

WIENER STUDIEN ZUR TIBETOLOGIE UND BUDDHISMUSKUNDE  
HEFT 9

FERDINAND STOLICZKA (1838–1874):  
THE LIFE AND WORK OF THE CZECH EXPLORER  
IN INDIA AND HIGH ASIA

BY

JOSEF KOLMAŠ



ARBEITSKREIS FÜR TIBETISCHE UND BUDDHISTISCHE STUDIEN UNIVERSITÄT WIEN

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**HERAUSGEGEBEN VON**

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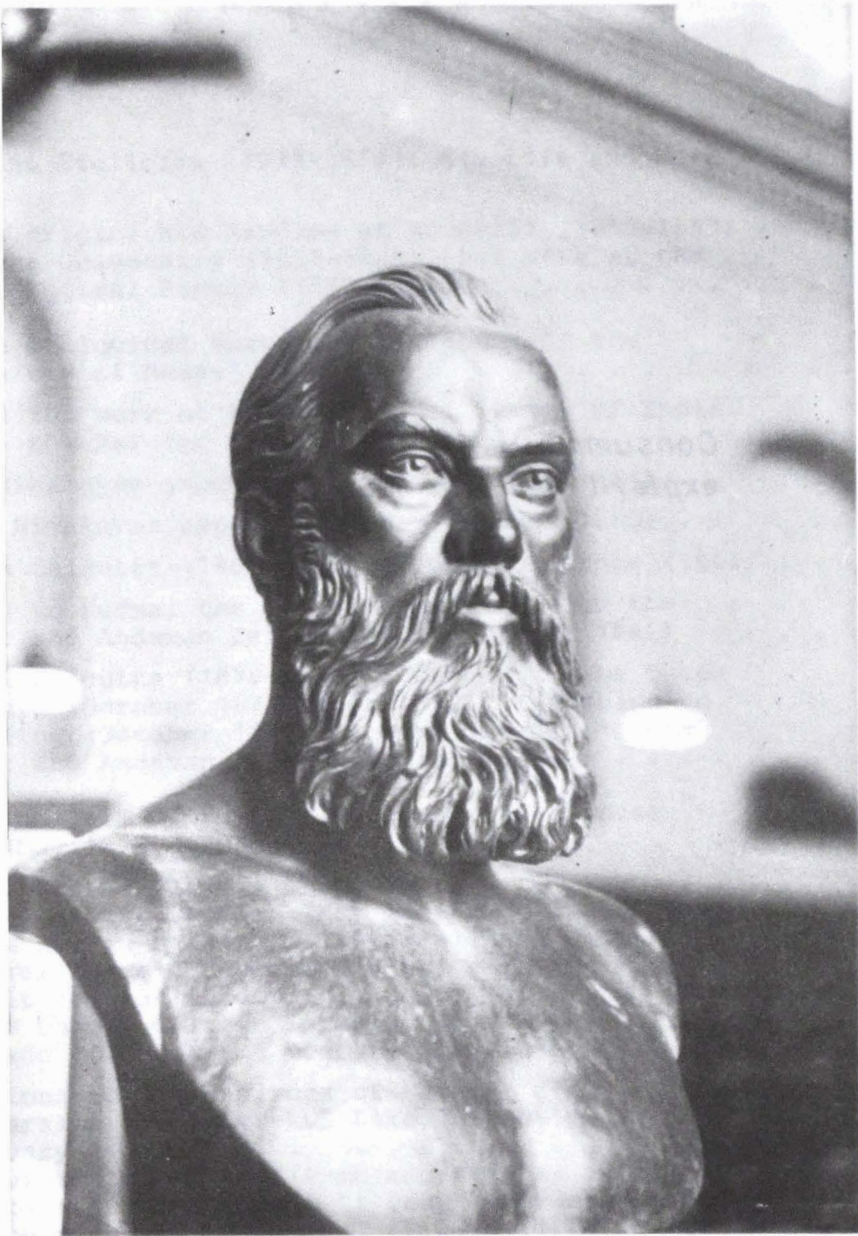
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Bust of Ferdinand Stoliczka  
in the Calcutta National Museum  
(Photo: Dr. Miloslav Kraša, 1963)

*Consummatus in brevi  
explevit tempora multa*

(Sap.4, 13)

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## INTRODUCTORY NOTE

The realization of the 3<sup>rd</sup> Csoma de Kőrös Symposium of Tibetan studies in Austria, a country in the centre of Europe, for the purpose of the delivery of reports on Tibet, a country in the centre of Asia, seems to me to be a highly suitable occasion on which to speak about the life and work of a man who was born just in the centre of Europe and also spent his youth there (concretely in Moravia, Vienna and Austria-Hungary in general), but who devoted his adult years to India and High Asia and who met his premature death in Ladakh on the very border of Tibet. The man in question is the geologist and palaeontologist Ferdinand Stoliczka, an Austrian subject of Czech birth. He was born near Kroměříž in Moravia and died at Murgli in Ladakh.

My paper has two aims, the first being to outline the life and work of this naturalist, who devoted his attention mainly to Indian and Himalayan geology and palaeontology, and to present him more widely among scientists concerned with research of Tibet,<sup>1</sup> and the second to present a survey of his books, scientific papers and correspondence published during his life time and posthumously.<sup>2</sup>

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<sup>1</sup> Basic data about Stoliczka's life (unfortunately not always precise and reliable!) and his work, including an appraisal of his scientific contribution to geological and palaeontological research of India and High Asia, can be found in these works, lexicons or encyclopaedias (chronologically; works of basic importance are marked with an asterisk):

- 1879 \* "Stoliczka Ferdinand." In: Constant von Wurzbach, *Biographisches Lexikon des Kaiserthums Oesterreich*, Vol.39. Wien 1879, pp.152-156.
- 1886 \* V.Ball, *Memoir of the Life and Work of Ferdinand Stoliczka, Ph.D., Palaeontologist to the Geological Survey of India from 1862 to 1874*. London 1886, 36 pp. (further V.Ball, *Memoir*).
- "Ferdinand Stoliczka." *Nature* (A weekly illustrated journal of science, London-New York), Vol.34, October 14, 1886, pp.574-575.
- 1887 Albrecht Penck, Ferdinand Stoliczka. *Mittheilungen der kais.königl. Geographischen Gesellschaft in Wien*, Vol.30 (N.S., Vol. 20), 1887, pp.229-230.
- 1893 v.Gümbel, "Stoliczka: Dr.Ferdinand." In: *Allgemeine Deutsche Biographie*, Vol. 36. Leipzig 1893, pp.399-401.
- 1898 "Stoliczka, Ferdinand." In: J.C. Poggendorff's *Biographisch-literarisches Handwörterbuch zur Geschichte der exacten Wissenschaften*, Dritter Band (1858 bis 1883), II.Abtheilung (M-Z). Leipzig 1898, p.1299.
- 1906 "Stolička (Stoliczka) Ferdinand." In: *Ottův slovník naučný* (Otto Encyclopaedia), Vol.24.Praha 1906, pp.156-157.
- 1924 \* F.Koláček - J.Woldřich, Ferdinand Stoliczka (1838 - 1874). *Sborník Československé společnosti zeměpisné* (Almanac of the Czechoslovak Geographical Society), Praha, Vol.30 (1924), pp.105-118, 1 map, 2 photos.
- 1926 "Stoliczka, Ferdinand (1838-1874)." *The Encyclopaedia Britannica*, 13<sup>th</sup> edition, Vol.25. London 1926, p.955.

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- 1928 *Časopis Národního musea* (Journal of the National Museum), Praha, Vol.102 (1928), p.173.
- 1932 "Stoliczka, Ferdinand." *Masarykův slovník naučný* (Masaryk Encyclopaedia), Vol.6. Praha 1932, p.978.
- 1938 "Stoliczka (Stolička) Ferdinand, PhDr." *Komenského slovník naučný* (Comenius Encyclopaedia), Vol.10. Praha 1938, p.125.
- 1946 Jan Baroš, *Čechoslovači na březích Gangu* (Czechoslovaks on the Banks of the Ganges). Batanagar 1946, pp.22-25 (reproducing Stoliczka's bust in the Calcutta Museum and his portrait in the Royal Asiatic Society in Calcutta).
- 1953 Jindřich Dlouhý, *Dva čeští geologové v Asii v XIX. století* (Two Czech Geologists in Asia in the 19<sup>th</sup> Century). *Lidé a země* (Peoples and Countries), Praha, Vol. 2 (1953), No.10, pp.373-375, 2 portraits.
- 1955 Ota Oliva, *Ještě k poznání životního díla Dr.F.Stoličky* (More Information About the Life Work of Dr.F.Stolička). *Časopis Národního musea. Oddíl přírodovědný* (Journal of the National Museum, Natural History), Praha, Vol.124 (1955), pp. 220-221.
- 1956 M.R.Sahni, *A Century of Palaeontology, Palaeobotany and Prehistory in India and adjacent countries. Journal of the Palaeontological Society of India* (Lucknow), Vol.1 (1956), No.1 (Inaugural Number), pp.7-51.
- 1957 Radim Kettner, *Indická paleontologická společnost* (The Palaeontological Society of India). *Časopis pro mineralogii a geologii* (Journal for Mineralogy and Geology), Praha, Vol.2 (1957), pp.366-368. (On p.366 is the "Bust of Ferdinand Stoliczka in the Asiatic Society of Bengal in Calcutta".)
- 1958 Karel Mejsnar, *O dr. Ferdinandu Stoličkovi* (On Dr.Ferdinand Stolička). *Rozvoj Kroměřížska* (The Development of the Kroměříž Region), Kroměříž, June 1958, pp. 94-95 plus a "Photograph of Dr. Ferd. Stolička from the bequest of Vojta Náprstek".
- 1959 \* Václav Tomášek, *Dr. Ferdinand Stolička (1838-1874)*, *Nový Orient* (New Orient), Praha, Vol.14 (1959), No.1, pp.7-8, 2 photos.
- \* Václav Tomášek, *Poznámky k rodopisu dr. Ferdinanda Stoličky* (Notes on Dr. Ferdinand Stolička's Genealogy). *Věstník musea v Kroměříži* (Bulletin of the Museum in Kroměříž), Kroměříž, January 1959, No.2, pp.19-21.
- (V.Tomášek), *Po stopách činnosti dr. Ferd. Stoličky* (In Search of Dr. Ferd. Stolička's Activities). *Ibid.*, p.29.
- 1961 Josef Kunský, *Čeští cestovatelé* (Czech Travellers), Vol.2, Praha 1961. Pp.26-33: *Na himálajské střeše světa - Ferdinand Stolička, 1838-1874* (On the Himalayan Roof of the World - Ferdinand Stolička, 1838-1874), 2 photos.
- 1964 \* B. Somasekar, *Contribution of the Czech Geologist Dr. F.Stoliczka to the Indian Geology. Časopis pro mineralogii a geologii* (Journal for Mineralogy and Geology), Praha, Vol.9 (1964), No.1, pp.115-118, 2 plates. Plate I: Dr. F.Stoliczka, photograph taken in Calcutta, in 1867; 2. A group photo of Dr. Stoliczka and his colleagues in the Geological Society of India. Plate II: The grave of Dr. Stoliczka at Leh.
- Of the brief contemporary reports on Stoliczka's activity in India published in certain Viennese and other newspapers see especially:
- 1865 *Fremden-Blatt* (Wien), Vol.19, No.259 (September 19, 1865), p.5, col.1 (7 lines under the rubric "Tagesneuigkeiten").
- 1866 *Neue Freie Presse* (Morgenblatt, Wien), No.835 (December 27, 1866), p.4, col.3 ("Geologische Aufnahmen in Ostindien" - 26 lines).
- 1867 *Fremden-Blatt*, Vol.21, No.149 (June 1, 1867), p.3, co.2 (11 lines under "Tagesneuigkeiten").
- 1868 *Neue Freie Presse* (Abendblatt, Wien), No.1208 (January 11, 1868), p.4, col.1 (7 lines under "Kleine Chronik").
- 1871 *Fremden-Blatt*, Vol.25, No.143 (May 24, 1871), p.4, col.1 (14 lines under "Tagesneuigkeiten").

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<sup>2</sup> Hitherto published lists of Stoliczka's works - mostly incomplete or merely selected - can be found in these works (chronologically):

- 1871, 1879, 1896 *Catalogue of Scientific Papers*. Compiled and published by the Royal Society of London. Vol.5 (1800-1863), London 1871, p.841 (Nos.1-10); Vol.8 (1864-73), London 1879, pp.1024-1026 (Nos.11-55, plus 2 items); Vol.11 (1874-1883), London 1896, p.507 (Nos. 56-61).
- 1879 Constant von Wurzbach, *Biographisches Lexikon des Kaiserthums Oesterreich*, Vol.39. Wien 1879, pp. 152-156 (*passim*).
- 1886 V.Ball, *Memoir*, pp.32-36 (79 items).
- 1888 R.D.Oldham, *A Bibliography of Indian Geology. Preliminary Issue*. Calcutta 1888 (32 items; further Oldham, *Bibl. Ind. Geol.*).
- 1898 J.C.Poggendorff's *Biographisch-literarisches Handwörterbuch zur Geschichte der exacten Wissenschaften*, Vol.3, Part 2. Leipzig 1898, p.1299 (select bibliography).
- 1924 F.Kolářek - J.Woldřich, Ferdinand Stoliczka (1838-1874). *Sborník Československé společnosti zeměpisné* (Almanac of the Czechoslovak Geographical Society), Praha, Vol.30 (1924), pp.116-118 (36 items).



**PART I.**

**FERDINAND STOLICZKA (1838 – 1874):**

**HIS LIFE AND WORK**



## I. STOLICZKA'S ORIGIN: HIS STUDIES AT KROMĚŘÍŽ (1850-1857) AND AT VIENNA UNIVERSITY (1857-1860). HIS WORK AT THE AUSTRIAN GEOLOGICAL SURVEY (1861-1862)

Ferdinand Stoliczka, born on July 7, 1838, at the "Chateau" (Na Záměčku) gamekeeper's lodge at Bilany near Kroměříž in Moravia, came from an old family of foresters whose members had served on the local forest estate of the Archbishops of Olomouc for several generations.<sup>3</sup> Due to its long standing contacts with nature, the Stoliczka family had a vital feeling for it and even as a young boy Ferdinand had open eyes for its mysteries.

