THE ITALIAN EXPEDITION TO THE KARAKORAM IN 1929: A paper read at the Evening Meeting of the Society on 24 February 1930, by H.R.H. THE PRINCE AIMONE OF SAVOIA-AOSTA, DUKE OF SPOLETO

In 1927 a private committee was formed in Milan to finance an expedition to the Karakoram. With the assistance of the Milanese Section of the Alpine Club and of the Italian Royal Geographical Society, a general plan was outlined, comprising an attempt to climb Mount K2, the highest peak of the Karakoram, by a group of mountaineers, while the scientific members of the expedition were to investigate the geographical problems connected with the Baltoro Glacier, make stereographic, gravity, and geological surveys, and collect the fauna and flora.

The mountain system which goes by the name of Karakoram lies to the north of Western Himalaya, between the Indus and the Upper Yarkand, or Raskam Darya, and is bounded on the west by the Gilgit river, and on the east by the Shyok. In no other region of the world is there to be found in such a confined space an equally large number of big mountains and glaciers. Besides K2, ten other peaks ranging from 23,000 to 28,000 feet crowd round the Baltoro glacier. Although the district has been the object of repeated explorations, there remains much to be done both from the mountaineering and the scientific point of view.

The final decisions of the Committee were only reached in the first months of 1928, too late to organize and take out the expedition in the same year, the useful season for work on the high glaciers of the Karakoram being limited to the few months between April and September. It was then decided to carry out a preliminary expedition with the purpose of bringing up and depositing at Askole, the last village on the way up to the glacier, all the materials and provisions which could be got ready in time for the following season. Dr. De Filippi was of great assistance to me with his expert advice, and the experience gained in two expeditions in the Karakoram.

I landed in Bombay at the end of May, where I found a great welcome awaiting me. The Government of India offered every possible assistance, and I
should like particularly to express my obligation to Major Mason, who had explored the Shaksgam Valley in 1926. His valuable information was of the greatest help to me.

Having reached Srinagar at the end of May, I left it again at the beginning of July, with a caravan of two hundred ponies, making for Skardu, the capital of Baltistan. Two roads lead to Skardu: one over the Deosai plain, and the other by the Sind, Dras, and Indus valleys. We planned to go out by the former and return by the latter, so as to see as much as possible of the country and to get to know the people with whom we would have to deal in the following year. We passed through Skardu, and from there across the Indus and up the Shigar and Braldo valleys, reaching the village of Askole, where we stored 18 tons of material and provisions in huts hired from the lambadar. We then started on the return journey, crossing the Skoro La (16,700 feet), which shortens the distance between Askole and Shigar by three stages. Having travelled by the Indus Valley road, we reached Srinagar in the last days of August. The party then returned to Italy to complete the preparations for the following year.

Meanwhile the Committee had changed the plan of the Expedition, transforming it into a purely scientific one and giving up the idea of attempting the ascent of K2.

The Expedition finally left Italy in February 1929, travelling straight to Srinagar, where the caravans were prepared without delay. The party consisted of twelve Europeans: Myself in command; Comandante Cugia, second in command, in charge of geophysical and astronomical observations; Dr. Allegri, r.n., medical adviser, entrusted with anthropological researches; Professor Desio, geologist and geographer; Professor de Caporiacco, naturalist; Col. Balesteri, Signori Ponti and Chiardola, mountaineering experts, with two Alpine guides from Courmayeur, Bron, and Croux; Signor Terzano, cinema operator; and Anfossi, wireless operator.

Owing to the great number of loads (nearly six hundred) the caravan was split into three groups, which proceeded separately. The first difficulty we met on our way was the Zoji La (11,230 feet), which at this time of year has to be climbed by the steep narrow gully, exposed to snow avalanches; but fortunately we all got over the pass without suffering any loss, although we were caught by a heavy snowstorm at the top. Skis were very helpful, saving us many hours of heavy tramping for the following two stages. By the end of April we reached Askole, where we found in perfect condition the stores which we had left in the previous year. Here we reorganized the caravan, and enlisted the permanent coolies for the high-mountain work. Five more marches brought us to Urdokas, on a spur of the southern buttress of the Baltoro glacier, which we had chosen as the place for our base camp.

While the supplies were being carried up, Professor Desio made a preliminary exploration of the Dumordo valley, which joins the Biaho a few miles below the front of the Baltoro glacier. Into the upper part of the valley flows the Punmah glacier, which is fed by five principal tributary glaciers, covered by surface moraine up to a height of 14,000 feet. In the lower valley are scattered groups of diminutive huts occupied during the summer months by shepherds. Desio went up the Punmeh to the foot of the watershed range, and made a hasty survey
The ascent to the Muztagh Pass
The Sarpo Laggo glacier north of the Muztagh
of the valley and the glacier, collecting geological data and observations on the limits of vegetation, etc.

