulled down and burned and the people turned adrift in order to establish deer forests became a somewhat popular delusion. It was urged before the Napier Commission, and was indeed quite definitely stated by Mr. Lloyd George, the Chancellor of the Exchequer, at Swindon and Bedford, so recently as 1913. The Napier Commissioners found on investigation only one clearly established case of the removal of crofters for the purpose of increasing the area under deer, though other cases might be cited of the diminution of crofting area for the same purpose. "The existing deer forests, which have been created for the most part within the last thirty years, have been, as far as made known to us, formed out of large farms by simply removing the sheep and allowing deer, of which there was probably a greater or less number already there, to fill up the ground so vacated. Depopulation, therefore, cannot be directly attributed to deer forests," for they do not employ fewer people than the sheep farms. The Commissioners, summarising the evidence brought before them, claim to have shown "that crofters have rarely, at least in recent times, been removed to make or add to deer forests; that comparatively little of the land so occupied could now be profitably cultivated

or pastured by small tenants; that no appreciable loss is occasioned to the nation, either in mutton or wool; and that the charge of inducing idle and intemperate habits among the populations is not consistent with experience. There remains the class of sheep farmers, of whom it may be said that if they are affected at all it is only in connection with the cost of wintering their hill sheep, and that in this respect deer forests have undoubtedly benefited those who remain by diminishing competition." They add, however, that these views did not imply an approval of the then present appropriation of land in all cases to unproductive uses, far less an indiscriminating application of additional tracts to a similar purpose in future; but they considered that the interests of the crofters would be effectually secured if the crofters were protected against any diminution, for the purpose of afforestation, of arable or pasture area then in their possession, and if the areas which might thereafter form the most appropriate scene for expanding cultivation and small holdings should be preserved from curtailment. The Valuation Act, 1854, had specially exempted deer forests shootings from assessment when they were unlet; this exemption was withdrawn in 1886."

Among the numerous owners, factors, farmers, crofters and professional stalkers who were examined in person or by letter, of whom a list is given on pp. 33-42, I do not find the name of a single Englishman or any representative of the lessees, without whom very few deer forests would exist as such, and without whose rent some parishes in the Highlands would become as nearly bankrupt as large parts of the Hebrides actually are. As I have had, from 1866 down to 1920, considerable opportunities of seeing many of these forests, and stalking in several of them. I may be able to compare their condition with those of lands let for sport in other countries in Europe; I think that I can bring out some points of interest which do not seem to have been considered by the Commission. The report states that until the middle of the last century deer forests in the modern sense hardly existed; the old Highland chiefs seem to have cared little or nothing for sport, and though they occasionally had great deer drives, in which hundreds of deer were more or less mobbed to death by great numbers of drivers assisted by deer-hounds, there is no evidence known to me that any of them were keen deer stalkers.

It is a very curious fact that no stags' heads are preserved in any Highland castles to show us whether the deer of the Middle Ages were as much larger than those of the present time as is generally supposed, and as the horns which have been dug up in peat bogs prove that they were in still earlier times. In Germany in the sixteenth and seventeenth centuries a rage existed among the nobles and crowned heads for big stags' horns, as is well described by Baillie-Grohman in his *Sport in the Alps*; and the wonderful specimens which have been preserved in the castle of Moritzburg and elsewhere are very much larger than any that exist today, even in the Carpathian and Hungarian forests. But neither in Millais' *British Deer and Their Horns* or Rowland Ward's *Records of Big Game* can I find any mention of Scottish stags' heads of an earlier date than the end of the eighteenth century. The first English sportsman who is recorded to have visited the Highlands especially for sport was

Colonel Thornton, and he in 1786 seems to have fished, shot and hawked wherever he liked. In the old Statistical Account of Scotland (1791-1799) only nine deer forests are mentioned, five of which I know personally. In 1838 Scrope, the first to describe deer-stalking as a sport in Scotland, names about forty. In those days of muzzle-loaders deer-hounds were almost as important a part of a stalker's outfit as setters or pointers were to the grouse-shooters; and even twenty years later, when St. John first told us what real deer-stalking was, in that delightful chapter of wild sports of the Highlands, *The Muckle Hart of Benmore*, a collie dog to track wounded deer was his regular companion. When, however, the railways opened up the country and it was possible, as the late Captain Henry Fraser told me himself in 1866, to dine one evening in London, and the next in his father's (Lord Lovat's) house on salmon, venison and grouse killed by himself on the same afternoon, rich Englishmen began to lease the existing forests, and to rent from the large sheep farmers, on whose farms many deer existed, the exclusive right of stalking. On such a farm, now the forest of Killilan in West Ross-shire, when occupied by the brothers Frederick and Joseph Godman in 1873, I remember having excellent sport with an old shepherd as stalker, a man very much after the type of St. John's henchman, "Donald," who had very little English, and was a very different man from the tip-hunting stalker now found in some forests, who treats you as if you had no eyes and no judgment of your own, and would rather take you up to an inferior stag than run the least risk of disturbing a good one near the march. On Killilan in that year thirty stags were killed for a rent of £300, which was about half the rent of the farm, so that a sheep farmer had a distinct interest in protecting the deer, and his shepherds acted as watchers. In those days there were few pony-roads in the forest, and instead of motoring up to the foot of his beat as the modern stalker often does, and having two or three ponies to meet him with the practical certainty of bringing home two or three stags if he does not miss them, we had to walk many miles over the hill to our ground, and, what was far worse in the back-end of the season, many more over rough ground in the dark after a late stalk.