After graduating from the German gymnasium at Kroměříž, which he attended from 1850 to 1857, he decided to study natural history at Vienna University to which, at that time, the youth of Moravia usually made its way rather than to more remote Prague.

Employed at the department of geology at Vienna University in those days was Professor Eduard Suess (\* London, 1831 - + Vienna, 1914), a young scholar with a broad outlook and grand conceptions and, in particular, an excellent pedagogue, whose teachings inspired Stoliczka to undertake such intensive studies that he soon ranked among Suess's best and most devoted pupils. It was also Professor Suess who helped to get Stoliczka's first specialized literary attempts published in the

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<sup>3</sup> Certain articles dealing with F. Stoliczka erroneously inform the reader that he was an "österreichische" or even a "deutsche Gelehrte". The truth is, however, that Stoliczka (written "cz" in the past according to contemporary rules of orthography, now his name would be written with the letter "č"; the Czech word "stolička" means "footstool") was a Czech born in Moravia of parents of purely Czech origin. It is not surprising that Stoliczka was not a strong Czech patriot and that he wrote his works in German (and later exclusively in English), because not even Kroměříž (Kromsier) of his youth was particularly outstanding for its national loyalty. Moreover, his German secondary school studies, his university studies in Vienna and his work at the Viennese "Geologische Reichsanstalt" and, later on, his permanent residence abroad did not strengthen his national feeling in any way. Stoliczka's feeling for the land of his birth is, however, expressively documented by the fact that the inscription on the memorial on his grave in Leh tells us that he was "Born in Moravia", and not in Austria. Undoubtedly Stoliczka himself informed his English friends that he came from Moravia and not Austria.

*Sitzungsberichte* of the Viennese Academy of Sciences (see Nos.1,2 and 10).<sup>4</sup>

After completing his studies and gaining his Ph.D. degree, bestowed on him by the Faculty of Philosophy of the University at Tübingen on November 14, 1861, on the basis of his two works printed in the above-mentioned *Sitzungsberichte* (Vol.41, 1859, and Vol.43, 1861; see Nos. 1 and 2),<sup>5</sup> Ferdinand Stoliczka took up employment at the Austrian Geological Survey (Geologische Reichsanstalt) in Vienna, then headed by the well-known mineralogist and geologist Dr. Wilhelm Karl Haidinger (\* Vienna, 1795 - † Dornbach, 1871). The ranks of the leading employees of this institution also included the geologist and palaeontologist Franz Ritter von Hauer (\* Vienna, 1822 - † Vienna, 1899), director of the Austrian Geological Survey from 1866. In later years Stoliczka kept up a lively correspondence with both scientists.

During the two years 1861 and 1862, which he spent at the Austrian Geological Survey Stoliczka was entrusted with geological research and mapping of the Eastern Alps, South-west Hungary and Dalmatia, activities accompanied by extensive palaeontological research (see his works from the years 1859 to 1863 and his works Nos.17 and 18). Stoliczka's very first work, which was printed when the author was only twenty-one years of age and which indicated the course of his further scientific career in many respects, was his carefully worked-out description of certain species of fresh-water Mollusca of the cretaceous formation in the North-eastern Alps (No.1). Franz von Hauer expressed the opinion that Stoliczka's earliest works were outstanding for their author's "conscientious accuracy and extensive knowledge."<sup>6</sup> These two characteristics were to be permanent attributes of all of Ferdinand Stoliczka's later works.

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<sup>4</sup> These numbers refer to the "Catalogue of Ferdinand Stoliczka's Books, Scientific Papers and Published Correspondence" given on pp.33 to 53.

<sup>5</sup> Stoliczka's graduation took place without a colloquium and his opponent on that occasion was the well-known German palaeontologist Friedrich August Quenstedt (1809-1889).-- The author is very grateful to Dr. Volker Schäfer of the Universitätsarchiv Tübingen for the information concerning Stoliczka's degree communicated in his letter of May 12, 1981. I am also greatly obliged to him for the xerocopy of Stoliczka's "Curriculum vitae" (Universitätsarchiv Tübingen 131/11b, 14), written by Stoliczka himself in Vienna on November 6, 1861 (2 sheets, see Appendix ), which he sent me.

<sup>6</sup> V. Ball, *Memoir*, p.4.



## II. WORK AT THE GEOLOGICAL SURVEY OF INDIA AND IN THE ASIATIC SOCIETY OF BENGAL (1863-1873)

### 1. Engaged for work at the Geological Survey of India. Work in the Asiatic Society of Bengal

Ferdinand Stoliczka was a scientist with grandiose plans and considerable energy for work. Before long Vienna - and Austria-Hungary in general - became too narrow for his talent and he therefore sought an opportunity which would afford greater scope for the exploitation of his abilities. And this was soon forthcoming.

In 1862 Dr. Thomas Oldham (1816-1878), the Superintendent of the Geological Survey of India, travelled through Europe in search of new assistants for the staff of the Survey who would write a description of the extensive collections of fossils accumulated during the activities of the Geological Survey in Southern India and elsewhere. And it was essential that at least one of them be a qualified palaeontologist. During Dr. Oldham's visit to Vienna Dr. Stoliczka was chosen for the task after a consultation with Dr. Haidinger and on the recommendation of Professor Suess. Ferdinand Stoliczka gladly accepted the offer and Dr. Oldham saw to it that his official appointment from the Secretary of State for India was soon forthcoming.

In order to make the acquaintance of his future colleagues and also to get to know the country into whose services he had entered Ferdinand Stoliczka left for Great Britain where, in the autumn of 1862, he attended the meeting of the British Association for the Advancement of Science, held at Cambridge. And it was there that he also met his future co-workers, the geologist and naturalist William Thomas Blanford (1832-1905), who was at home on holiday from India, and Arthur Beevor Wynne, another of the newly appointed surveyors. "All who met him then", - says V. Ball - "in spite of his difficulty in expressing himself in English, were impressed with his unaffected geniality."<sup>7</sup>

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<sup>7</sup> Ibidem.

Shortly afterwards, in November 1862, Stoliczka left for India, which became his new home for the rest of his short life, specifically from 1863 to 1874. Throughout those years he made only one visit to Europe (in 1867), otherwise filling all his time in India with tireless work and travelling.

Immediately after arriving in Calcutta, the seat of the Geological Survey of India, he set to work to describe the fossil groups of cretaceous rocks in the Trichinopoly area of Southern India. This task extended over a period of many years and its result was a four-volume work - Stoliczka's magnum opus - *Cretaceous Fauna of Southern India*, with which he inscribed his name in world science as a scholar of exceptional creative potency, enormous work energy and grandiose intellectual conceptions. The work was published in serial form in the specialized *Memoirs of the Geological Survey of India - Palaeontologia Indica* series in the years 1863 to 1873 and it comprises a total number of 1,500 large-size pages and 176 full-page plates (Nos.23, 40, 82 and 109).<sup>8</sup>

In 1863 Stoliczka became a member of the ancient Asiatic Society of Bengal in which he was later, in 1868, entrusted with the exacting function of Natural History Secretary, which he held until 1873. As of 1865 or 1868 he also began to publish minor works in the geological, palaeontological and other branches of natural history in the two publications of the Society, i.e. the *Journal of the Asiatic Society of Bengal* and the *Proceedings of the Asiatic Society of Bengal* (see Catalogue as of 1865 and further).<sup>9</sup>

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<sup>8</sup> Several other works by Stoliczka, for example, Nos.25, 26, 49, 50 and others, relate to the same problems.

<sup>9</sup> For information about Stoliczka's work in Calcutta in this initial period see his letters Nos.16 and 20.

## 2. First Himalayan expedition (June - October 1864)

Although his work in the Geological Survey of India and, from 1868, his function in the Asiatic Society of Bengal imposed great demands on his time, Stoliczka did not forget his second scientific "love", namely geological and naturalistic research of the highest range of mountains of Asia - the Himalayas - and the regions adjoining them in the course of which he was able to apply experience he had gained during his research of Europe's high-mountain range - the Alps. He realized his tasks by carrying out field research during three expeditions made in 1864, 1865 and 1873 to 1874.

Stoliczka made his first live contact with the Himalayas in 1864 when, together with the mineralogist Frederick Richard Mallet, of the Geological Survey, who had previously visited a part of the same region, he made a geological expedition to the Western Himalayas (the Pir Panjal Range area). The expedition set out from Simla on June 8, 1864, and proceeded to the north-east upper reaches of the Sutlej to Wangtu Bridge and then through the Bhabeh Pass to the Spiti Valley. The local rocks and rich fossil remains were, as far as time permitted, subjected to geological examinations. From Spiti the expedition continued across the Parang-la Pass to Rupshu, and so onwards through the Para, Tsomoriri, and Puga valleys to the Indus. After two days march along that river, they turned near Rongo and returned to the Spiti valley by a more eastern route, traversing Hanle and crossing the Tagling Pass. The way back was made by a route through Lahul and Kulu, at some distance to the west of their journey northwards, and Simla was reached again on October 3, 1864.<sup>10</sup>

As Ferdinand Stoliczka described it in a letter to Dr. Haidinger,<sup>11</sup> the journey through these then uninhabited parts was very laborious and fatiguing ("Hunger, thirst, and cold are daily companions"). When crossing the Parang-la Pass (about 19,000 feet high) the members of the expedition were "nearly overwhelmed by a fall of snow". Nevertheless,

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<sup>10</sup> For geographical position of places mentioned see a sketch map attached to Stoliczka's memoir of this expedition (No.32).

<sup>11</sup> This letter was written in Simla and dated October 3, 1864. See No.19.

Stoliczka systematically mapped and studied the natural bare rock strata and, in addition, collected specimens of the rare vegetation ("I collected every plant that came under my eyes"), made numerous notes upon the flora and fauna ("Insects are apparently abundant, some birds, reptiles, fish, and mammals, unfortunately very few snails"), regularly observed the local meteorological conditions and noted the temperature changes characteristic of the highly situated region. And, as he wrote in the same letter, he even "brought a quantity of curiosities with him, manuscripts, weapons, and pictures, if one can so call the Tibetan work".<sup>12</sup>

### 3. Second Himalayan expedition (May - October 1865)

The year 1865 was once again one of feverish activity for Ferdinand Stoliczka. In the first place he completed, in Calcutta, his manuscript (No.32) on his previous expedition to the Himalayas, of which mention has already been made, had the first part of his scientific tetralogy on cretaceous fauna of Southern India - *The Fossil Cephalopoda of the Cretaceous Rocks of Southern India (Ammonitidae)* - published<sup>13</sup> and, finally, prepared an elaborate paper entitled "Eine Revision der Gastropoden der Gosauschichten in den Ostalpen", which was dated Calcutta, April 20, 1865 (No.27), for the *Sitzungsberichte* of the Viennese Academy of Sciences. At the same time he also prepared for his second big journey to the basin of the upper reaches of the Indus with the aim of carrying out geological research of the region combined with the incidental collection of other natural objects and Buddhistic antiques, paintings and other ethnographical materials.

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<sup>12</sup> The results of Stoliczka's research and collecting activity in the course of this expedition are contained in his book *Geological Sections across the Himalayan Mountains* (No. 32). See also Nos.21 and 22.

<sup>13</sup> See No.23. He contributed an article on the same theme to *Quarterly Journal of the Geological Society of London* (No.25), a summary of which was published in *The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science* (No.26).

The journey in 1865 occupied six months from the beginning of May to the end of October. The area examined lay for the most part to the north-west of his former route, and extended to Leh, Kargil and Srinagar. In his work No.33 summarizing the results of this expedition he described the route followed on this journey in the following words:

"Starting from Simla on the 1<sup>st</sup> of May 1865, I proceeded through Suket, Mandi, the Kulu valley, and then, crossing the Rotang pass, to Kyelang in Lahul ... I managed to cross the [Baralatse] pass on the 22<sup>nd</sup> June, and after two short marches reached the Chumig-giarsa, a spring remarkable for its large supply of cold water ...

From Chumig-giarsa I turned towards the east ... crossed the Pangpo-la into the Phirse valley, then the Lanyer-la into the Gya valley, and after a few minor passes (of about 18,000 feet in elevation) reached Korzog on the 2<sup>nd</sup> July.

Here, being at the principal camping ground of the Rupshu tribe, I arranged for my further journey and started on the 5<sup>th</sup> July for Puga, and from here towards the Thso-Kar and the foot of the Taglang pass, the second camping ground of the Rupshu tribe. After again one day's interruption of my journey ... I crossed the Taglang pass and reached Leh on the 16<sup>th</sup> July. This place I left on the 21<sup>st</sup> of July ... and reached Padam on the 6<sup>th</sup> of August after a horrible experience of hill travelling. I may remark here that it is not the bad road nor the high passes which make travelling in these wild countries difficult at this time; in this case it was chiefly due to the large quantity of glacier water, which had swollen every stream to a depth of 3 or 4 feet; and to cross these torrents, often 20 times, while on a day's march, is ruin to those who cannot enjoy every comfort during and after the day's work ... On 10<sup>th</sup> of August I was able to start, and proceeded from here to Suroo and then to Kargil ... I again left Kargil on the 1<sup>st</sup> of September, visited Dras, and reached Srinagar on the 10<sup>th</sup> September ... On the 26<sup>th</sup> of September I started on my route through Islamabad, Kishtwar, Budrawar, Chambi, and Kangra, and reached Simla again on the 31<sup>st</sup> October 1865."<sup>14</sup>

<sup>14</sup> See also in a letter (No.28) addressed to Dr. Moritz Hörnes (1815-1868), his former fellow-worker at the Austrian Geological Survey, dated Srinagar, September 14, 1865. The contents of two letters addressed to Dr. Haidinger in 1865 (Nos.31 and 36) also refer to the beginning and end of Stoliczka's second Himalayan expedition.

Stoliczka recorded the rich results of this expedition in three independent works (Nos.33, 35 and 48), his works Nos.24, 41 and 73 likewise dealing with this journey as well as with his previous expedition in 1864.