During the second half of May Professor Desio made two further excursions for geological researches in the valley of the Baltoro. From the Concordia amphitheatre he ascended the northern branch of the glacier, or Godwin Austen, to 18,300 feet, not far from Windy Gap, and later the southern branch to the upper basin. The great pyramid of K$_2$ appears to be made entirely of gneiss, more or less schistose, while the Gasherbrum group is mainly built of limestone, with occasional fossils, which is continued as far as Hidden Peak, confirming the conclusions arrived at by the expedition of the Duke of the Abruzzi. Meanwhile we were rapidly organizing the base camp, and preparing for an exploration into the Shaksgam valley. The Shaksgam had been first discovered in 1887 by Sir Francis Younghusband, who came into it from the north, over the Aghil Dawan. Two years later he again explored it at its western end. Major Mason, in 1926, explored its eastern, or upper end. We had planned to enter the intervening part of the valley, and connect the two previous explorations by a survey of the portion of the valley hitherto unknown. Sir Francis Younghusband had passed from the Shaksgam valley into the Baltoro, crossing the divide by the Muztagh Pass, which once used to connect Kashmir with Turkistan, but had been abandoned many years ago, owing to changes in the conditions of the glaciers which blocked the way. After Younghusband, only one other European, Herr Ferber, had reached the summit of the Muztagh from the Baltoro, but did not push forward to the other side. We decided to try and reach the Shaksgam by this pass, although the reports were not very encouraging. A first reconnaissance was made by Balestreri and Chiardola, to ascertain whether it would be possible to convey a party of laden coolies over the pass. I received a report from them after ten days. They had been delayed by bad weather. They had tried at first to follow the way described by Sir Francis Younghusband in Major Mason's report; but it led over rocks which they considered too difficult for the porters. Therefore they kept to the right of the col, by a slightly easier passage, although they had to pick their way through the seracs near the top of the col.

'As soon as the news reached us, we prepared immediately for the exploration. It was to be carried out by a party of five, with thirty coolies, supported by an auxiliary party of twelve coolies led by another European, which was to advance supplies to a place called Moni Bransa, two days' distance from the top of the pass. This small group, having supplied the main body during the five days' march from the base camp, would still have a small amount of provisions to be left at Moni Bransa, and would then return to the base camp. Thus the exploring party had supplies for twenty-five days, and, in case of emergency, had this small store to fall back upon. The planned itinerary beyond the Muztagh Pass led down the Sarpo Laggo valley, then turned up the Shaksgam valley, north of K$_2$, allowing for the exploration of the glaciers which flow into the valley, and proceeding, if possible, as far as the lowest point reached by Major Mason in 1926, where he found his way blocked by the snout of the Kyagar glacier. They then would try to find a way over one of the passes to the east of K$_2$, back into the Baltoro, returning to the base by the Concordia amphitheatre.
Preliminary sketch-map of routes of the Italian Expedition
On June 2 we sent the supplies to the foot of the Muztagh Pass, and on the 6th the exploring party left the base camp. Unfortunately I was taken ill on the way up, and unable to proceed any farther for the time being, so I had to hand over the leadership to Balestreri. With him went Desio, Ponti, and the guide Bron.

They reached the top of the pass in the early morning of June 9. The col, 17,500 feet high, is situated on the eastern side of the upper basin of the Muztagh glacier, and leads to a tributary glacier of the Sarpo Laggo. The descent is easy, and with the help of skis in a few hours they crossed the Sarpo Laggo and reached Changtok on an old moraine covered with grass. Moni Bransa, also situated on the left lateral moraine, was reached next day. Here the auxiliary party led by Caporiacco and Chiardola left the caravan to return to the base, according to plan. The remaining four, with thirty-six coolies, proceeded on their way down, reaching the front of the Sarpo Laggo glacier on June 12. The Sarpo Laggo is a large glacier, and it flows far towards the west, terminating at an altitude of 16,300 feet. Below stretches the valley, very wide, flat, and dotted with clumps of vegetation. In one of these oases, perhaps the Suget Jangal of Younghusband, were found traces of camps, some of them very recent, and a small enclosure of stones, looking like a grave. This oasis, covered with thick bushes with intervening grassy stretches, is a resort for wild asses, or kyangs, and hares. A few miles below the glacier a large tributary joins the valley on the left, filled to near its end by a glacier, the "Crevasse Glacier" of Younghusband. A little farther another, smaller, valley closed by a large moraine, comes down on the right.