To my mind, the charm of the sport, which depends so much upon its uncertainty, is now largely gone, and the small subdivided forests, sometimes partly fenced, and containing few if any stags that a man would really care to shoot, are not worth the rent, or anything like the rent, which up to 1914 was commanded. Since then we are told that the area occupied by forests has been reduced by 152,000 acres, eleven have been restored to pastoral uses, and three acquired for forestry purposes by Government. But notwithstanding this reduction, there were many forests unlet during the season of 1921, though the demand for grouse shooting was never greater, and though the modern lodges in some forests are of a costly and even luxurious character in comparison with the old-fashioned farmhouses, which satisfied most tenants fifty years ago. The causes of the decline in the demand for and rent of these forests which have not other attractions in the shape of grouse shooting and fishing are attributed in the report to financial stringency and general retrenchment; but the excessive rents of pre-war times, often as much as £50

for a stag, were, even if halved, more than the sport was really worth, and many men, like myself, preferred the wilder and more novel forms of stalking which the elk, the red deer, and the reindeer of Norway, or the chamois and stags of Central Europe, afforded at a much lower cost. No writer on sport has better described the many varieties of big-game hunting, which in various parts of Europe have competed with Scottish deer forests, than Mr. E. N. Buxton in his two charming volumes, *Short Stalks*; and I believe that the report is correct in thinking that the Scottish forests have seen their maximum of popularity and rent. During the war, owing to the very high price of meat, and the absence of many owners and tenants, a great many stags and an unusually large number of hinds were killed by the older stalkers who remained at home, or by officers temporarily disabled or on furlough, and in one case that I know, the low rent of a well-known stag forest was recouped by the sale of the venison, though it had to be carted thirty miles to a station and sold in London. The diminution in the number of deer between 1914 and 1919 was therefore considerable, and it is probable that the remaining stock, after the severe winters of 1917-18 and 1918-19, was the better for it, owing to the death by starvation of many weak animals. The normal number of deer killed up to 1914 was computed at 6,000 stags and 5,500 hinds. The Venison Supply Committee in 1916 reported that, in 1916-17, 11,946 deer, weighing 1,600,963 pounds, were killed, and in the following season 17,500 deer, with a weight of 2,450,000 pounds.

One of the questions which the Commission had to enquire into was the extent to which the forests could be used for grazing of sheep and cattle, and they report that in about one hundred forests steps were taken in this direction during the war, with the result that, in 1916, 5,504 cattle and 58,983 sheep were grazed during the whole or part of the year, and in 1920, 6,759 cattle and 106,831 sheep. As I know from my experience on large areas rented from peasant proprietors and from Government in Norway, and in the Vorarlberg and Styria, a large number of milking cows are kept for cheese-making during the summer at Saeters or Alphutten in stone or wooden huts, often many miles distant from the farms. In these they are mainly cared for by women and girls during the three or four months of summer, the men being fully engaged in haymaking at a distance. But these girls, either the daughters of the owners of the cattle or hired, work for almost no wages, and work very hard. It is therefore a question to what extent the old custom of sending young cattle to the shielings might be resumed, and this seems to depend mainly on the possibility of finding land on which to winter the cattle in the neighbourhood; for, though on the West Coast there are many crofters who are ready enough to summer their young cattle in the forests, if they can get the grazing for a nominal sum, or use the grazing without leave, as they have done in two cases I know in the Hebrides, few large owners seem to have been in a position to stock with their own or the crofters' cattle. A list of those who have done so is given in Appendix IX. to the report.

I doubt if it is generally known to owners of deer forests, and it would probably not be agreed to by most foresters, that the presence of cattle during the months of June, July and August, so far from doing harm, is

a distinct improvement to the grazing; but in Austrian deer forests I have repeatedly found that the most favourite grazing places for deer were those which had been fed the hardest during the summer by cattle, due, no doubt, to the sweeter pasture caused by the manuring of the ground for very long periods. Even before the cheese-makers had left the ground, stags would frequently be found within hearing distance of their voices. Elk, which are much more solitary animals than deer, I have seen in Norway very close to where cattle were grazing, and as long as the cattle are under the care of foresters or persons in the employ of the sporting owner or tenants, I do not think there would be the same objection to their presence on the ground, even during the early part of the stalking season, as there is to sheep. Old wedders will wander away to the summits and lie in the very places most frequented by stags in the hot weather, but this is not the case with cattle.

The following particulars are extracted from Appendix IX. of the report:

<i>Forest.</i>		<i>Sheep.</i>	<i>Cattle.</i>	<i>Acreage.</i>	<i>Assessment.</i>
Ardnamurchan	350	285	26,000	£1,790
Benmore Mull	855	241	19,000	£231
Inveraray	5,000	500	36,000	£891
Tarbert	1,100	193	22,000	£923
Affaric	800	100	32,000	£1,260
Glenstrathfarrar	—	343	30,000	£550
Knoydart	1,659	178	48,000	£1,250
Mamore	1,400	275	30,000	£1,720
Struy	—	182	18,000	£1,200
Glenartney	5,387	211	17,000	£700
Benula	2,000	200	19,000	£150
Kintail	3,000	100	26,000	£325
Strathconor	2,391	95	51,000	£2,350

These numbers will doubtless seem to those who have no experience of the climate of the deer forest from November till May very trifling, but the very low rateable value of these forests is the best indication of how small is the agricultural value of the land, and how large are the outlays which have been made in the past by owners to fit them for grazing or sporting tenancies. The only case in which the grazing value of a forest seems to have been really utilised to its full extent is the Earl of Ancaster's forest of Glenartney, which on account of its low elevation, excellent grazing, and isolation from other deer forests, is more like a large enclosed deer park, and such stalking as it affords would hardly attract people who know what real deer-stalking is.