The geological results of Stoliczka's two expeditions gained considerable and general recognition. The British geologist and naturalist W.T.Blanford wrote the following on this subject:

"Very little, indeed, had been done towards elucidating the geological structure of the country. This work was admirably carried out by Dr. Stoliczka. In the course of a single season's work, in a most difficult country, amongst some of the highest mountains in the world, he clearly established the sequence of formations; and, from his extensive palaeontological knowledge, was able to do this with an accuracy, which has stood the test of subsequent research. He, moreover, added to the list of known formations the representatives of rhaetic and cretaceous rocks not previously detected, and showed that some of the other groups might be sub-divided."<sup>15</sup>

#### 4. Work in Calcutta (1866-1868). Visit to Europe (1867)

The laborious and fatiguing nature of his previous expeditions had certain consequences for Stoliczka's health - which had never been very strong - with the result that, for some time at least, he was unable to carry out work requiring great exertion. He spent the greater part of the following three years in Calcutta, fulfilling official duties on the one hand and carrying out publishing activity and his own research work on the other.

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<sup>15</sup> W.T. Blanford, *Geology*. In: *Scientific Results of the Second Yarkand Mission; based upon the collections and notes of the late Ferdinand Stoliczka, Ph.D.* (Published by order of the Government of India, 1878-1891). Calcutta 1878, p.3 (further W.T. Blanford, *Scient. Results/Geology*).

In 1866 three considerably extensive works summarizing the basic geological (Nos.32 and 33) and zoologico-botanical (No.35) results of his two expeditions to the Himalayas appeared in print. In the following year of 1867 the second volume of his tetralogy called *The Gastropoda of the Cretaceous Rocks of Southern India* began to appear in parts, its publication being completed one year later (No.40).

In 1867 he also had the opportunity of visiting Europe for several months - for the first and also the last time during the whole twelve years of his stay in India. He was invited there by his superior at the Geological Survey, Dr. Oldham, in order that he might have the possibility of verifying and comparing certain fossils similar to those on which he had worked in India in collections in London and other European towns. Another reason for the invitation was that Dr. Oldham wanted Stoliczka to help him with the purchase of specimens which he had been authorized by the Government of India to procure for the Calcutta Museum. After the fulfilment of these tasks, both returned to Calcutta in December 1867.<sup>16</sup>

The following year of 1868 was again an exceptionally full one for Ferdinand Stoliczka as far as work was concerned. In the first place he completed the publication of his monograph on the Gastropoda of Southern India (see above). Apart from this, he also supplemented his former work on the Cephalopoda of Southern India (No.49) with new knowledge gained during his stay in Europe and, finally, drew material for an extensive study published in the *Journal of the Asiatic Society of Bengal* (No.41) from the ornithological collections he had made during his stay in Ladakh in 1865.<sup>17</sup>

In May 1868 Ferdinand Stoliczka and Valentine Ball (1843-1895; later director of the Science and Art Museum in Dublin and author of Stoliczka's biography) were jointly appointed during the absence of Dr. John Anderson (1833-1900), who had gone with the Yün-nan expedition, to the

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<sup>16</sup> The contents of Stoliczka's letter to Dr. Haidinger of January 20, 1868 (No.51) relate to his return journey and his meteorological observations in the course of it. -- In his *Lexicon* (pp.153-154) C.v.Wurzbach states that when Stoliczka was in Europe he presented his collection of Indian and Tibetan coins and antiques to the "K.k. Münz- und Antikencabinet" in Vienna. It is alleged that on this occasion the Emperor Franz Josef I awarded him a gold medal for art and science.

<sup>17</sup> The introductory part of this work containing a description of the physical features and the distribution of animal and vegetable life throughout the region, was translated into German and appeared in *Petermanns Mittheilungen* in the year 1870 (see No.73). Dr. Stoliczka's collection of Himalayan birds was subsequently described by August von Pelzeln in the *Journal für Ornithologie* for 1868 (see No.55).

post of curator of the Indian Museum. The tasks which Stoliczka was called upon to fulfil in the framework of this function included the compilation of an inventory list of articles which the Indian Museum had taken over from the collections of the museum of the Asiatic Society.

Finally, in July 1868, Ferdinand Stoliczka was appointed Natural History Secretary of the Asiatic Society of Bengal. As V. Ball tells us, it was "an honorary post involving much labour and personal sacrifice, owing to the severe editorial duties which belonged to it".<sup>18</sup> From that time Stoliczka regularly contributed, apart from the *Journal of the Asiatic Society of Bengal*, also to the *Proceedings of the Asiatic Society of Bengal*, of which, on the basis of his secretarial function, he was chief editor up to 1873.<sup>19</sup>

#### 5. Journey to Burma, the Malayan Peninsula and the Nicobar and Andaman Islands (July - October 1869)

For Stoliczka the first half of 1869 was filled with extensive activity for the *Proceedings of the Asiatic Society of Bengal* in the role of both editor and author, this work being simultaneously accompanied by palaeontological research at the Geological Survey of India where he continued his task of describing the collections of cretaceous fauna of Southern India. As a reward for his devoted services in the Asiatic Society and his exhausting work at the Geological Survey he was granted three-months leave in the summer of 1869 which, however, he exploited for the realization of his naturalistic expedition to Burma, the Malayan Peninsula and the Nicobar and Andaman Islands. We can learn about the expedition and its results in a letter which Stoliczka wrote to Dr. Haidinger on December 13, 1869.<sup>20</sup>

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<sup>18</sup> V. Ball, *Memoir*, p.11.

<sup>19</sup> For information about Stoliczka's life and work in Calcutta in this period see also his letters to Dr. Hauer of March 30, 1868 (No.52) and to Dr. Haidinger of June 11, 1868 (No.53) and November 15, 1868 (No.54).

<sup>20</sup> See No.81. For excerpts from this letter in an English translation see V. Ball, *Memoir*, pp.15-16.



The letter in question informs us that he left Calcutta on the last day of July (1869), sailed to Akyab in Burma, where he remained for a short while only, and then continued to Rangoon, where he spent one week. From there, accompanied by the ichthyologist Francis Day (1829-1889), he visited Moulmein and Amherst at the mouth of the Salween where, during his stay of sixteen days, he engaged in collecting zoological specimens and searched for fossils in the local carbon limestone rocks. From there he sailed to Penang in Malaysia, which enchanted him ("To give a description is beyond my powers, I cannot paint a picture sufficiently beautiful"). He spent exactly two weeks there and then continued via Malacca to Singapore, where he remained for eight days and admired the coral reefs.

From Singapore he made his way back to Penang and from there sailed to the Nicobar Islands, where he sojourned for a short while only, similarly as on the Andaman Islands. He returned to Calcutta on October 14.

The expedition had mainly a zoological purpose, because, as a modern palaeontologist, Stoliczka wanted to verify and supplement by means of a study of present-day, living zoological forms the knowledge he had previously gained by studying their fossil ancestors.<sup>21</sup> His zoological collections consequently contain birds, reptiles, insects, fishes, molluscs (both marine and land species), spiders, crustacea and many other specimens.

While on the Nicobar Islands, where the British were currently establishing a convict colony, Ferdinand Stoliczka also studied the local soil conditions (the soil of the islands did not seem to him to be fertile due to its too great content of magnesium and he regarded only the sandstone regions as suitable for cultivation) and expressed the opinion, an erroneous one, however, that by felling the forests and shrubs it would be possible to eliminate the fevers which occurred there during the monsoon rains.

While on the Andaman Islands Stoliczka studied the huge coral reefs (how the sea washed away their disintegrating parts and how new corals immediately replaced them with their structures) and other coastal fauna. He was also interested, however, in the so-called Kjökkenmöddings or kitchen middens which, with remainders of bones and certain implements, had been left by the original inhabitants of the islands.

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<sup>21</sup> Of interest in this respect is the opinion which Stoliczka expressed in the same letter addressed to Dr. Haidinger: "I am firmly convinced that a geologist learns more geology on such a journey than if he had worked the same time in the field, I mean with hammer and chisel."

All the collections, knowledge and observations accumulated by Stoliczka in the course of this expedition gave rise, in due course, to a rich crop of papers on Indian and Malayan *Amphibia* and *Reptilia* (Nos.70, 71, 78 and 111), Malayan ornithology (Nos.72 and 79), Andamanese landshells (No.77), the *Batrachia* (No.80) and the *Mollusca* (No.85) from Moulmein and its neighbourhood, Indian and Burmese Ophidians (Nos.86 and 91), Indian and Malayan *Telphusidae* (No.88), Burmese *Clausiliae* (No.97), the landshells of Penang (Nos.99, 107 and 110) and Burma and Arakan (No.100), Burmese *Sauria*, *Ophidia* and *Batrachia* (No.106), Andamanese and Nicobarese Reptiles (No.114 and 117), the Kjökkenmöddings of the Andaman Islands (No.75) etc. True, some of these articles, especially those concerned with ornithology, "not unfrequently evoked criticism from those specialists who looked upon them as incursions into their special domains", as V. Ball tells us, adding, however, that "Stoliczka was generally well enough armed to be able to do battle with his critics".<sup>22</sup>

Ferdinand Stoliczka made the above-described collections for the Calcutta Museum on the one hand and the museum in Vienna on the other, also bearing in mind the collections of the Kroměříž gymnasium.<sup>23</sup>

6. Work in Calcutta (1870-1873). Journey to the Cutch Peninsula (October 1871 - March 1872). Excursion to Darjeeling (October 1872). Second journey to the Nicobar and Andaman Islands (March 1873)

As is clear from his bibliography, Stoliczka devoted the remainder of 1869 and the following years mainly to the processing and gradual publication of the results of his last zoological expedition. Never-

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<sup>22</sup> V. Ball, *Memoir*, p.14.

<sup>23</sup> The naturalistic collections of the German gymnasium at Kroměříž were transferred to Olomouc after the school was abolished in 1918. At the end of the Second World War, however, they were destroyed during the destruction of the building in which they were deposited. See V. Tomášek, Dr. Ferdinand Stolička (1838-1874), *Nový Orient* (New Orient), Praha, Vol.14 (1959), No.1, p.8.

theless, in spite of all the most varied tasks he was obliged to fulfil (in 1871 the function of a Trustee of the Indian Museum, on behalf of the Asiatic Society, was added to his other ones), geological and palaeontological activity always occupied the foreground of his interest.<sup>24</sup>

As from 1870 Stoliczka began to publish the third and most extensive part of his tetralogy on the cretaceous fauna of Southern India, devoted this time to a description of the Pelecypodes - *The Pelecypoda, with a Review of All Known Genera of This Class, Fossil and Recent* - , whose last fascicle appeared one year later (No.82).

Hardly had he completed his description of the Pelecypodes than Stoliczka began to prepare and gradually publish (in the years 1872 and 1873) his final volume of his said tetralogy in which he presented a description of the remaining genera of the cretaceous fauna of Southern India - *The Brachiopoda, Ciliopoda, Echinodermata, Anthozoa, Spongiozoa, Foraminifera, Arthrozoa and Spondylozoa* (No.109).

This brought to an end his description of the extensive collections of cretaceous fauna of Southern India deposited at the Geological Survey of India, started more than ten years previously. In the course of this work Stoliczka showed himself to be a palaeontologist of progressive orientation. The method which he applied for his palaeontological description in this work is wholly modern, and, for its time, unusual, since, apart from fossil individuals, the author always took living genera and species into account as well as zoological observations. In his presidential address to the Asiatic Society, Dr. Oldham, director of the Geological Survey of India, expressed the following words on Stoliczka's *magnum opus*:

"These volumes form an invaluable record, descriptive of one of the finest and most extensive collections from a single formation which has ever been brought together, and have been prepared with a fullness of illustration and a widely embracing accuracy of description which render them essential to the palaeontologist and almost equally to the recent conchologist.

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<sup>24</sup> He wrote about this in a letter to Dr. Hauer, director of the Austrian Geological Survey, dated March 8, 1871 (No.94).

I, who can speak from experience of his unfailing energy, of his untiring research, and marked accuracy, and of his wide range of knowledge of all the bearings of his subject, know full well the immense labour which these works represent, the high scientific values of that labour, and the great interest which they have excited among the palaeontologists of Europe. But more than all this, I know, too, and appreciate fully the unswerving loyalty to his task which the author has invariably shown, and the undeviating conscientiousness and devotion which he has brought to bear on its accomplishment."<sup>25</sup>

Apart from Southern Indian fossil remainders, Stoliczka's attention was also drawn by fossil crabs from the tertiary deposits in Sind and Cutch in Western India and in consequence he wrote an independent study for the special *Palaeontologia Indica* series (No.83).

In order to clarify certain doubtful questions concerning the distribution of fossils on the spot, Stoliczka undertook a journey, which lasted from October 1871 to March 1872, to the Cutch Peninsula to the south of the mouth of the Indus.<sup>26</sup> Although Stoliczka did not leave any written report on the geologico-palaeontological results of this journey, some of them are contained in William (Wilhelm Heinrich) Waagen's (1841-1900) *Jurassic Fauna of Kutch (Memoirs of the Geological Survey of India - Palaeontologia Indica, Ser.9, 1-4, Calcutta 1873-75)* and in Richard Dixon Oldham's (1858-1936) *Manual of the Geology of India* (2<sup>nd</sup> edition, Calcutta 1893). Stoliczka's journey to Cutch is brought to mind, however, by his description of the mammals and birds which inhabit this region (Nos.98 and 104).

In October of the same year (1872) Stoliczka made, together with his colleagues from the Geological Survey, V. Ball and W.H. Waagen, a short trip to Darjeeling in order to recover from his state of overwork. During this short excursion he succeeded in collecting numerous specimens of *Cicadidae* with the intention of writing about them one day. Unfortunately, however, this never came about.

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<sup>25</sup> *Proceedings of the Asiatic Society of Bengal*, 1873, p.57.

<sup>26</sup> He mentioned this in a letter dated October 20, 1871, written when travelling by steamboat from Bombay to Cutch (No.95).