The opening of the Sarpo Laggo valley into the Shaksgam, where remains of old camps are again to be seen, was reached on June 13. The junction is marked by an isolated rock, nearly 500 feet high, capped by a stone cairn possibly erected to indicate the old caravan road, from which one can see K2. The Shaksgam valley above the junction is narrow and deeply cut between high limestone cliffs; below it suddenly opens out and looks almost like a continuation of the Sarpo Laggo.

A march of a day and a half along the bottom of the valley, which entailed the wading of the narrow river on several occasions, brought them to the mouth of the small valley coming from the Aghil Dawan. The Shaksgam is sprinkled with small oases, the sides are bare of vegetation, the surrounding mountains have dolomitic shapes with towers, needles, and pinnacles, terraced sides and big accumulations of detritus at their feet. The evening of the 15th they camped on one of the big alluvial fans which lie at the foot of all the side valleys. Above them the snout of the Gasherbrum glacier stretched across the valley; and beyond were visible the Gasherbrum peaks. A few miles below the Gasherbrum a considerable valley opens into the Shaksgam, which is probably to be identified with the Zug Shaksgam of Major Mason. A little lower below it there is a fine oasis watered by a thermal spring. It is the highest oasis of the Shaksgam valley; but its position does not correspond with the Durbin Jangal, which the Indian Survey map places higher, but of which no trace was found. Shortly before reaching the Gasherbrum a kyang was killed, providing some excellent fresh meat for the party. On a rock spur was noticed a heap of stones looking like a signal, which might possibly denote the Gasherbrum Jilga of Younghusband.
On June 18 they tried to find a way round the front of the Gasherbrum glacier; but they were stopped by a deep pool of water, beyond which rose a perpendicular wall of ice. They then climbed the left moraine, and succeeded in crossing the glacier bristling with ice pinnacles to the right moraine, where they camped at the foot of the buttress dividing the Gasherbrum from the Urdok. Next day they reached the Urdok by climbing to a saddle on the said buttress from which the whole glacier could be seen stretching south-west as far as the Indira Col. In the next two days they ascended the glacier, covered with moraine to considerable height, to the steep terminal ice-wall, swept by avalanches, which leads to the col. The weather had changed, and the whole district was covered with a deep layer of newly fallen snow. They had considered for a time the plan of attempting to cross the Indira Col; but, the weather having broken and the supplies being reduced to half, they decided to split the party: Balestreri and Desio proceeding towards the upper Shaksgam with eight coolies, while Ponti and the guide returned to the Baltoro.

A small dump of supplies was made near the front of the Urdok, and the reduced caravan proceeded on the wide flat bottom of the Shaksgam valley. The limestones prevalent lower down continue above the Urdok, and contain a fair number of fossils.

On the evening of the 24th camp was pitched near the next glacier cutting the valley, to which the coolies gave the name Stagar, the Balti word for "many coloured," owing to the alternating strips of ice and moraine. The glacier stops at a distance of about 450 to 500 feet from the opposite side of the valley, leaving an open corridor in which flows the river. Through this, crossing and recrossing the stream, they got beyond the glacier. The characteristics of the valley remain the same. A third protruding glacier was overcome with considerable difficulty. The front reaches the right side of the valley; so they had to traverse it higher up, struggling for hours in the labyrinth formed by ice pinnacles, some of which were over 200 feet high, helping the coolies, who baptized the glacier "Singye," meaning "difficult." The sand deposits above the Singye, and the terraced sides of the valley prove the formation of temporary lakes during the intermittent damming of the Shaksgam by the side glacier. Above the Singye the valley narrows and the river is considerably smaller, and can be crossed by stepping from stone to stone. On the 27th the march was resumed along the big reddish buttress forming the right side of the valley, the Red Wall of Mason. About midday they sighted another large glacier, covered with pinnacles, stretching across the valley, the Kyagar, and they reached it the same evening. Next morning, from the top of a rock on the left side of the valley they had the sight of the whole Kyagar glacier up to the Apsarasas range. Across the glacier, on its right side, they were able to identify the stone signal built by Minchington of the Mason expedition. The Kyagar, which has been minutely described by Major Mason, has the same features as those of Singye. They built a stone signal on their observation point, 16,300 feet high, and hid in it a record of the expedition in a tin box.

The return journey began next day. They recrossed the Singye with the same difficulty but with better weather, which allowed them to see the upper part of the glacier and the majestic group of Teram Kangri which rises at its head. They passed round the front of the Urdok, which does not block the
K2 from isolated rock at junction of Sarpo Laggo and Shoksgam valleys
valley, leaving an open space for the river. The weather, uncertain and foggy, prevented them from pushing an exploration into the Zug Shaksgam, so as to connect with Mason's survey of the valley.