Norwegians would no doubt make much more use of such grazing as the deer forests afford, and would make a living where West Highlanders or Hebrideans would starve, as they did starve in the old days unless they emigrated, or were bold enough and strong enough to plunder their weaker and less warlike neighbours. Norwegians are more industrious, and have realised by long experience that the attempt to keep several families on a farm which will not feed more than one is as ruinous to the

families as it has proved to be in the Hebrides. Where the farms are distant from the coast, they usually have winter work in the woods cutting and hauling timber; where they are on the coast they make a much better use of the fish than the Highlanders ever did. The poverty of the small farmers and crofters and their cattle in the Highlands in the days of the shielings would not be endured by them today, as may be gathered from what was told me by an old gillie as we sat on the site of an old shieling which his own grandmother had once used. After a bad winter, when there was no milk, and the oatmeal from half-ripened oats was too poor to nourish the people without it, they used to bleed the cattle and mix the blood with the brose, and he said that there was a Gaelic name for this mixture, proving that the practice was a common one. Now, there is tea and sugar in the poorest crofters' houses, and when there is no milk the people buy tinned milk, and many other luxuries unknown to their fathers. With regard to sheep, it seems that two causes tend to make them less profitable than formerly. One is the practice of sending the lambs away to be wintered on East Coast or low country farms, at a cost as great as the lamb is worth when weaned, and as the value of blackfaced wool is now so low that it does not pay to keep two or three year-old wedders which can winter on the hills, it is usual to sell all the best of the wedder lambs fat to the butcher, or to low-country farmers if not fat enough to kill. Attempts are being made, in which Sir R. Greig, now Secretary to the Scottish Board of Agriculture, is much interested, to improve the wool of the blackfaced breed, which is now mainly used for carpet-making; and it seems to me that if more trouble were taken in improving the best patches of land by slag, lime or artificial manure, and converting the grass on it into hay or ensilage, a sufficient number of ewe lambs might, in the West at least, be wintered on or near the land they were bred on, and that by burning much of the old heather which is found in many of the deer forests, in the same way as is done on all well-managed grouse moors, the feed would be much improved both for deer, sheep and cattle.

On p. 21, the report calls attention to the great increase of bracken, usually where the best patches of soil occur. This, I am assured by experienced old shepherds, was nothing like so prevalent fifty years ago, and they believe it can best be kept down by a number of cattle treading down and bruising the tender young shoots in the spring.* The great increase of rabbits in some parts of the Highlands, though not mentioned in the report, is another cause for the deterioration of the grazing in those places, and I know three places at least where the wintering was seriously affected by them.

Perhaps one of the most interesting as well as the most difficult part of the Commission's enquiries, though not specifically mentioned in their reference, is the economic possibility of timber-growing in deer forests, and this is rather briefly dealt with on pp. 17-18 of the report. No one has done more than Sir John Stirling Maxwell himself in his

* I have seen in Wales farms which became derelict owing to the sheep having died of fluke rot, which in a few years became completely overgrown with bracken, and worthless, except for rabbits.

own forest of Corroul to show what is possible and what is not in the way of planting. The question has also been most ably dealt with by Lord Lovat and others in the well-known Report on Afforestation in Glenmore. The late Sir John Ramsden's very extensive plantations at Ardverikie and Benalder, amounting to over 10,000 acres, have now in some cases attained an age that enables some estimate of their commercial value to be made, and we are told that during the war £100,000 was offered for 2,000 acres of timber on Loch Ericht, all above 1,100 feet elevation, and planted between 1875 and 1881. As far north as Braemore, in West Ross-shire, 592 acres planted by the late Sir John Fowler were sold to the Government in 1917 for £52,500, and estimated to contain over a million cubic feet; which shows, allowing for some previous thinnings, something like 2,000 feet per acre in fifty years, and a value of nearly 1s. per cubic foot. What these two lots would have been worth in normal times may be gathered from the fact that for the finest natural Scots pine I ever saw, standing only five to seven miles from the Caledonian Canal, I was told that the highest bid was under 3d. a foot; and I believe that a large quantity of similar but rougher pine in the Black Wood of Rannoch was sold after the war at very little more.

It is much pleasanter for any lover of forests to point to such cases as that of the Gairloch plantation of Douglas fir, which, we are told, contains 7,490 cubic feet per acre at fifty-four years of age, or to such trees as can be seen at Inveraray, Benmore and other places on the West Coast; but all these were planted at a third of the cost they would now require.

In considering the question of afforestation, there are other important questions to consider—namely, the cost of fencing, and the fact that much of the ground which is most suitable for planting is also most necessary to reserve for wintering. Plantations of any kind cannot be raised without an efficient deer fence calculated to last at least thirty years, and many of the cheap fences I have seen need frequent repairs long before that. They are also much more costly than formerly. Even in the old natural pine woods natural reproduction by seed is usually impossible without fencing, and the enclosure of a large area in order to reduce the average cost per acre almost always leads to the inclusion of land within the fence which is useless for planting, though often planted by those who have insufficient knowledge and experience. On this point a paper in the Transactions of the Scottish Arboricultural Society by the late Mr. Boyd at Inverleiver is most instructive. Though larch is at present more or less under a cloud, on account of the ravages of disease on land unsuited to it by soil or climate, it has one great virtue in this connection which is not sufficiently recognised. If planted thin enough to suit its natural requirements, and kept thin enough to allow sun to warm the land, the fall of its leaf certainly tends to encourage the growth of useful grass, which when thrown open to sheep, cattle or deer as soon as the young trees are old enough, develops into better pasture than the land would bear without the larch. That, at least, is my experience. But this is not the case with spruce, pine or Douglas fir, which must be kept as close as they will bear crowding, to suppress side branches. That larch will grow well in the East of Scotland

at least up to 1,500 feet or even higher is shown in the forests of Mar, Ballochbuie and Caenlochan.