In March 1873, Stoliczka made a more or less adventurous exploring and collecting tour to the southern islands of the Nicobar group and various outlying islands of the Andaman group, organized and headed by his friend Allan Octavian Hume (1829-1912), editor of the Calcutta ornithological magazine *Stray Feathers*. The other members of the group were Valentine Ball, of the Geological Survey, and James Wood Mason, of the Indian Museum. During this trip Stoliczka concentrated mainly on research of the local birds and their active shooting.<sup>27</sup>

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<sup>27</sup> For an extended account of the tour and its results see *Stray Feathers* (A Journal of Ornithology for India and its Dependencies), Vol.2 (1874), pp.29-139, and V. Ball, *Jungle Life in India or the Journeys and Journals of an Indian Geologist*, London 1860, pp.356-412.

### III. PARTICIPATION IN T.D. FORSYTH'S MISSION TO CHINESE TURKESTAN (MAY 1873 - JUNE 1874)

After his return from his expedition to the Nicobar and Andaman Islands (in March 1873), Stoliczka together with several of his co-workers from the Geological Survey was supposed to take part in the World Exhibition in Vienna, in charge of a large collection of minerals and fossils intended to represent the Geology of India. This would have afforded him a great opportunity to visit his homeland and his friends in Europe and Stoliczka no doubt looked forward to doing so, but the whole plan was changed as the result of a more attractive offer.

Precisely at the time in question the British government was taking steps leading to the conclusion of a trade agreement with Yakub Beg (1820-1877), ruler of an independent state in Chinese Turkestan. The diplomatic mission to his court in Kashgar was entrusted to Thomas Douglas Forsyth (1827-1886), who had previously undertaken a similar mission (which proved unsuccessful) in 1870.

A part of this mission of T.D. Forsyth was also a carefully prepared research expedition entrusted with extensive naturalistic and geographical research tasks. The chief members of the expedition were Lieut.-Col. Thomas Eduard Gordon (military commander of the expedition), Capt. Henry Trotter (\* 1841, surveyor and cartographer), Dr. Henry Walter Bellew (1834-1892, physician), Capt. John Biddulph (\* 1840) and Capt. Edward Francis Chapman (\*1840). Dr. Stoliczka was included in the expedition supplementarily as "geologist and naturalist" - on the basis of his own request.<sup>28</sup>

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<sup>28</sup> For more detailed information about Forsyth's mission to Kashgar in the years 1873 to 1874 and its results as well as about Stoliczka's participation in it see the following works (chronologically):

- 1874 F.v.Richthofen, Über die Vorgänge auf dem Gebiete der Geographie während der letzten drei Monate. *Verhandlungen der Gesellschaft für Erdkunde zu Berlin*, Vol.1 (1874), No.8, pp.201-216 (on pp.208-211 he writes about Forsyth's expedition and appraises Stoliczka's merits in the field of geological and geographical research connected with this expedition).
- 1875 *Report of a Mission to Yarkund in 1873*, under command of Sir D.T.Forsyth, with historical and geographical information regarding the possessions of the Ameer of Yarkund. Calcutta 1875.
- H.W.Bellew, *Kashmir and Kashgar*. A Narrative of the Journey of the Embassy to Kashgar in 1873-74. London 1875.
- F.v.Richthofen in a lecture referred to in *Zeitschrift der deutschen geologischen Gesellschaft* (Berlin), Vol.27 (1875), pp.240-242 (p.240:"Herr v. Richthofen gab eine Übersicht der letzten Forschungen des betrauten Dr. Stoliczka in Ost-Turkestan").

As far as Stoliczka's participation in it was specifically concerned, the expedition had the following course:<sup>29</sup>

## 1. Journey to Kashgar

### a) From Calcutta to Leh (May 17 - August 27, 1873)

Ferdinand Stoliczka left Calcutta on May 17 and on his way he stopped at Simla for a short while and from there proceeded to Murree (Mari), lying a short distance north of Rawalpindi, where he spent a little over a month (from June 10 to July 15), making the final preparations for his journey and simultaneously carrying out geological and zoological research in the locality.<sup>30</sup>

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--- "Herr O. Feistmantel an Herrn von Richthofen, Calcutta, 10. Dezember 1875." *Zeitschrift der deutschen geologischen Gesellschaft*, Vol. 27 (1875), pp. 945-949 (about Stoliczka's palaeontological research during Forsyth's expedition).

1876 T.E. Gordon, *Roof of the World*, being the narrative of a journey over the high plateau of Tibet to the Russian frontier and the Oxus sources on Pamir. Edinburgh 1876.

1877 Ost-Turkestan und das Pamir-Plateau nach den Forschungen der britischen Gesandtschaft unter Sir T.D. Forsyth 1873 und 1874. *Mittheilungen aus Justus Perthes' Geographischer Anstalt über wichtige neue Erforschungen auf dem Gesamtgebiete der Geographie von Dr. A. Petermann*, Ergänzungsband 11 (1876-77), Ergänzungsheft No. 52. Gotha 1877.

1878 H. Trotter, On the Geographical Results of the Mission to Kashgar, under Sir T. Douglas Forsyth in 1873-1874. *The Journal of the Royal Geographical Society*, Vol. 48 (1878), pp. 173-234.

1878-1891 A.O. Hume (ed.), *Scientific Results of the Second Yarkand Mission*; based upon the collections and notes of the late Ferdinand Stoliczka, Ph.D. Calcutta-London 1878-1891.

1887 *Autobiography and Reminiscences of Sir Douglas Forsyth*. Edited by his daughter (Ethel Forsyth). London 1887.

<sup>29</sup> The greater part of our information about Stoliczka's participation in Forsyth's expedition is based on Stoliczka's own notes and observations, recorded during the expedition and entered in his "Diary". This "Diary", in a number of pocket books, has not been published in toto to date, only some of its portions having been printed in the *Records of the Geological Survey of India* (see Nos. 120-124 and 136). V. Ball, *Memoir*, p. 22, says about this "Diary" that "it affords most remarkable testimony to the persistent energy with which Stoliczka carried on his observations and made his collections in spite of difficulties under which any one less resolute might have failed." V. Ball condensed a considerable part of Stoliczka's notes in his *Memoir*, pp. 22-28, similarly as W.T. Blanford in his *Scient. Results/Geology*, pp. 9-46.

<sup>30</sup> See "Notes on the Geology from Mari (Murree) in the Punjab to Leh in Ladak" (No. 144) and also the communication to Hanns Bruno Geinitz (1814-1900), German geologist and palaeontologist (No. 118) and the letter addressed to Dr. Hauer (No. 119), both dated July 13, 1873.

On July 15 he set out on his journey again, this time heading for Srinagar, where he arrived on July 27 and where he remained for some time in order to observe water fowl nesting in a local lake.

Stoliczka left Srinagar on August 6, his next journey taking him across the Zoji-la Pass (3,766 metres above sea-level), Dras, Kargil, Photo-la Pass (4,477 metres) and then up the Indus to Leh in Ladakh, where he arrived on August 27 and remained until September 11.<sup>31</sup>

b) *From Leh in Ladakh to Shah-i-dula in Chinese Turkestan (mid-September - October 18, 1873). Visit to the jade finding-places at Karakash*

While in mid-September the main part of the expedition, whose members included envoy Forsyth, Dr. Bellew and others, set out on another march along the eastern foot of the Karakorum Mountains and then across the Karakorum Pass, Stoliczka and a smaller group made their way further eastwards from Leh, their journey taking them via Tankse as far as Pangong Lake in Western Tibet (September 19). From there he continued across the Changchenmo Mountains, by then covered with a thick layer of snow, and the Lingzi-Thang Plains to Kiziljilga where, for the first time, Stoliczka was taken seriously ill with spinal meningitis which confined him to bed for several days (October 1 to 6). However, by the time the main group arrived at Kiziljilga on October 13 he had recovered and was able to welcome its members.

The expedition reached the village of Shah-i-dula, situated on the bank of the River Karakash in Chinese Turkestan (now Sai-t'u-la in the Hsin-chiang Uighur Autonomous Region) on October 18, 1873.<sup>32</sup>

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<sup>31</sup> On September 10, 1873, he wrote a letter to Allan O.Hume, editor of *Stray Feathers*, from here (No.132).

<sup>32</sup> The results of his geological observations during this part of the journey are contained in Stoliczka's work "A Brief Account of the Geological Structure of the Hill-ranges between the Indus Valley in Ladak and Shah-i-dula on the Frontier of Yarkand Territory", which was published posthumously (similarly as all Stoliczka's works related to this expedition) and reprinted several times (see Nos. 120, 135, 137 and 145). In this work Stoliczka documents the fact that the rocks to the south of the Indus which he investigated during his two previous expeditions in 1864 and 1865 (see above) also stretch to the north of this river.



From Shah-i-dula Stoliczka, accompanied by Dr. Bellew and Captain Biddulph, visited an ultimately described<sup>33</sup> the well-known jade quarries in the Karakash valley (situated about 19 miles to the south-east of Shah-i-dula), then deserted as a result of the political events in Turkestan, which traditionally supplied the Chinese with this precious mineral on which a high value was placed by Eastern Asia as a whole.

c) *From Shah-i-dula to Yarkand and Kashgar (third decade of October - December 4, 1873)*

After their short sojourn at Shah-i-dula, the expedition had first of all to cross the Kuen-lun Mountains and after doing so it made its way to Sanju, where it remained from October 27 to November 2. While there Stoliczka acquired a large number of birds and carried out geological observations. On leaving Sanju the expedition continued in a north-westerly direction through the alluvium plains of the south-western border of the Tarim Basin, about which Stoliczka wrote: "Among the sandy and clayey deposits I was not a little surprised to find true Loess, as typical as it can anywhere be seen in the valleys of the Rhine or of the Danube."<sup>34</sup>

On November 8 the expedition reached, via Karghalik, the town of Yarkand, about which Stoliczka wrote: "Yarkand lies about 5 miles from the river, far away from the hills, in the midst of a well cultivated land, intersected by numerous irrigation canals; a land full of interest for the agriculturist, but where the geological mind soon involuntarily falls into repose."<sup>35</sup>

He spent his stay of twenty days there chiefly in making ornithological collections in the town itself and in its environs.

In a letter to his Viennese friend Dr. Albrecht Schrauf (1837-1897), written in Yarkand on November 28, 1873 (No.134), he recorded several interesting facts connected with his journey to and his stay in Yarkand.

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<sup>33</sup> In his article "Note regarding the Occurrence of Jade in the Karakash Valley, on the Southern Borders of Turkistan", likewise reprinted several times (see Nos. 122, 125, 128, 139, and 146).

<sup>34</sup> W.T. Blanford, *Scient. Results/ Geology*, p.23

<sup>35</sup> *Ibidem*.

He wrote, among other things, "We had a dreadfully cold and difficult journey across the Himalayan Mountains. My toes were frozen for a whole month, and were not thawed till we reached Yarkand ... Here, in Yarkand, the climate is almost European. We receive each days the finest grapes, apples, and pears that you can imagine ... I have already a good zoological collection, some new birds and mammals, and many fish. Geology is very meagre. Here there is nothing but loess. Hills only to be seen in the distance. The air is never clear, being always full of dust."

On the same day, i.e. on November 28, the expedition left Yarkand and headed via the partly filled-up Yanghihissar for its destination - Kashgar, where it arrived on December 4, 1873.<sup>36</sup>

## 2. Excursions to the environs of Kashgar

The stay of the expedition in Yangishahr, near Kashgar, where Forsyth's mission had its headquarters, lasted until March 16, 1874, and was filled with official receptions at the ruler's court and numerous diplomatic and commercial negotiations which led to the signing of the respective agreement on February 2, 1874. In this period the members of the scientific expedition were able to move about relatively freely and Stoliczka once again took the opportunity to collect various zoological specimens and observe the objects of his interest directly on the spot and also carry out research of the near and more remote environs of the town. In all he made two excursions from this place.

### *a) Excursion to Chadyr-kul Lake (December 31, 1873 - January 11, 1874)*

Ferdinand Stoliczka realized his first excursion in the company of Col. Gordon and Capt. Trotter. Its route ran via Chakmak to Chadyr-kul Lake (3,410 metres above sea level), situated about 110 miles to the

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<sup>36</sup> Stoliczka recorded the results of his geological observations in the sector between Shah-i-dula and Kashgar in his article entitled "Geological Notes on the Route Traversed by the Yarkand Embassy from Shahidula to Yarkand and Kashgar" (see Nos. 121, 126, 130, 135, 138 and 147).

north-west of Kashgar and lying in the foothills of the T'ien-shan Mountains, practically on the territory of Russia's Central Asian domains. Here Stoliczka ascertained that the mountain zones of the southern T'ien-shan run from the south-west to the north-east, contrary to the Kuen-lun Mountains, which stretch in the opposite direction, i.e. from the north-west to the south-east. He also discovered very young, extinct volcanoes and, finally, the fact that Chadyr-kul Lake lying on the water-shed of the River Aksai (which flows in an easterly direction and empties its waters into the River Tarim) and the River Arpa (which flows in a westerly direction and empties its waters into the River Syr Darya) is not drained. This lake was in general the northernmost place which Ferdinand Stoliczka reached in High Asia.<sup>37</sup>

b) *Excursion to Altyn-Artysh and farther to the north-east to the Belowti Pass (February 14 - March 3, 1874)*

The destination of the second excursion, led by envoy Forsyth himself and participated in, apart from Stoliczka, by Dr. Bellew, Capt. Chapman and Capt. Trotter, was Altyn-Artysh, situated approximately 23 miles to the north-east of Kashgar (now A-t'u-shih, the administrative centre of the Kyzyl-su Kirghiz Autonomous Prefecture in the Hsin-chiang Uighur Autonomous Region), and its environs. On leaving Altyn-Artysh, where it had arrived on February 14, the expedition first of all proceeded in a north-westerly direction along the River Bogoz to the Tongitar fortress, from where it continued in a north-easterly direction to Karawal. At Ayok Sogon Stoliczka and Trotter left the main group and set out on a separate expedition along the Ushturfan road in a north-easterly direction until they reached the Belowti Pass, beyond which the valley of the River Aksai lies. On their return journey, which followed the same route, they turned south at Karawal and, after visiting Kalti Ailak and Faizabad, they arrived back in Yangishahr on March 3.

In his "Diary" Stoliczka recorded the following about this excursion:

"It was not a very favourable time for travelling in these regions, not so much on account of the cold, as in consequence of the heavy falls of snow which appear to occur

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<sup>37</sup> Stoliczka summarized the preliminary results of this excursion in his work "Geological Observations Made on a Visit to the Chaderkul, Thian Shan Range" (Nos. 123, 127, 129, 140 and 148).

over the whole of the Thian Shan during the second half of February and first half of March. During the last few days of February we were almost constantly wading in fresh-fallen snow, though on the saline plains it melted very rapidly. The snow naturally interfered seriously with our observations."<sup>38</sup>

### 3. Return journey

- a) *From Kashgar to Kila Panjah in Wakhan through the Little Pamir and the return journey to Yarkand through the Great Pamir (March 17 - May 21, 1874)*

T.D. Forsyth's mission to Yakub Beg ended on March 16, 1874, and on the following day the whole expedition left Kashgar. According to the original plan, the group whose members included Stoliczka was to return to India via the Pamir Plateau, Badakhshan and Kabul, while the main group chose to return along the same route by means of which it had reached Kashgar in the autumn of the preceding year.

Consequently, the group which was headed by Col. Gordon and whose members were, apart from Ferdinand Stoliczka, Capt. Biddulph and Capt. Trotter, left (on March 21) the others at Yangihissar, lying on the route between Kashgar and Yarkand, and, via Ighiz Yar, headed for Sarikol, reaching Tashkurghan, its centre, on March 30. It arrived at Aktash, lying on the border between Sarikol, belonging to Kashgar, and Wakhan under the rule of Kabul, on April 3. On the territory of Wakhan in Afghanistan it then continued through the Little Pamir valley to the town of Kila Panjah, which it reached on April 14. Col. Gordon and his group remained there for twelve days, because in the meanwhile a change had been made in the original itinerary. Due to the state of unrest prevailing in Kabul,

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<sup>38</sup> W.T. Blanford, *Scient. Results / Geology*, p.30. Stoliczka recorded the results of his geological observations during this expedition in his report "The Altum-Artush Considered from a Geological Point of View" (Nos. 136, 141 and 149).

the new march across Badakhshan and Kabul had to be cancelled, the leader of the expedition deciding to return to the territory of Kashgar. From Kila Panjah, which he and the members of his group had left on April 26, the route which they chose to follow ran in a more northerly direction through the Great Pamir valley, re-entering their former line of march at Aktash (May 4). From there the return route to Yarkand via Ig-hiz Yar was over ground previously traversed and Yarkand was finally reached on May 21.<sup>39</sup>

b) *From Yarkand to Burtsi to the south of the Karakorum Pass*  
(May 28 - June 17, 1874)

After arriving at Yarkand, where it remained for one week (from May 21 to 27, 1874), the group set out on its home march, this time choosing a route lying further to the west than the one they had followed when travelling through this region in the opposite direction in the autumn of 1873: via Karghalik, lying to the south of Yarkand at a distance of a two-day march (May 31), and then across the main ridge of the Kuen-lun Mountains (June 9), along the upper stream of the River Yarkand to Kufelang (June 12)<sup>40</sup> and then via Aktagh and the Karakorum Pass (June 16) to Burtsi in Ladakh, where the group arrived on June 17.<sup>41</sup>

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<sup>39</sup> For his geological and other observations during this march see Stoliczka's letters written in Kila Panjah on April 14 (No.124) and April 25, 1874 (No.133) as well as the recapitulation of his notes in his travel diary pertaining to this sector in W.T.Blanford's *Scient.Results/ Geology*, pp.35-41 (No.150)

<sup>40</sup> Stoliczka wrote his last letters to his friends in Calcutta, V. Ball and A.B. Wynne, from Kufelang. Both are dated June 12, 1874. In his letter to V. Ball he confided his plans for the nearest future: "I shall be at Leh about 1<sup>st</sup> July, write there my preliminary report, leave about the 13<sup>th</sup>, and go through Rupshu, Spiti, and Kulu, so as to be in Calcutta about the 1<sup>st</sup> of November, when I hope to see you all." With regard to the journey he had just undertaken he wrote: "We had a very tough journey from Yarkand by the Koggar (i.e. Kugiar - JK) route, first heat, then any amount of water and cold ... With the exception of a few hot days at Yarkand, I had not a pleasant warm day for the last ten months, so I will be glad of a few days' recess at Leh." As regards the future he saw, as was typical of him, nothing but work: "I have made a fair zoological collection, and will have at the end of my journey, certainly materials for two volumes. The geological and palaeontological part will be somewhat meagre, but this cannot be helped when full half the ground was under snow at the time of my journey." Only at the end of the letter can we find a brief sentence referring to his state of health: "I can hardly recognize myself; but few know what I suffered in order to do some work." V. Ball quotes excerpts from this letter in his *Memoir*, pp.26-27.

<sup>41</sup> Entries in his "Diary", recapitulated by W.T.Blanford under the title of "From Yarkand to Burtsi, south of the Karakoram Pass, via Kugiar, the Upper Valley of the Yarkand River, Aktagh, and the Karakoram Pass" (No.151), relate to this last sector of Stoliczka's earthly pilgrimage.

#### IV. FERDINAND STOLICZKA'S DEATH AT MURGHI IN LADAKH (JUNE 19, 1874) AND HIS POSTHUMOUS HONOURS

On observing the rocks in the environs of Burtsi, the tireless Stoliczka made his final entry in his "Diary": "I must have a ramble in these limestones to-morrow; they seem to be triassic, compact with layers full of small Gasteropods."<sup>42</sup> If only he had known that his time in this world was by then limited to a mere two days!

We can learn about the events which filled those two days and Stoliczka's sudden death and burial from the letters of his friends T.E. Gordon, H. Trotter and E.F. Chapman.<sup>43</sup>

Stoliczka, a seemingly strong man with a dense, dark beard, by no means enjoyed the good state of health required by his exacting tasks. We are acquainted with the way in which his health was afflicted by his second expedition to the Himalayas in 1865 and how he was obliged to convalesce for a long time in Calcutta. He was a sick man when he became a member of Forsyth's expedition, but his feverish passion for work and his longing for knowledge did not permit him to spare himself. As has already been said, the dangerous ailment represented by spinal meningitis manifested itself for the first time in October 1873 when he was on his way from Leh to Shah-i-dula. And now the symptoms of this old illness appeared again. After crossing the Karakorum Pass (5,575 metres above sea-level) on June 16, Stoliczka began to experience pains in the back of his head. However, he did not pay much attention to them and continued to climb the rocks in order to carry out geological research.

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<sup>42</sup> V. Ball, *Memoir*, p.28.

<sup>43</sup> See "Nachrichten über die letzten Tage des verstorbenen Dr. Ferd. Stoliczka", *Verhandlungen der kaiserlich-königlichen geologischen Reichsanstalt* (Wien), 1874, No.12, pp.279-285. P.279: "Wir bringen ... den Inhalt der uns von Herrn Director B.W. (sic) Medicott ... mitgetheilten Briefe, deren Zusendung an den Bruder Stoliczka's bestimmt waren und auch denselben bereits zugesendet wurden, in deutscher Übersetzung zur Kenntniss." The first of these letters (pp.280-281: "Lager von Moorgi-Thibet. 19. Juni 1874") is from Colonel T.E. Gordon, addressed to Mr. H.B. Medicott, who was at that time Acting Superintendent of the Geological Survey of India; the second (pp.281-282: "Lager von Leh, 23. Juni 1874") is from Captain E.F. Chapman, addressed to Mr. Medicott; the third (pp.282-284: "Murghi, den 19. Juni 1874") is from Captain H. Trotter, addressed to Captain Chapman (for an English text see V. Ball, *Memoir*, pp.28-30); the fourth (pp.284-285: "Lager von Lama Yaru, 27. Juni 1874") is from Captain Chapman, addressed to Mr. Medicott (for an English text see V. Ball, *Memoir*, p.30).

On June 17 he crossed the Dipsang Plains and in the early morning of June 18 he even set out on horseback to travel upstream of the river flowing into the Shayok in order to observe the surrounding rocks. In the afternoon of the same day, however, he had difficulty in breathing, this symptom being accompanied by a strong cough, a raised temperature and an accelerated pulse. Although in this bad state, he still succeeded in reaching Murghi, lying on the River Shayok, on horseback. The native physician who was called to his assistance on the morning of the following day was of the opinion that he was suffering from acute bronchitis and pneumonia. In actual fact, however, Stoliczka's old illness, i.e. spinal meningitis, had reappeared, this time with unusual strength which soon brought his young and promising life to an end. Stoliczka died in the afternoon of June 19, 1874, surrounded by his friends H. Trotter, J. Biddulph and T.E. Gordon. He was only thirty-six years of age.<sup>44</sup>

Ferdinand Stoliczka's death arouse a great response, since everyone realized that the world had lost a really exceptional man. His body was hastily transported to Leh where it was solemnly received by T.D. Forsyth and his associates. The coffin containing Stoliczka's bodily remains, covered with the British national flag, was buried in the garden of the house belonging to Captain Molloy, the British Joint Commissioner, on the same day in the presence of the many who had come to pay their final respects.<sup>45</sup>

<sup>44</sup> In a letter to Captain E.F.Chapman, written at Camp Murghi and dated June 19, 1874, Capt. Trotter wrote: "About 2 p.m. he made a gesture that he wanted to sit up; he was accordingly moved to a chair and I gave him some port wine, but his appearance was so ghastly and he was in such a state of exhaustion that I called in Biddulph from the next tent. Biddulph, thinking him worse, fetched Col.Gordon. Meanwhile, he was moved back to his bed; he tried to sit up, and I got behind him to support him. Meanwhile the Colonel came in. The rattling noise ceased, but he still breathed deeply; his respiration grew slower and slower, as also did his pulse, and he finally breathed his last, dying so quietly that it was impossible to say at what precise instant he passed away. There was no struggle, and he died apparently without pain, a quiet and peaceful expression remaining on his countenance after death." Quoted after V. Ball, *Memoir*, p.29.

<sup>45</sup> In a letter to H.B.Medlicott, written at Camp Lama Yuru and dated June 27, 1874, Capt. E.F.Chapman described Stoliczka's funeral with these words: "The procession, which was escorted by a company of horsemen, reached Leh on the evening of the 23<sup>rd</sup>, and was met at the entrance to the compound of the British Joint Commissioner by Mr.Forsyth and the officers of the mission, who were all in uniform. The body was at first placed in a room of the rest house which stands in Capt.Molloy's garden, and Dr.Bellew made a post-mortem examination, which proved that death had resulted in consequence of over-exertion in strenuous endeavours after information, and the great height at which Gordon's detachment journeyed.

"After the coffin was closed, the Union Jack was spread over it, and it was borne by six soldiers to the grave. The interment was attended by the whole of the followers of the mission, natives, Mahomedans, Sikhs, and Tartars, and the greatest sympathy was shown on the occasion. The burial service was read by Mr. Forsyth. Besides us, there were present Capt. Molloy, the British Joint Commissioner, Mr. Johnson, Wazir of Ladakh, and Capt. Carre, R.H.A. The grave, of

The sudden death of Ferdinand Stoliczka in such unusual circumstances evoked great sorrow, always combined with high appreciation of his personal qualities and scientific abilities, among all those who had known and worked with him. The official obituaries published shortly afterwards, whether in India or numerous European countries, were full of admiration for and acknowledgement of Stoliczka's great scientific work.<sup>46</sup>

stone work, was situated in a willow plantation in a garden next the house of Capt. Molloy. The place, where we laid our much lamented companion to rest will certainly be at all times maintained and cared for." Quoted after V. Ball, *Memoir*, p.30.

<sup>46</sup> On the occasion of Stoliczka's death numerous obituaries appeared in the daily and specialized press references to some of the more important of which will be found below (chronologically):

† Dr. Ferdinand Stoliczka (*sic*). *Verhandlungen der kaiserlich-königlichen geologischen Reichsanstalt* (Wien), 1874, No.11, p.253 (7 lines in the rubric "Todsanzeige").

*Bombay Gazette*, July 6, 1874 (not seen).

Tod des Dr. Ferdinand Stoliczka. *Verhandlungen der Gesellschaft für Erdkunde zu Berlin*, Vol.1 (1874), Nos.6-7, p.183.

W.T.B. (=William Thomas Blanford), Ferdinand Stoliczka, Ph.D. *Nature* (A weekly illustrated journal of science), London-New York, Vol.10 (May 1874 to October 1874), July 9, 1874, pp.185-186.

*Neues Jahrbuch für Mineralogie, Geologie und Palaeontologie* (Stuttgart), 1874, p.671 (5 lines; based on *Illustrierte Zeitung*, Leipzig, No.1620, July 18, 1874 - not seen).

*Světozor* (The World in News and Pictures), Praha, Vol.8 (1874), No.33, Supplement, August 14, 1874, p.396 (29 lines).

Karl v.Scherzer, Dem Andenken Stoliczka's. *Neue Freie Presse* (Abendblatt, Wien), No.3589, August 24, 1874, p.6, col.2 (93 lines).

H.B.Medlicott, Obituary Notice of F. Stoliczka. *Records of the Geological Survey of India* (Calcutta), Vol.7, Part III, August 1874, p.86 [No formal obituary notice as such, just a notice preceding the extract from Stoliczka's letter (see Catalogue, No.124), saying that the news of his death had been received since the paper on "Geological observations ..." (No.123) was in type.]

Dr. F. Stoliczka, F.G.S., etc., Palaeontologist to the Geological Survey of India. *The Geological Magazine or, Monthly Journal of Geology* (London), New Series, Decade II, Vol.1, No.8, August 1874, pp.382-384.

*Vesmír* (The Universe), Praha, Vol.3 (1874), No.21, p.252 (36 lines).

Ferdinand Stoliczka. *The Ibis, a Quarterly Journal of Ornithology* (London), Ser.3, Vol.4, No.16, October 1874, pp.470-471.

(Col. Hyde, President of the Asiatic Society of Bengal, and H.B.Medlicott), *Proceedings of the Asiatic Society of Bengal* (Calcutta), 1874, pp.152-153 (no title, but the running head on the page reads:"Death of Dr. F.Stoliczka").

(A reference to Stoliczka and his death in the preface to the) *Stray Feathers* (A journal of ornithology for India and its dependencies), Calcutta, Vol.2 (1874), Nos.4-5 (written by the Editor, Allan O.Hume; not seen).