Mr. Sutherland's memorandum, printed as Appendix VII. to the report, states that three forests comprising 34,700 acres in all have been purchased by the Forestry Commission, of which about one-third are considered suitable for planting. The only one of these which I know and have stalked on is Achnashellach, where there is no doubt some nice land through which the railway passes that will grow good timber; but I venture to say that the estimates of the cost of planting and the eventual financial result are too sanguine and unlikely to be realised.

It seems that where land exists suitable for planting in situations where water-carriage enables the produce to be marketed at a reasonable cost and where the proprietors are themselves in a position to finance and superintend, the ideal combination of sport, farming and forestry, or the fencing and planting can be done by means of loans at a low rate of interest, a certain number of deer will be allowed, though nothing like so many as at present; but there must always remain in Sutherland, Ross, Inverness and Perthshire a very large area of land, just as there is on the fjelds of Norway, which can be profitably used for no other purpose than sport, and where the attempt to create forests, crofts or permanent grazings can only end in failure. The division of deer forests into four classes, as suggested on pp. 29, 30 of the report, seems to be a very sound one.

I congratulate the Commission on the production of one of the most interesting, and, as it seems to me, honest reports I have ever read.

CHAPTER XXIV

GARDENING AND HORTICULTURE

PERSONAL IMPRESSIONS AND RECOLLECTIONS BY E. A. BOWLES.

HENRY JOHN ELWES stands out as one of the greatest among the numerous eminent amateur gardeners of his day. It is difficult to define the qualities which made his influence so powerful, but those that impressed me most were the width of his knowledge, his love of accuracy, and his untiring energy and generosity. I believe that his influence on the best forms of gardening has been as far reaching, and will prove as valuable and as lasting, as that of any of the able writers or makers of fine gardens among his contemporaries. As a traveller and collector he went farther afield and reaped a greater harvest than any other amateur, even including George Maw.

Gardening and collecting plants were not his chief interests in his earlier travels, which were undertaken to obtain birds and insects, and it was not until after his marriage that, stimulated by Sir Joseph Hooker, he began searching for plants. He told me once of the pleasure he had derived from seeing plants in their native surroundings, and in introducing them to gardens, and ended by saying, "And to think I spent twenty of the best years of my life catching butterflies."

Such experience, however, was not wasted, and his field work in these other branches of natural science did much to give him a wider view of collecting than that of the enrichment of gardens. His latest finds always made their way to Kew, or to someone whom he recognised as the best authority on such plants, as much for the sake of helping forward scientific knowledge as to obtain accurate names for those which he cultivated. So long ago as 1874 Sir Joseph Hooker wrote in the *Botanical Magazine* when describing *Galanthus Elwesii*:

"I am indebted to Mr. Elwes, of Miserden House, Cirencester, a gentleman who to an ardent love of scientific horticulture unites the powers of a traveller, collector, and observing naturalist, for pointing out its distinctive character from *G. plicatus*. . . . Mr. Elwes collected the specimens here figured on the mountains near Smyrna, and cultivated them in his garden, which bids fair soon to contain perhaps the largest and best private collection of well-named bulbous plants in the kingdom."

This accuracy of naming was always one of the valuable features of his collections of plants, and has been of great service to horticulture. It was indeed fortunate that one who distributed plants so widely was so much interested in their correct naming, especially during the period when a vogue arose for the bestowal of newly coined English names on exotic plants. Though well able to make use of the descriptions of plants in botanical books, he would have disclaimed all right to be regarded as a scientific botanist and preferred to submit specimens to others for naming. He entrusted the botanical side of his books to trained botanists—*The Genus Liliium* to J. G. Baker, and that of *The Trees of Great Britain and Ireland* to Dr. Augustine Henry.

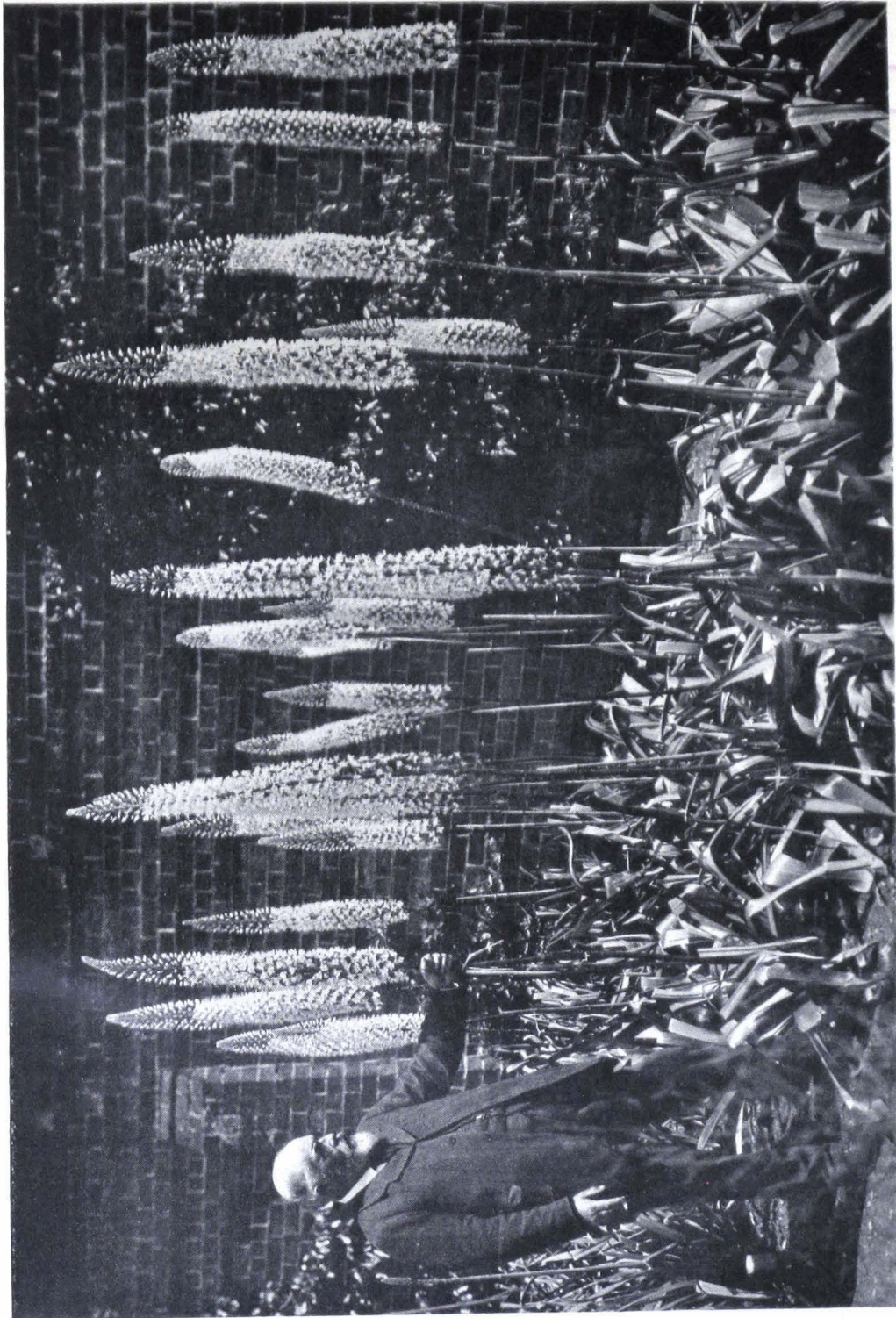


FIG. 17.—THE AUTHOR IN HIS GARDEN, WITH HIS "EREMURUS ROBUSTUS ELWESIANUS."

KLAW
MAY 1917

I often thought that Elwes underrated his own powers as a scientific botanist, and I believe that this was chiefly due to his astonishing ability of recognising at a glance animals or plants he had at any time observed carefully. Rapidity of discrimination is often the chief element of success in collecting birds or insects, and a skilled field naturalist easily becomes accustomed to relying upon his powers of recognition at sight and may neglect comparison of the characters of a specimen with technical scientific descriptions, which is the practice of those working in museums with dead material.

Elwes possessed the keen eye of a born naturalist, and his field work trained him to observe detail to a wonderful degree of perfection. This, and a singularly retentive memory, gave him a power of recognising plants that often astonished me. It was always a great pleasure to go round my garden with him and to hear him greet an old friend among my plants. I recall his asking "Where did you get *Zygadenus Fremontii*? I haven't seen it for twenty years," and a minute later saying: "Hey, hey! What have we here? This is something I don't know, I have never seen this before." Very little that was good escaped his practised eye, but he used to say, "Don't let me miss anything; please show me any plant I do not notice."

He preferred true species to garden-raised varieties, and the garden and glass-houses at Colesborne contained a vast collection of rare species of the genera in which he was specially interested. Among these I recall *Pæonia*, *Crinum*, *Yucca*, *Fritillaria*, *Arisæma*, *Kniphofia*, *Lilium*, *Crocus*, and *Iris* in the open; *Hippeastrum*, *Cyrtanthus*, *Mesembryanthemum*, *Mammillaria*, *Cotyledon*, *Crassula*, *Haworthia*, *Pancratium*, *Sansevieria*, and a good collection of orchids under glass.

He was also interested in hybridising the species of certain genera, and was especially successful with *Eremurus*.

He crossed *Vallota purpurea* and *Cyrtanthus sanguineus* both ways.

He obtained a fine collection of species and hybrids of *Nerine* from Max Leichtlin of Baden-Baden in 1890. Elwes continued raising seedlings, and the Colesborne *Nerines* are recognised as the finest in existence.

He possessed a good library of botanical books, and was justly proud of possessing the unique copy of the *Botanical Magazine* in which the second and third series were printed on large paper, and the plates usually folded were bound without a crease. Only three copies were issued in this state, and one only was continued to the end of the third series. This copy belonged to Sir William Hooker and was continued for his son, Sir Joseph, after whose death Elwes purchased it from Sir William Thiselton-Dyer. His interest in the *Botanical Magazine* never ceased, as the following quotation will show. It is from the interesting obituary notice written by Mr. F. R. S. Balfour; it first appeared in the *Gardener's Chronicle* on December 2, 1922, and was republished with a few additions in the *Kew Bulletin* for that same year.

"Mr. Elwes's intimate association with the *Botanical Magazine* began in 1875 and continued to the last days of his life. It is not unfitting to note here that largely through his generosity and by his active interest this venerable publication, after a short lapse, has now been launched again on what we all hope will

be another century of unbroken prosperity and even greater usefulness. The recently issued part contains a new *Æschynanthus* from his collections, and several plates in the parts now in the press were prepared from material furnished by him. He had a particular wish that the number of his plants figured in the magazine should reach a hundred, and it was a great satisfaction to him to know that during this past year the century was attained. In July last he wrote: 'I believe I am right in saying that no private garden has contributed so many species to the *Botanical Magazine*.' So long ago as 1877 Sir Joseph Hooker dedicated a volume to him, 'an honour,' he declared, 'which at such an early period I did not deserve.' Sir Joseph's fine tribute to the zeal, intelligence and success with which Mr. Elwes had pursued horticultural botany, and to the liberal spirit in which he had laboured to advance its best interests, might have been expressed not only with reference to what he had so far accomplished, but what one having a knowledge of his character and talents might have expected from him during his subsequent life."

We may then rightly say that he was a botanical gardener of high accomplishments, though he himself made light of his powers.