*Die Urne* (Jahrbuch für allgemeine Nekrologie), Leipzig, Vol.2 (1874), p.89 (not seen).

T. Oldham (Superintendent of Geological Survey of India and Director of Geological Museum, Calcutta), Annual Report of the Geological Survey of India, and of the Geological Museum, Calcutta, for the year 1874. *Records of the Geological Survey of India* (Calcutta), Vol.8, Part I, February 1875, pp.1-11, especially pp. 1-2.

John Evans, Proceedings of the Geological Society of London, Session 1874-1875: The Anniversary Address of the President. *The Quarterly Journal of the Geological Society of London*, Vol.31 (1875), pp. XXXVII-LXXVI (on Stoliczka, pp. XLVII-XLIX).



Dr. Thomas Oldham, Stoliczka's chief at the Geological Survey, wrote:

"Gifted by nature with peculiar powers of observation and comparison, trained in an accurate and careful school of Geology and Palaeontology, he brought to his labours unbounded zeal, acute intelligence, and large and carefully acquired knowledge, all of which tended to render him one of the most useful and most trusted of our colleagues. But in addition to this, his genial temperament, his sound judgement, and his hearty appreciation of work of any kind in others, together with his clear views of justice, and the unflinching expression of those views, made him also one of our most esteemed and beloved friends and advisers. His loss to the Geological Survey will be long and keenly felt."<sup>47</sup>

Colonel Hyde, President of the Asiatic Society of Bengal where Stoliczka had held the function of Natural History Secretary, expressed himself as follows on the occasion of Stoliczka's death:

"The loss cannot be his - but to us - to this Society he loved so well; to this Government he served so faithfully; to those of all nations and languages who laboured in the same path, and among whom he was rising as one to guide and to lead, his loss is irreparable."<sup>48</sup>

When speaking about his work, Stoliczka's colleague, the geologist H. B. Medlicott, said:

"The work he himself had most at heart, his enthusiasm for which has at last cost him his life, was the Geology of the Himalaya. Before coming to this country, he had, as a member of the Geological Survey of Austria, done good work in Alpine geology, and he was naturally tempted to carry on those studies in the greater field of the Himalaya. What we do know of those difficult regions is principally from his work accomplished in the summers of 1864 and 1865."<sup>49</sup>

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<sup>47</sup> *Records of the Geological Survey of India*, Vol.8, Part I, February 1875, p.2.

<sup>48</sup> *Proceedings of the Asiatic Society of Bengal*, 1875, p.152.

<sup>49</sup> *Idem*, p.153.

Another of his close fellow-workers, W.T. Blanford, immortalized the light of his memory with the words:

"Thus has passed away, at the early age of thirty-six, a naturalist who, if his life had been spared, would certainly have attained a very high position amongst the leaders of science. Few men have accomplished an equal amount of work in the same brief space of time.

In the course of the last ten years, besides geological memoirs on parts of the Western Himalayas and Thibet, he has published numerous papers on Indian mammals, birds, reptiles, amphibia, mollusca, bryozoa, arachnida, coleoptera, and actinozoa; and these papers are no lists of names or mere descriptions of new species, but they abound with accounts of the life history of the different animals, details of their anatomy, and remarks on classification, and show that their author was as good an observer in the field as he was patient and accurate in the cabinet. His greatest work is undoubtedly his account of the fossil fauna discovered in the Cretaceous rocks of Southern India, in which he proposed the most complete general classification of Gasteropoda and Pelecypoda, including both fossil and recent forms, which has hitherto been attempted. There can be no doubt of the rank of this work; it is one of the most complete monographs ever published of any fossil fauna whatever.

Few men were more widely known in India or more universally beloved and esteemed, and the gap he has left in the little band of Indian naturalists and geologists, as well as amongst the far wider circle of his private friends, will be long unfilled."<sup>50</sup>

Governor-General Lord Northbrock (1872-1876) expressed the decision of the Government of India to have the collections which Stoliczka had made in the course of his last journey to High Asia described and published in book form<sup>51</sup> and to enhance the appearance of his grave in Leh.

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<sup>50</sup> *Nature*, Vol.10, July 9, 1874, pp.185-186.

<sup>51</sup> This was realized in the monumental work entitled *Scientific Results of the Second Yarkand Mission; based upon the collections and notes of the late Ferdinand Stoliczka, Ph.D.* (published by order of the Government of India), which was published in Calcutta and London in the years 1878-1891 (see No.152).

In 1876 a granite obelisk with marble panels and the inscription in Latin and English was erected on the site of the grave at the cost of the Indian Government.<sup>52</sup> The inscription reads as follows:

"Ferdinand Stoliczka, Ph.D., Born in Moravia, 7<sup>th</sup> June (recte; July) 1838; died at Moorgo, 19<sup>th</sup> June, 1874, while returning from Yarkund with the British Mission to which he was attached as Naturalist. Though young when he fell a sacrifice to duty, he had already achieved eminence by his researches into the geological and natural history of India and his early death is deeply regretted by the world of science and by the Government of India, who, in recognition of his able and honourable services, have caused this monument to be erected, 1876."

In commemoration of Stoliczka's devoted service the Asiatic Society of Bengal organized a collection for the "Stoliczka Memorial Fund",<sup>53</sup> which soon brought in an adequate sum for the realization of a marble bust and a portrait of Ferdinand Stoliczka. The bust still stands in the Department of Palaeontology of the National Museum in Calcutta, while the portrait adorns a wall of the seat of the Asiatic Society in Calcutta.<sup>54</sup>

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<sup>52</sup> Stoliczka's successor at the Geological Survey of India, the Czech geologist Otakar Feistmantel (1848-1891), visited the grave in 1875 and published a report on it ("Dr. Stoliczka's Monument in Leh") in the magazine *Bohemia* (Praha), Vol. 49 (1876), No.7, Supplement, January 8, 1876, pp.1-2. Sven Hedin (1865-1952) also visited Stoliczka's grave in Leh before setting out for Tibet in 1906 (see his *Transhimalaya. Entdeckungen und Abenteuer in Tibet*, Vol.1, Leipzig 1909, pp. 53-54; a photograph of the obelisk above Stoliczka's grave can be seen after page 48). For further descriptions and/or photographs of Stoliczka's grave see M.R.Sahni, *The Palaeontological Society of India, Journal of the Palaeontological Society of India* (Lucknow), Vol.1 (1956), No.1 (Inaugural Number), pp.1-6, Plate 3 (referring to Stoliczka as "distinguished Austrian naturalist"), and B.Somasekar, *Contribution of the Czech Geologist Dr.F.Stoliczka to the Indian Geology, Časopis pro mineralogii a geologii* (Journal for Mineralogy and Geology), Praha, Vol.9 (1964), No.1, pp.115-118, Plate 2 ("The Grave of the distinguished Czech naturalist, Dr.Ferdinand Stoliczka, at Leh in a remote Himalayan outpost").

<sup>53</sup> See *Proceedings of the Asiatic Society of Bengal*, 1875, pp.109-112; *idem*, 1876, pp.23 and 77-79.

<sup>54</sup> Bust of Dr. F.Stoliczka, *Proceedings of the Asiatic Society of Bengal*, 1877, p.203; V. Ball, *Memoir*, p.31; M. Krása, *Looking towards India*, Prague 1969, p.76 (reproduction of the bust after p.64). Another bust of Stoliczka, the work of the English sculptor E.Edward Geflowski, which was originally situated in Simla, can be seen at the seat of the Asiatic Society of Bengal. For its reproduction see Radim Kettner, *Indická paleontologická společnost* (The Palaeontological Society of India), *Časopis pro mineralogii a geologii* (Journal for Mineralogy and Geology), Praha, Vol.2 (1957), p.366. Still another bust of Stoliczka, the work of the Moravian sculptor Antonín Tomáš Beck (1835-1908), adorns the building of the former Pedagogical Institute in Kroměříž.

In later years Stoliczka's own country paid homage to his memory. Kroměříž, the town in which Stoliczka was born, commemorated its illustrious son by placing a memorial tablet on the "Chateau" gamekeeper's lodge where he was born and naming the street leading to it after him.

The Geologico-Palaeontological Department of the National Museum in Prague brought Stoliczka's life work to mind in 1954 by holding an exhibition prepared in honour of the 80<sup>th</sup> anniversary of the death of this world-renowned Czech scientist.<sup>55</sup>

Finally, on June 19, 1974, to commemorate the centenary of the death of Dr. Ferdinand Stoliczka, the Geological Survey of India organized a small but impressive ceremony at Leh, the last resting place of the great scholar, accompanied by the placing of wreaths and flowers on his grave. Apart from official guests representing the local authorities and the Geological Survey of India, the ceremony was attended by the entire Christian population (about 50) of Leh. While paying rich tributes to the work of Dr. Stoliczka, Mr. M.N. Sehgal, Director, Kashmir Circle, Geological Survey of India, enumerated the circumstances under which he had worked and sacrificed his life in the cause of science. Another speaker at the ceremony, Professor K.N. Kaul, Director of Gardens, Jammu and Kashmir Government, emphasized the importance of dedication and a sense of purpose in scientific pursuits. "Though physically dead for exactly one hundred years today, Dr. Stoliczka is very much alive through his scientific contributions and will continue to inspire young Indian scientists to explore this remote but very important tract of the country", Professor Kaul concluded.<sup>56</sup>

Ferdinand Stoliczka died at the young age of thirty-six. Nevertheless, his young life, filled with tireless scientific activity, bore work which - especially when taking into account the large amount of time spent in undertaking the exceptionally fatiguing journeys - is remarkably great and compact and of high scientific value. And even though this work was later supplemented or developed in certain aspects, it continues to be a reliable base of geological and palaeontological knowledge about the regions of India and High Asia through which Stoliczka passed on his travels and a permanent contribution to world geology and palaeontology.<sup>57</sup>

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<sup>55</sup> In this respect see V. Zázvorka's report in *Časopis Národního musea. Oddíl přírodovědný* (Journal of the National Museum, Natural History), Praha, Vol. 124 (1955), p. 116.

<sup>56</sup> According to information kindly provided by Mr. S.K. Kapoor, Senior Librarian, Geological Survey of India, Central Headquarters Library, Calcutta (in his letter of May 15, 1981).

<sup>57</sup> B. Somasekar of the Department of Geology of Karnatak University at Dharwar, Karnataka, India, presents a specialized evaluation of Stoliczka's geological research in India and its significance for the development of geological sciences in India in his article entitled Contribution of the Czech Geologist Dr. F. Stoliczka to the Indian Geology (see Note 1).

## PART II.

CATALOGUE OF FERDINAND STOLICZKA'S BOOKS,  
SCIENTIFIC PAPERS AND PUBLISHED CORRESPONDENCE



R E M A R K S

The compilation of the list of Ferdinand Stoliczka's works in the present form would have been impossible without the kind assistance of a number of individuals and libraries and the author would thus like to express his sincere thanks to all those concerned for their willing co-operation. Specifically, these individuals and libraries are (in alphabetical order):

Dr. Michael V. Aris and his wife Aung San Suu Kyi (Oxford), Dr. Philip Denwood (London), Mr. Torsten Much (Vienna), Mrs. Tat'jana V. Norina (Moscow), Dr. Libuše Šimonová (Prague), Professor Manfred Taube (Leipzig);

The Geological Library of the Faculty of Science, Charles University (Prague), Geological Survey of India - Central Headquarters Library (Calcutta), The Library of the Academy of Sciences of the Soviet Union (Leningrad), The Library of the Leningrad Department of the Oriental Institute of the Academy of Sciences of the Soviet Union (Leningrad), The Main Library of the Czechoslovak Academy of Sciences (Prague), The State Library of the Czech Socialist Republic (Prague).

With the reserve that "*omnia scire non possumus*" the compiler has grounds to believe that the following list of works by Ferdinand Stoliczka is the most detailed and the fullest of all similar lists (see note 2) published to date.

The individual items in the list are ranked chronologically according to the years and in the framework of the years in the order of books, scientific articles, communications and letters. In the cases in which abstracts and/or reviews of Stoliczka's works have been secured, these are presented after the respective work.

The items are numbered sequentially (1-152). The numbers with one asterisk (\*) indicate Stoliczka's letters, extracts from them or a paraphrase of them, while the numbers with two asterisks (\*\*) indicate works by other authors, based, however, on materials provided by F. Stoliczka.

The items in inverted commas (" ") are brief communications, comments in discussions or various reports and notes, usually printed without a title.

In the case of works printed in several journals the respective cross-references are also given.

- Initials of the reviewers of Stoliczka's works:

W.R. v. H.	Wilhelm Ritter von Haidinger
Fr. v. H.	Franz von Hauer
Dr. M.N.	Dr. Melchior Neumayr
Dr. U. Schl.	Dr. Urban Schloenbach
G. St.	Guido Stache
E. T.	Emil Tietze



A B B R E V I A T I O N S

- Ann.Mag.nat.Hist.* The Annals and Magazine of natural history, including zoology, botany, and geology. London.
- Geol.Mag.* The Geological Magazine or, Monthly Journal of Geology. London.
- Ibis* The Ibis, a Magazine of General Ornithology. London.
- Jahrb.geol.Reichsanst.* Jahrbuch der kaiserlich-königlichen geologischen Reichsanstalt. Wien.
- Journ.ASB.* Journal of the Asiatic Society of Bengal. Calcutta.
- Journ.de Conch.* Journal de Conchyliologie comprenant l'étude des mollusques vivants et fossiles. Paris.
- Memoirs GSI* Memoirs of the Geological Survey of India. Calcutta.
- Neu.Jahrb.Min.* Neues Jahrbuch für Mineralogie, Geologie und Palaeontologie. Stuttgart.
- Palaeont.Ind.* Memoirs of the Geological Survey of India, Palaeontologia Indica. Being figures and descriptions of the organic remains procured during the progress of the Geological Survey of India. Calcutta.
- Phil.Mag.* The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science. London.
- Prcc.ASB.* Proceedings of the Asiatic Society of Bengal. Calcutta.
- Quart.J.Geol.Soc.* The Quarterly Journal of the Geological Society of London. London.
- Records GSI* Records of the Geological Survey of India. Calcutta.
- Report* Report of a Mission to Yarkund in 1873, under command of Sir T.D. Forsyth, with historical and geographical information regarding the possessions of the Ameer of Yarkund. Calcutta 1875.