In the last years of his life, in a letter to me about the preparations he was making for the publication of these Memoirs he wrote:

"Though I cannot pretend to the accurate and minute powers of observation and knowledge of hardy plants of . . . I thought something might be done that would be useful and interesting to others."

And he had seen more, and knew and remembered more of what he had seen, than any of us!

It was greatly due to Mrs. Elwes's interest in plants that he took to gardening. Before her marriage she visited the Alps, and an eminent botanist whom she met there helped her to name plants and so started her interest in them. I grow plants of *Polygonatum verticillatum* given to me by Elwes, who told me he collected them in Scotland during his honeymoon in 1871.

He made his first garden at Miserden House, near Cirencester, and on the death of his father in 1891 moved to Colesborne, high on the Cotswolds, on a cold oölitic formation. Plants were cultivated there to a surprising degree of excellence in spite of a cold soil and early frosts that generally ruined Heliotrope and the huge leaves of *Paulownia tomentosa* early in September, quite a month earlier than in other gardens in the county.

I never saw the garden at Miserden, but heard much about its treasures from my old friend Canon Ellacombe; but I was a frequent visitor at Colesborne.

Elwes was at his very best in his own garden. It was delightful to see how much he enjoyed a good plant and also seeing a guest equally pleased with it. He knew so much of the habits, history and requirements of his plants, all of which he would impart, more as though reminding a less experienced gardener of facts he knew than in the way of instruction. No gardening amateur of my acquaintance equalled Elwes in the vigour of his zeal to obtain good plants, to cultivate them well, and then to distribute them to all who appreciated them. I feel certain that no good collection of plants can be found in Britain which does not owe many of its best directly or indirectly to his generosity. He enjoyed giving away a plant as much as

obtaining one, and it seemed marvellous that any good plant was left in the garden.

I remember his disregarding all my protests and digging up his last remaining plant of the fine form of *Podophyllum Emodi* var. *chinense*, figured in the *Botanical Magazine* (t. 8850), to see whether it was possible to divide it, and ending by wishing me to take the indivisible result.

It was such an evident pleasure to him to call loudly in his splendid ringing voice for gardener, spade, and wheelbarrow, directly he learned that some noble Pæony or other large plant was not yet in his guest's garden. In 1901 he wrote to me:

“ I shall hope next spring to have the pleasure of a visit from you, when I will take up all my Croci and give you anything you want.”

It would require several chapters for the mere enumeration of fine plants I have seen in flower at Colesborne, from the masses of snowdrops in great variety in early spring, to the fine varieties of *Amaryllis belladonna* flowering in late September close to greenhouse walls. Certain pictures that stand out in my memory are a group of *Kniphofia caulescens* and *K. Northiæ* on a wide ledge in the rock garden, both of them sprawling out over large blocks of stone, yet as healthy as I ever saw them anywhere; a wide stretch of a very good seedling form of *Rosa spinosissima altaica*, called after Mrs. Elwes—its white flowers are large, and I think contain more than the normal five petals of the older form; *Rosa Moyesii* in many shades of coral pink as well as the better-known rich red which glows against the sunlight and looks as transparent as a carbuncle; tall spires of *Meconopsis Wallichii*, some claret purple, others a puce brown, contrasting with those of the usual sky blue colouring; *Lilium chalconicum*, as happy as ever after many years of life growing out of a dwarf bush; a tall *Eucalyptus coccifera*, blue as the sea in some lights, which, alas! was sadly broken by snow the last time I saw it; a form of *Rodgersia pinnata* with crimson flowers; the brilliant red young growth, and later the striped leaves, of *Euphorbia sikkimensis*; the dwarf pink form of *Alstroemeria Ligtu* known as var. *Hookeri*; *Gladiolus Saundersii* which spread about like a weed, making a grand show when the curiously hooded scarlet flowers rose above its glaucous leaves.

Besides these I like to think of the way in which *Tropæolum Leichtlinii* spread its long trails of orange flowers over the retaining wall on the south side of the range of greenhouses, and of the rows of giant spikes of many-coloured *Eremurus*—seedlings which could not be equalled elsewhere. In those days two plants of great rarity were *Yucca rupicola*, the only species with horny edges to the leaves hardy in England, and *Pæonia cretica*, with large white flowers.

A beautiful September picture was made by a large-flowered form of *Clematis Flammula*, falling down over a wall and mingling its snowy sprays with the metallic blue spikes and silvery foliage of a bush of *Perowskia atriplicifolia* trained against the wall to a height of six feet.

Fritillarias of many kinds grew better at Colesborne than elsewhere, and the fragrant *F. obliqua* with its nearly black flowers was one of the best. The large groups of *F. imperialis*, the Crown Imperial, in the long her-

baceous border close to the house made a fine show in the evening light of a spring day. The scentless variety of this plant of fox-like odour was another Colesborne treasure.

The Eastern Jasmine, *Jasminum Sambac*, one of the most fragrant plants in the world, scented one of the warmer houses with its large semi-double flowers. It is the species used by the Chinese to give a scented flavour to the so-called Jasmine tea. *Heeria elegans* came to me from Colesborne, and year by year its almost too vivid crimson flowers bring back to my mind the house in which it grew. *Babiana stricta*, with its blue flowers and startlingly contrasting crimson eyes, has spread widely by now, but I believe all came originally from Colesborne. It is seven years since I was there, and I feel I have forgotten much that I should like to record.

One of the later developments at Colesborne was a series of low glass-houses connected with one another on sloping ground. In these plants were grown in beds on the staging on either side of the central pathway. I never saw a more varied and interesting lot of plants so well grown in so small a space. *Iris Wattii*, planted on the ground level in the top corner, threw up stems over six feet in height. Alpines with evil records for kindly response to cultivation flourished in the raised beds. Many species of *Calceolaria*, *Oxalis*, and other tender bulbous plants provided an unbroken succession of blossom. The lowest of these houses was finally devoted to succulent plants. There, and in a loftier house in another part of the garden, a wonderful collection of these strange drought-resisting plants was the chief interest of his last years. *Mesembryanthemums* resembling stones, *Haworthias*, *Gasterias*, *Cotyledons*, *Crassulas*, *Mammillarias*, and *Euphorbias* of great rarity and weird forms and colouring met together there.

I take this opportunity of recording my gratitude to Henry Elwes for a score of years of pleasant friendship, many of the most beautiful and interesting plants in my garden, and especially for the inspiration and encouragement towards better gardening derived from his conversation and visits.

The garden-lover who can look ahead of all his many set-backs and failures, with the hope of better seasons, improvement among his seedlings, and a solution of his difficulties in cultivation, will find his pleasure and interest increase as his years mount up. No one has exemplified this better than Elwes in his life and work.

In the last letter Elwes sent to Sir Frederick Moore he wrote: "I have, during my life, taken an active part in most outdoor sports and occupations. I have crossed and recrossed the Himalayas and the Andes, explored Siberia and Formosa, shot and fished in Norway, and, as I grow older, I find that there is more companionship, consolation and true pleasure in gardening and in plants than in anything I have tried."

APPENDICES

APPENDIX A

LIST OF PLANTS FIGURED IN THE "BOTANICAL MAGAZINE"
INTRODUCED OR GROWN BY H. J. ELWES, F.R.S.

Year.	No. in Botanical Magazine.	Name.	Native Country.	Collected by.
1875	6166	<i>Galanthus Elwesii</i>	Asia Minor	H. J. E.
	6168	<i>Crocus Crewei</i>	Island of Syra	H. J. E.
	6176	<i>Crocus Fleischeri</i>	Asia Minor	H. J. E.
	6187	<i>Crocus Boryi</i>	Asia Minor	H. J. E.
	6191	<i>Tulipa Eichleri</i>	Asia Minor	—
	6200	<i>Calochortus citrinus</i>	California	—
1876	6242	<i>Tulipa Hageri</i>	Greece	—
	6244	<i>Bongardia Rauwolfii</i>	Asia Minor	H. J. E.
	6255	<i>Serapias papilionacea- lingua</i>	South France	—
	6269	<i>Muscari æstivale</i>	—	—
1877	6281	<i>Dracocephalum speciosum</i>	Sikkim	—
	6295	<i>Tigridia lutea</i>	Peru and Chile	—
	6308	<i>Tulipa undulatifolia</i>	Asia Minor	H. J. E.
	6321	<i>Fritillaria acmopetala</i>	Asia Minor	H. J. E.
	—	<i>Fritillaria dasyphylla</i>	Asia Minor	H. J. E.
	6335	<i>Gladiolus Eckloni</i>	South Africa	—
1878	6343	<i>Iris cretensis</i>	Asia Minor	H. J. E.
	6371	<i>Fritillaria Sewerzowi</i>	Turkistan	—
	6374	<i>Tulipa saxatilis</i>	Crete	—
	6385	<i>Fritillaria Hookeri</i>	Sikkim	H. J. E.
	6388	<i>Pleione Hookeriana</i>	Sikkim	H. J. E.
1879	6433	<i>Chionodoxa Luciliæ</i>	Asia Minor	H. J. E. and G. Maw.
	6444	<i>Bomarea acutifolia</i>	South America	—
	6446	<i>Arisæma nepenthoides</i>	Sikkim	H. J. E.
	6453	<i>Chionodoxa nana</i>	Crete	—
1880	6474	<i>Arisæma utile</i>	Sikkim	H. J. E.
	6475	<i>Calochortus Benthami</i>	California	—
	6491	<i>Arisæma Griffithi</i>	Sikkim	H. J. E.
	6529	<i>Disa megaceras</i>	South Africa	—
1881	6562	<i>Hymenocallis Harrisiana</i>	Mexico	—
	6569	<i>Kniphofia comosa</i>	Abyssinia	—
1882	6625	<i>Satyrium nepalense</i>	Sikkim	H. J. E.
	6638	<i>Hedychium gracile</i>	Sikkim	H. J. E.
1883	6710	<i>Tulipa Kolpakowskyana</i>	Turkestan	—
	6718	<i>Aster diplostephoides</i>	Sikkim	H. J. E.
1884	6732	<i>Primula prolifera</i>	Sikkim Himalaya	H. J. E.
	6742	<i>Kniphofia foliosa</i>	Abyssinia	—
	6754	<i>Tulipa Kesselringii</i>	Turkestan	—
	6761	<i>Tulipa Alberti</i>	Turkestan	—
	6786	<i>Tulipa primulina</i>	Algeria	H. J. E.
	6789	<i>Allium macranthum</i>	Chumbi valley	H. J. E.
1885	Nil	—	—	—