- Scient.Results/Geology* W.T. Blanford, Geology. In: Scientific Results of the Second Yarkand Mission; based upon the collections and notes of the late Ferdinand Stoliczka, Ph.D. Calcutta 1878.
- Sitzungsber.Ak.Wiss.* Sitzungsberichte der kaiserlichen Akademie der Wissenschaften, Mathematisch-naturwissenschaftliche Classe. Wien.
- Stray Feathers* Stray Feathers. A Journal of Ornithology for India and its Dependencies. Calcutta.
- Verh.geol.-Reichsanst.* Verhandlungen der kaiserlich-königlichen geologischen Reichsanstalt. Wien.
- Verh.zool.-bot.Ges.* Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien. Wien.

1859

1. Über eine der Kreideformation angehörige Süßwasserbildung in den nordöstlichen Alpen. (Mit 1 Tafel). *Sitzungsber.Ak.Wiss.*, Vol.38 (1959), No.25, pp.482-496, 1 plate. (Abst., *Neu.Jahrb.Min.*, 1860, pp.855-857.)

1861

2. Über die Gastropoden und Acephalen der Hierlatz-Schichten. (Mit 7 Tafeln). *Sitzungsber.Ak.Wiss.*, Vol.43 (1861), Part I, Fasc.2, pp. 157-204, 7 plates.
3. Die geologischen Verhältnisse der Bezirke des Oguliner und der südlichen Compagnien des Szluiner Regiments in der Karlstädter k.k. Militärgrenze. *Jahrb.geol.Reichsanst.*, Vol.12 (1861-1862), Fasc.4, pp.526-530.
4. "Tertiäre Petrefacte der Süd-Alpen." *Verh.geol.Reichsanst.*, Vol.12 (1861-1862), Fasc.1, pp.16-18.
5. "Das eigenthümliche Auftreten krystallinischer Schiefergebilde im südwestlichsten Ungarn." *Verh.geol.Reichsanst.*, Vol.12 (1861-1862), Fasc.1, p.114. See also No.13. (Abst., *Neu.Jahrb.Min.*, 1862, pp.199-200.)
6. "Aelteste menschliche Ueberreste." *Verh.geol.Reichsanst.*, Vol.12 (1861-1862), Fasc.2, pp.160-164.
7. "Jung-Tertiäres im südwestlichen Ungarn." *Verh.geol.Reichsanst.*, Vol.12 (1861-1862), Fasc.2, pp.217-218.
8. "Aufnahme-reisen in der Militärgrenze." *Verh.geol.Reichsanst.*, Vol.12 (1861-1862), Fasc.3, pp.235, 239-240, 254, 256.
9. "Geologische Aufnahme von Ost-Indien." *Verh.geol.Reichsanst.*, Vol. 12 (1861-1862), Fasc.4, p.285.

1862

10. Oligocäne Bryozoen von Latdorf in Bernburg. (Mit 3 Tafeln). *Sitzungsber.Ak.Wiss.*, Vol.45 (1862), Part I, Fasc.1, pp.71-94, 3 plates. (Abst., *Neu.Jahrb.Min.*, 1863, pp.379-380.)
11. Ueber heteromorphe Zellenbildungen bei Bryozoen. *Coelophyma* Reuss. *Verh.zool.-bot.Ges.*, Vol.12 (1862), Abhandlungen, Fasc.1-2, pp.101-104.

12. Beitrag zur Kenntniss der Molluskenfauna der Cerithien- und Inzersdorfer Schichten des ungarischen Tertiärbeckens. Mit einer Tafel. *Verh.zool.-bot.Ges.*, Vol.12 (1862), Abhandlungen, Fasc.1-2, pp.529-538, plate XVII. (Abst., *Neu.Jahrb.Min.*, 1863, p.380.)

1863

13. Über das eigenthümliche Auftreten krystallinischer Schiefer-Gebilde im südwestlichen Ungarn. *Correspondenzblatt des Vereins für Naturkunde zu Presburg*, Vol.2 (1863), Nos.1-2, pp.76-77. See also No.5.
14. Bericht über die im Sommer 1861 durchgeführte Uebersichtsaufnahme des südwestlichsten Theiles von Ungarn. Mit 3 Figuren. *Jahrb.geol.Reichsanst.*, Vol.13 (1863), Fasc.1, pp.1-25, 3 plates.
- \*15."Schreiben aus Calcutta." (Calcutta, May 4, 1863 - to W.Haidinger). *Verh.geol.Reichsanst.*Vol.13 (1863), Fasc.2, pp.48-49; *idem*, Fasc.3, p.78.
- \*16.["Über seine paläontologischen Arbeiten in Calcutta"] (Calcutta, May 31, 1863 - to H.B. Geinitz). *Neu.Jahrb.Min.*, 1863, p.564.

1864

17. Fossile Bryozoen aus dem terziären Grünsandsteine der Orakei-Bay bei Auckland. Mit Betrachtungen über neue oder weniger bekannte Bryozoen-Sippen und deren Classification. In: *Reise der österreichischen Fregatte Novara um die Erde in den Jahren 1857, 1858, 1859*. Geologischer Theil. Erster Band. Zweite Abtheilung: Paläontologie von Neu-Seeland. Wien 1864. Pp.87-158, plates XVII-XX. [Abst./Rev., *Neu.Jahrb.Min.*, 1865, pp.366-367. *Verh.geol.Reichsanst.*, Vol.15 (1865), Fasc.1, p.86 (F.v.H.).]
- \*18.Kritische Bemerkungen zu Herrn Fr.A.Römer's Beschreibung der nord-deutschen tertiären Polyparien. ["Mittheilung an Professor H.B. Geinitz, Calcutta, den 20.Jan. 1864"]. *Neu.Jahrb.Min.*, 1864, pp.340-347.
- \*19.Schreiben des Herrn Dr. Ferdinand Stoliczka aus Simla am 3.October 1864. (Communicated by W. Haidinger). *Sitzungsber.Ak.Wiss.*, Vol.50 (1864), Part I, Fasc.4, pp.379-382. For an English translation see V.Ball, *Memoir*, pp.6-7. [Abst., *L'Institut: Journal général des sociétés et travaux scientifiques de la France et de l'Étranger*, I. Sect., Sciences mathématiques, physiques et naturelles (Paris), Vol. 33 (1865), p.128 - not seen; cf.Oldham, *Bibl.Ind.Geol.* 1712, 3.]

- \*20. "Paläontologische Arbeiten." (Nachrichten von Th. Oldham und F. Stoliczka aus Calcutta). *Verh.geol.Reichsanst.*, Vol.14 (1864), Fasc. 2, pp.100-101.
- \*21. "Expedition über das Himalaya-Gebirge." (Brief von Dr. Stoliczka aus Simla im Himalaya, 10.6.1864). *Verh.geol.Reichsanst.*, Vol.14 (1864), Fasc.3, pp.121-122.
- \*22. "Expedition über das Himalaya-Gebirge." (Dr. F. Stoliczka nach Calcutta zurückgekehrt). *Verh.geol.Reichsanst.*, Vol.14 (1864), Fasc.3, pp.215-216.

1865

- 23. Henry Francis Blanford and Ferdinand Stoliczka, Cretaceous Fauna of Southern India. Vol.I: *The Fossil Cephalopoda of the Cretaceous Rocks of Southern India*. 13 parts ("Belemnitidae and Nautilidae of the Cretaceous Rocks of Southern India" by Henry F. Blanford, pp. 1-40, 25 plates; "Ammonitidae With revision of the Nautilidae etc." by Ferdinand Stoliczka, pp.41-216, 69 plates). *Palaeont.Ind.*, Ser. 1 and 3. Calcutta 1863-1865. VIII, 216, XII (1) pp., 94 plates. [Abst./Rev., *Neu.Jahrb.Min.*, 1864, pp.505-506; 1865, pp.106-107, 888-889; 1866, pp.628, 865-866. *Verh.geol.Reichsanst.*, Vol.15 (1865), Fasc.1, pp.17-18 (Franz von Hauer).]
- 24. Note on *Lagomys Curzoniae*, Hodgson. *Journ.ASB*, Vol.34 (1865), Part II, No.2, pp.108-111.
- 25. On the Character of the Cephalopoda of the South-Indian Cretaceous Rocks. *Quart.J.Geol.Soc.*, Vol.21 (1865), Part I, pp.407-412. See also No.26. [Abst., *Bibliothèque Universelle. Archives des Sciences physiques et naturelles* (Genève), Vol.23 (1865), p.230 - not seen; cf. Oldham, *Bibl.Ind.Geol.*1712,6. *Geol.Mag.*, Decade I, Vol.2 (1865), p.272. *Neu.Jahrb.Min.*, 1866, pp.492-494.]
- 26. On the Character of the Cephalopodous Fauna of the South Indian Cretaceous Rocks. *Phil.Mag.*, Ser.4, Vol.29 (1865), No.199 (Supplement), p.550. See also No.25.
- 27. Eine Revision der Gastropoden der Gosauschichten in den Ostalpen. (Mit 1 Tafel). *Sitzungsber.Ak.Wiss.*, Vol.52 (1865), Part I, Fasc. 1-2, pp.104-223, 1 plate. (Abst., *Neu.Jahrb.Min.*, 1866, pp.246-247.)
- \*28. Ein Schreiben des Herrn Dr. Ferdinand Stoliczka aus Kaschmir. (Srinagar, September 14, 1865 - to M. Hörnes; communicated by W. Haidinger). *Sitzungsber.Ak.Wiss.*, Vol.52 (1865), Part I, Fasc.4-5, pp. 664-668.

- \*29. "Schreiben aus Calcutta." (Bericht über die Sitzungen der "Asiatic Society of Bengal" für den Monat December). Communicated by W. Haidinger. *Verh.geol.Reichsanst.*, Vol.15 (1865), Fasc.2, p.97.
- \*30 "Bericht aus Calcutta." (Geologischer Bau des Himalaya). Communicated by W. Haidinger. *Verh.geol.Reichsanst.*, Vol.15 (1865), Fasc.2, pp.138-140.
- \*31. "Himalaya-Expedition." (Photographie von Simla gesandt). Communicated by W. Haidinger. *Verh.geol.Reichsanst.*, Vol.15 (1865), Fasc.3, p.186.

1866

- 32. Geological Sections across the Himalayan Mountains, from Wangtu-Bridge on the River Sutlej to Sungdo on the Indus: with an account of the formations in Spiti, accompanied by a revision of all known fossils from that district. *Memoirs GSI*, Vol.5 (1866), Article 1, pp.1-154, 10 plates. [Abst./Rev., *Geol.Mag.*, Decade I, Vol.2 (1865), pp.265-266. *Neu.Jahrb.Min.*, 1866, pp.616-618. *Verh.geol.Reichsanst.*, Vol.16 (1866), Fasc.1, pp.8-9 (F.v.H.).]
- 33. Summary of Geological Observations during a visit to the Provinces - Rupshu, Karnag, South Ladak, Zanskar, Suroo and Dras - of Western Tibet, 1865. *Memoirs GSI*, Vol.5 (1866), Article 5, pp.337-354. [Abst./Rev., *Neu.Jahrb.Min.*, 1867, p.492. *Verh.geol.Reichsanst.*, 1867, No.3, pp.65-66 (Franz von Hauer).]
- 34. F. Stoliczka and H.F. Blanford, Catalogue of the specimens of Meteoric Stones and Meteoric Irons in the Museum of the Asiatic Society of Bengal, Calcutta, corrected up to January, 1866. *Journ.ASB*, Vol. 35 (1866), Part II, No.1, pp.43-45.
- 35. Einige Betrachtungen über den Charakter der Flora und Fauna in der Umgebung von Chini, Provinz Bisahir, im nordwestlichen Himalaya-Gebirge. *Verh.zool.-bot.Ges.*, Vol.16 (1866), Abhandlungen, pp.849-878. *Corrigenda, idem*, Sitzungsberichte, p.103.
- \*36. Schreiben von Dr. J.(sic) Stoliczka an Herrn Hofrath W.R.v.Haidinger. (Calcutta, November 22, 1865). *Verh.geol.Reichsanst.*, Vol.16 (1866), Fasc.1, P.11. Reprinted in *Neu.Jahrb.Min.*, 1866, pp.618-619.
- \*37. "Neuere Nachrichten von Herrn Dr. F. Stoliczka in Calcutta." (October 10, 1866 - to W. Haidinger). *Verh.geol.Reichsanst.*, Vol.16 (1866), Fasc.4, pp.158-159. Reprinted in *Neu.Jahrb.Min.*, 1867, p.127.

1867

- \*\*38. Gustav C. Laube, *Die Gastropoden des braunen Jura von Balin. Mit Berücksichtigung ihrer geognostischen Verbreitung in Frankreich, England, Schwaben und anderen Ländern. Bearbeitet mit Benützung eines Manuskriptes von Dr. Ferdinand Stoliczka. Denkschriften der kaiserlichen Akademie der Wissenschaften, Mathematisch-naturwissenschaftliche Classe, Vol.28 (1867), Part II, pp.1-28.*
- \*39. "Ueber die Klipstein'sche Sammlung." [Aus einem Schreiben an Herrn Hofrath v. Haidinger, de Dato Giessen 27. September (1867)]. *Verh. geol.Reichsanst.*, 1867, No.15, pp.333-334.