Year.	No. in <i>Botanica!</i> <i>Magazine.</i>	Name.	Native Country.	Collected by.
1886	6887	<i>Tulipa Kaufmanniana</i>	Turkestan	—
	6896	<i>Corydalis Sewerzowi</i>	Central Asia	—
	6900	<i>Leontice Alberti</i>	—	—
	6901	<i>Colchicum Troodii</i>	Cyprus	—
1887	Nil	—	—	—
1888	Nil	—	—	—
1889	7080	<i>Fritillaria bucharica</i>	Central Asia	—
	7082	<i>Shortia galacifolia</i>	U.S.A.	—
1890	7111	<i>Iris orchioides</i>	Central Asia	—
	7116	<i>Berberis virescens</i>	Sikkim Himalaya	H. J. E.
	7148	<i>Rhodostachys andina</i>	Mexico	H. J. E. and F. D. G.
1891	Nil	—	—	—
1892	7251	<i>Iris Lortetii</i>	Syria	—
	7253	<i>Tulipa Billietiana</i>	Savoy	—
1893	7319	<i>Cypripedium montanum</i>	California	—
	7289	<i>Satyrium coriifolium</i>	South Africa	—
1894	7379	<i>Iris atropurpurea</i> var. <i>atro-</i> <i>fusca</i>	Palestine	—
1895	7403	<i>Disasagittalis</i>	South Africa	—
1896	7478	<i>Habenaria Elwesii</i>	South India	—
1897	Nil	—	—	—
1898	Nil	—	—	—
1899	Nil	—	—	—
1900	7746	<i>Cypripedium guttatum</i>	Altai mountains	H. J. E.
1901	Nil	—	—	—
1902	Nil	—	—	—
1903	Nil	—	—	—
1904	7935	<i>Arethusa sinensis</i>	China	—
	7955	<i>Chloræa crispa</i>	Chile	H. J. E.
1905	Nil	—	—	—
1906	8054	<i>Oxalis adenophylla</i>	Chile	H. J. E.
	8100	<i>Chloræa virescens</i>	Chile	H. J. E.
1907	8115	<i>Tricuspidaria dependens</i>	Chile	H. J. E.
	8125	<i>Caiophora coronata</i>	Chile	H. J. E.
1908	8178	<i>Codonopsis convolvulacea</i>	North-West Himalaya	—
	8188	<i>Kaempferia Kirkii</i> var. <i>elatior</i>	Rhodesia	—
1909	8277	<i>Cereus amecamensis</i>	Mexico	H. J. E.
1910	8314	<i>Nothofagus antarctica</i>	Chile	H. J. E.
1911	8373	<i>Deinathe cœrulea</i>	China	—
1912	8415	<i>Disa lugens</i>	South Africa	—
	8429	<i>Agave protuberans</i>	Mexico	—
1913	Nil	—	—	—
1914	8560	<i>Tricyrtis stolonifera</i>	Formosa	H. J. E.
	8570	<i>Zingiber Mioga</i>	Japan	H. J. E.
1915	8614	<i>Hippeastrum Elwesii</i>	Chile	H. J. E.
	8630	<i>Gentiana gracilipes</i>	China	—
1916	8642	<i>Eria ornata</i>	Borneo	—
	8651	<i>Alpinia Elwesii</i>	Formosa	H. J. E.
1917	8729	<i>Pleione Pricei</i>	Formosa	H. J. E. and Price.
	8730	<i>Castilleia miniata</i>	North-West America	—

<i>Year.</i>	<i>No. in Botanical Magazine.</i>	<i>Name.</i>	<i>Native Country.</i>	<i>Collected by.</i>
1917	8731	<i>Orthrosanthus chimboracensis</i>	South America	—
1918	8753	<i>Odontochilus lanceolatus</i>	Sikkim	H. J. E.
1919	8797	<i>Liparis macrantha</i>	Formosa	H. J. E.
	8803	<i>Calanthe tricarinata</i>	Himalaya	—
1920	8848	<i>Salvia brevilabra</i>	China	—
	8850	<i>Podophyllum Emodi</i> var. <i>chinense</i>	China	—
	8858	<i>Allium sikkimense</i>	China	—
	8870	<i>Phlomis spectabilis</i>	Himalaya	—

APPENDIX B

THE SCIENTIFIC WRITINGS OF H. J. ELWES, F.R.S.

MR. H. J. ELWES wrote much and well throughout his long life on his various scientific pursuits and contributed many papers to numerous learned societies' transactions.

His great work, for which he will always be remembered, was *The Trees of Great Britain and Ireland*, written in collaboration with Dr. Augustine Henry, and published in seven volumes, with many plates, between 1906 and 1913.

He had begun his horticultural studies with a notable monograph on *The Genus Lilium*, published in folio with plates in 1880.

As British Juror for Horticulture and Forestry, he contributed a section to the Report of H.M. Commissioners for the International Exhibition, St. Louis, 1904 (*cf.* pp. 356-364).

On Ornithology he wrote numerous papers for *Ibis*, the journal of the British Ornithological Union, and for the *Proceedings* of the Zoological Society, notably his memoir *On the Geographical Distribution of Asiatic Birds* (Zool. Soc., 1873, p. 645).

On Entomology he wrote much for the *Transactions* of the Entomological Society and also for the *Proceedings* of the Zoological Society. Typical of his work in this field are the papers:

On the Genus "Colias" (Ent. Soc., 1880 and 1884).

On Butterflies of the Genus "Parnassius" (Zool. Soc., 1886).

On the Lepidoptera of the Altai Mountains (Ent. Soc., 1899).

The Butterflies of Chile (Ent. Soc., 1903).

In Zoology he was specially interested in big game and sheep. Among many papers may be noted:

On the Present Condition and Habits of the Elk in Norway (Zool. Soc., 1903).

Note on Moose in the Yellowstone Park (Zool. Soc., 1920).

Note on the Primitive Breeds of Sheep in Scotland (*Scottish Naturalist*, January-March, 1912).

The last-mentioned article was enlarged into a pamphlet.

Guide to the Primitive Breeds of Sheep and their Crosses on Exhibition at the Royal Agricultural Society's Show, Bristol, with Notes on the Management of Park Sheep in England and the Possible Advantages of Crossing them with Improved Breeds. Illustrated. Edinburgh: printed by R. and R. Clark, June, 1913. 8vo.

For other papers reference may be made to the *Royal Society Catalogue of Scientific Papers*, vol. xiv., p. 830.

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