1868

40. Cretaceous Fauna of Southern India. Vol.II: *The Gastropoda of the Cretaceous Rocks of Southern India*. 10 parts. *Palaeont.Ind.*, Ser.5. Calcutta 1867-1868. XIV, 498 pp., 28 plates. [Abst./Rev., *Neu.Jahrb. Min.*, 1868, pp.236-238; 1869, pp.630-631; 1871, pp.207-210. *Verh. geol.Reichsanst.*, 1867, No.10, p.224 (Franz von Hauer, reviewing Parts 1-4 only).]
41. Ornithological Observations in the Sutlej valley, N.W. Himalaya. *Journ.ASB*, Vol.37 (1868), Part II, No.1, pp.1-70. "Introduction", pp.4-11, translated and reprinted in *Petermanns Mittheilungen*, Vol. 16 (1870), pp.8-12 (see No.73). [Rev., Arthur Walden, Remarks on Dr. Stoliczka's Ornithological observations in the Sutlej Valley. *Ibis*, Vol.5 (1869), pp.208-215.]
42. "On elephants." (Observation on Lieut. Johnstone's "Notes on Elephants", *ibid.*, pp.127-132). *Proc.ASB*, 1868, p.131.
43. On the Anatomy of *Sagartia Schilleriana*, and *Membranipora Bengalensis*. (Abstract). *Proc.ASB*, 1868, pp.174-176 and 263. See also No.56.
44. "On Pandanophyllum." (Observation on S. Kurz's "On Pandanophyllum and allied genera, especially those occurring in the Indian Archipelago", *ibid.*, p.241). *Proc.ASB*, 1868, p.241.
45. The Malacology of Lower Bengal and the adjoining provinces. No.1. On the genus *Onchidium*, with descriptions of new species. (Abstract) *Proc.ASB*, 1868, pp.255-256. See also No.57.
46. (Observation on) "*Nanina pollux* and *Helix propinqua*." *Proc.ASB*, 1868, p.263.
47. "The Total Eclipse of the 18<sup>th</sup> August, 1868, as observed by the Austrian Expedition at Aden." *Proc.ASB*, 1868, pp.275-276.

48. On Jurassic Deposits in the North-west Himalaya. *Quart.J.Geol.Soc.*, Vol.24 (1868), Part I, pp.506-509. [Abst./Rev., *Geol.Mag.*, Decade I, Vol.5 (1868), p.390. *Phil.Mag.*, Ser.4, Vol.37 (1869), p.153 - not seen; cf. Oldham, *Bibl.Ind.Geol.* 1712,15. *Verh.geol.Reichsanst.*, 1869, No.8, p.174 (Dr. U. Schl.).]
49. Additional observations regarding the Cephalopodous fauna of the South Indian cretaceous deposits. *Records GSI*, Vol.1 (1868), No.2, pp.32-37. [Abst./Rev., *Neu.Jahrb.Min.*, 1869, pp.631-632. *Verh.geol.Reichsanst.*, 1869, No.1, pp.15-16 (Dr. U. Schl.).]
50. General results obtained from an examination of the Gastropodous fauna of the South Indian cretaceous deposits. *Records GSI*, Vol.1 (1868), No.3, pp.55-59. [Rev., *Verh.geol.Reichsanst.*, 1869, No.1, pp.15-16 (Dr. U. Schl.).]
- \*51. "Dr. Ferdinand Stoliczka in Calcutta." [Schreiben an Herrn Ritter v. Haidinger vom 20. Jänner 1868 (Rückreise über Suez nach Calcutta. Cyclone)]. *Verh.geol.Reichsanst.*, 1868, No.5, pp.94-96.
- \*52. "Die Andaman-Inseln, Assam, u.s.w." [Aus einem Briefe an Herrn Director v. Hauer, de Dato Calcutta, 30.März (1868)]. *Verh.geol.Reichsanst.*, 1868, No.9, pp.192-193.
- \*53. "Dr. Ferdinand Stoliczka, Arbeiten an dem Geological-Survey in Calcutta." [Aus einem Schreiben an Hofrath Ritter v. Haidinger de dato Calcutta 11.Juni (1868)]. *Verh.geol.Reichsanst.*, 1868, No.11, pp.244-246. For an English tranlation see V. Ball, *Memoir*, pp.12-13.
- \*54. "Dr. Ferdinand Stoliczka. Naturwissenschaftliche Arbeiten in Indien." (Aus einem Schreiben an Herrn Hofrath W. Ritter v. Haidinger, ddo. Calcutta 15.November 1868). *Verh.geol.Reichsanst.*, 1868, No.17, pp.415-416.
- \*\*55. August von Pelzeln, Ueber die von Dr. Stoliczka im Himalaya und in Tibet gesammelten Vogelarten. *Journal für Ornithologie* (Cassel), N.S., Vol.1 (1868), Fasc.1, No.91, pp.21-37. [This paper based upon the collections of birds made by Stoliczka in the Himalayas and Tibet was translated into English by Arthur Walden and was published in *Ibis*, Vol.4 (1868), pp.302-321.]

1869

56. On the anatomy of *Sagartia Schilleriana* and *Membranipora Bengalensis*, a new Coral and a Bryozoon living in brackish water at Port Canning. *Journ.ASB*, Vol.38 (1869), Part II, No.1, pp.28-63, plates X-XII. See also No.43.



57. The Malacology of Lower Bengal and the adjoining provinces (No.I. On the genus *Onchidium*, with descriptions of several new species). *Journ.ASB*, Vol.38 (1869), Part II, No.2, pp.86-111, plates XIV and XV. See also No. 45.
58. Contribution towards the knowledge of Indian Arachnoidea. *Journ. ASB*, Vol.38 (1869), Part II, No.4, pp.201-251, plates XVIII-XX. See also No.63.
59. Osteological notes on *Oxyglossus pusillus*, (*Rana pusilla*, Owen), from the tertiary frog-beds in the Island of Bombay. *Memoirs GSI*, Vol.6 (1869), Part III, Article 8, pp.1-8 (387-394), plate IX.
60. (Communication of) G. and H. Nevill's "Descriptions of marine shells from Ceylon, etc." *Proc.ASB*, 1869, pp.63-64.
61. (Communication of) H.H. Godwin-Austen's "Notes on the geology and physical features of the Jaintia hills". *Proc.ASB*, 1869, pp.64-65.
62. (Observation on) H.H. Godwin-Austen's "Notes on the Cachar Earthquake of Jan.10<sup>th</sup>, 1869". *Proc.ASB*, 1869, p.103.
63. Contribution towards the knowledge of Indian Arachnoidea. (Abstract) *Proc.ASB*, 1869, pp.157-159. See also No.58.
64. (Communication of) G.E. Fryer's "Contribution to our knowledge of Pelagic Mollusca". *Proc.ASB*, 1869, pp.164-165.
65. (Observation on) J. Meredith's "Notes on the topographical features of Assam". *Proc.ASB*, 1869, p.165.
66. (Communication of) H.H. Godwin-Austen's "Notes on Indian Mollusca". *Proc.ASB*, 1869, p.186.
67. (Observation on) W.T. Blanford's "Contribution to Indian Malacology, No.XI". (On respiratory organs of Mollusca). *Proc.ASB*, 1869, pp. 187-188.
68. Note on *Pangshura tecta*, and two other species of *Chelonia*, from the newer tertiary deposits of the Nerbudda Valley. *Records GSI*, Vol.2 (1869), Part II, pp.36-39. (Abst., *Neu.Jahrb.Min.*, 1871, pp. 535-536.)
69. Contributions to the Geology and Physical Geography of the Nicobar Islands, by Dr. F. v. Hochstetter. Translated by Dr. F. Stoliczka, from the "Voyage of the Austrian Frigate NOVARA round the world in 1857-1859". Geological part, 2<sup>nd</sup> vol., pp.83-112. Vienna, 1866. *Records GSI*, Vol.2 (1869), Part III, pp.59-73.

1870

70. Observations on some Indian and Malayan *Amphibia* and *Reptilia*. (Abstract). *Ann. Mag. nat. Hist.*, Ser. 4, Vol. 6 (1870), No. 31, pp. 105-109. See also Nos. 71 and 78.
71. Observations on some Indian and Malayan *Amphibia* and *Reptilia*. *Journ. ASB*, Vol. 39 (1870), Part II, No. 2, pp. 134-158, plate IX; No. 3, pp. 159-228, plates X-XII. See also Nos. 70 and 78.
72. A contribution to Malayan Ornithology. *Journ. ASB*, Vol. 39 (1870), Part II, No. 4, pp. 277-334. See also No. 79. [This paper formed the subject of an article by Arthur Walden, entitled Observations on Dr. Stoliczka's Contributions to Malayan Ornithology. *Ibis*, Vol. 1 (1871), pp. 158-177.]
73. Das Setledsch-Thal im Himalaya. Physisch-geographische Skizze von Dr. F. Stoliczka ("Aus der Einleitung zu seinen 'Ornithological observations in the Sutlej Valley' im *Journal of the Asiatic Society of Bengal*, 1868"). *Mittheilungen aus Justus Perthes' geographischer Anstalt über wichtige neue Erforschungen auf dem Gesamtgebiete der Geographie* (= Petermanns Mittheilungen, Gotha), Vol. 16 (1870), pp. 8-12. See No. 41.
74. (Observation on) "A peculiar variety of *Chamaeleo vulgaris*." *Proc. ASB*, 1870, pp. 1-3.
75. Note on the Kjökkenmöddings of the Andaman Islands. *Proc. ASB*, 1870, pp. 13-23. (Abst., *Neu. Jahrb. Min.*, 1870, p. 1019.)
76. (Observation on) "Aerolites". *Proc. ASB*, 1870, pp. 65.
77. Note on a few species of Andamanese landshells, lately described in *American Journal of Conchology*. *Proc. ASB*, 1870, pp. 86-88.
78. Observations on some Indian and Malayan *Amphibia* and *Reptilia*. (Abstract). *Proc. ASB*, 1870, pp. 103-109. See also Nos. 70 and 71.
79. A contribution to Malayan Ornithology. (Abstract). *Proc. ASB*, 1870, pp. 237-238. See also No. 72.
80. Note on Three Species of *Batrachia* from Moulmein. *Proc. ASB*, 1870, pp. 272-276.
- \*81. "Reise in Hinter-Indien, auf die Nikobaren und Andamanen." [Aus einem Schreiben an Herrn Hofrath v. Haidinger d. D. Calcutta 13. Dec. (1869)]. *Verh. geol. Reichsanst.*, 1870, No. 2, pp. 23-28. For excerpts in an English translation see V. Ball, *Memoirs*, pp. 15-16.

1871

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# APPENDIX



FERDINAND STOLICZKA'S "CURRICULUM VITAE", WRITTEN IN HIS OWN HAND AND  
DATED NOVEMBER. 6, 1861\*

An das

hohe löbliche Doctoren-Collegium  
der philosophischen Facultaet zu Tübingen!

Der ergebenst Gefertigte, zu Bilan in der Markgrafschaft Maehren am 7. Juli 1838 geboren, hat sowohl seine Elementar- als Gymnasial-Studien zu Kremsier in Mähren vollendet und sich daselbst am 25. September 1857 der Maturitätsprüfung unterzogen (:laut Beilage A:).  
Noch in demselben Jahre bezog derselbe die Universität zu Wien und liesz sich bei der philosophischen Facultät als ordentlicher Hörer immatriculieren, mit der vorläufigen Absicht, sich dem Lehrfache zu widmen. Durch die zahlreichen Hilfsmittel, welche der ergebenst Gefertigte in der Residenzstadt vorfand, wurde es ihm möglich, seine ersten naturwissenschaftlichen Kenntnisse (*sic*) immer weiter auszudehnen. Insbesondere zogen ihn die Vorlesungen des Herrn Professors Eduard Suess über Geologie und Paläontologie sehr an und so ward es dem ergebenst Gefertigten, durch Professor Suess' Vermittelung, ermöglicht, auch an den regen Arbeiten im k.k. Hofmineralien-Kabinet Theil zu nehmen. Neben seinen Universitätsstudien betrieb der ergebenst Gefertigte nun mit groszem Interesse namentlich paläontologische Studien, als deren Resultat er die zwei beiliegenden Abhandlungen publicierte, welche in den Sitzungsberichten der k. Akademie der Wissenschaften abgedruckt wurden.  
Als nun der ehrfurchtsvoll Gefertigte im vorigen Jahre seine vorgeschriebenen philosophisch-naturwissenschaftlichen Studien beendet hatte (:l. Blg. B:), unterzog er sich am 8. November 1860 dem ersten Rigrosum (*sic*) aus der Philosophie (:laut Blg. C:).  
Seine paläontologischen und geologischen Studien setzte der ergebenst Gefertigte am k.k. Hofmineralien-Kabinet bis zum Anfange dieses Jahres fort, (:laut Beilg. D:) als derselbe um diese Zeit eine Anstellung bei der k.k.

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geologischen Reichsanstalt erhielt und als Sectionsgeologe der IV. Section unter dem Chefgeologen Bergrathe Franz Ritter von Hauer zur Durchführung der geologischen Übersichts-Aufnahmen im südwestlichen Ungarn zugetheilt wurde (:laut Beilg.E:).

Da nun diese Aufnahmen bereits geschlossen wurden, ist es die nächste Aufgabe des gehorsamst Gefertigten einen Bericht über die Resultate seiner Aufnahme in geologischer, paläontologischer und mineralogischer Hinsicht abzufassen. Dieser wird in dem Jahrbuch der kk. geologischen Reichs-Anstalt im Laufe des nächsten Jahres abgedruckt. Eine fernere Arbeit, eine geologisch-paläontologische Darstellung der Jura-Ablagerungen im Krackauer Gebiet mit Berücksichtigung derselben Ablagerungen in Deutschland, England und Frankreich, eine Arbeit, welche der gehorsamst Gefertigte in Gemeinschaft des Herrn Prof. E. Suess unternommen hat, hoffen die Verfasser ebenfalls im Laufe des nächsten Jahres der k.Akademie der Wissenschaften zum Drucke zu übergeben.

Auszerdem hat der ergebenste (*sic*) Gefertigte zu seinem speciellen Fachstudium die Klasse der Bryozoen ausgewählt, welche von vielen Naturforschern bisher vernachlässigt wurde. Wenn auch die Kenntniss der fossilen Formen ziemlich weit vorgeschritten ist, so ist dies mit den lebenden noch sehr mangelhaft und deshalb ist der ergebenst Gefertigte bemüht vorläufig nur das Materiale (*sic*) zu einer Monographie der mittelmärischen Formen zusammen zu bringen.

Mit ausgezeichnete Hochachtung ergebenst Gefertigter

Wien 6. November 1861.

Ferdinand Stoliczka.

## **IMPRESSUM**

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གསུམ་གྱི་རྣམ་ཐར་བཞུགས་པ་ལེར་བཤད་ཀྱི་མཚོའི་བྲི་བྲེ་བས།། rNam thar sgo  
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