They cut the corner between the Sarpo Lago and the Shaksgam valleys by climbing over the right buttress of the Sarpo Lago. Just beyond the top K2 was distinctly observed. They also noticed some well-preserved bits of an old caravan path, and everywhere remains of old camps. On July 9 they arrived at Moni Bransa, where the depot of supplies had been made. From there they proceeded toward the upper part of the Sarpo Lago glacier, reaching on the third day the saddle at the head of the valley, 18,500 feet high, from which they pushed on a short way beyond the watershed in the upper basin of a large glacier tributary of the Baltoro, which, according to Conway's map, they believed to be the Dunge glacier. Wishing to return to the base camp in the prearranged time, they did not attempt the new way which was opening up, but returned on the Sarpo Lago, and, having recrossed the Muztagh, reached Urdokas on July 14.

While my companions were carrying out this task, as soon as I had sufficiently recovered, I turned my attention to the Upper Baltoro, where another geographical problem remained to be solved. In Sir Martin Conway's map of 1892 there is mentioned a "probable saddle" in the upper basin of the Baltoro glacier. Professor Desio, in his excursion of the latter part of May, had climbed part of the way towards it. It seemed to me worth while to carry out a closer investigation. Owing to the absence of most of our coolies with the exploring parties beyond the Muztagh, I was unable to leave the base camp before the end of June. I then went up to Concordia, where for a few days I was engaged in survey work. Then a heavy snowstorm confined us to our tents for six days. Finally, on July 9, the weather having cleared, I set out with Ponti, the guide Croux and sixteen coolies. Three days of difficult march over the glacier covered with soft snow, where skis proved very useful, brought us to the foot of the saddle which was our aim. Some of our coolies were tired and suffering from mountain sickness; but with a little persuasion they were induced to carry on.

The morning of the 12th we started off at 4 a.m. For the first few hours we proceeded easily over the hard frozen snow; but later, with the rising of the temperature, our progress became slower. The incline is very steep; and at times we were compelled to make long détours to avoid deep crevasses and dangerous seracs. Our coolies, although heavily laden, followed us fairly well. Not far from the summit a long and gentle slope allowed us to use our skis; and shortly after noon we reached the crest. To the east of us rose a range of steep high mountains extending eastwards to a snow saddle, which connects it with an isolated peak in the shape of a pyramid. This saddle, which appeared to be at the same height with ourselves, is impassable, owing to a cascade of seracs about 900 feet high, capping a perpendicular wall which extends to the bottom of the valley. To the south-east we saw a large group of mountains. Between these and the pyramid peak just mentioned flows a glacier. Until my observations have been worked out and allow me to identify the groups of mountains, I cannot positively assert that the valley we looked down into is the Kondus.
While waiting for the coolies to bring up the photo-theodolite I took my compass bearings; and it was fortunate I did so, for a few minutes later the clouds had blotted out the horizon, making further observations impossible.

We pitched out tents on the col itself, at an altitude (recorded by altimeter) of about 20,000 feet. During the rest of the afternoon we were only able to get occasional glimpses of our surroundings; and later a snowstorm broke, which lasted the whole night. Although we three Europeans were in good physical condition, the coolies were obviously very depressed and worn out; so that I did not think it advisable to remain longer at this height, and decided to return down to the valley. The descent was complicated by a dense fog. We reached the camp at the foot of the pass in the early afternoon. The skis came in very useful next day, when we covered in three hours a distance which had taken us two days' march to cover on the way up. On our way back to Urdokas we made occasional halts to complete the survey of the Baltoro.

Here I should like to make a short parenthesis to suggest that the col which we reached at the head of the Baltoro should hereafter bear the name of Conway's Saddle, as in the whole field of his pioneer exploration work there is as yet no record of his name. If European names are allowed to survive, I hope that the Royal Geographical Society and the Survey of India will consider this suggestion.

Our work on the Baltoro was finished, and it was time to prepare for the return. It took us ten days to strike camp, and by the end of July the expedition was on its way back.

During a lengthy stop in Askole for some scientific observations and to rearrange the loads and organize the transport, Ponti and Desio made a further exploration of the Trango and Punmah valleys.

Desio was anxious to reconnoitre from the south the easy saddle at the top of the Sarpo Laggo, which he had reached with Balestrieri on their way back from the Shaksgam. He had then the impression that it led on the Baltoro side into the Dunge glacier. He therefore proceeded with Ponti to ascend the Dunge; but they found that the valley ended in a cul de sac a few miles above its mouth. They then turned lower down to the Trango glacier, another tributary which reaches the Baltoro from the north. They found a fairly wide valley, enclosed by steep walls crowned by lofty rock pinnacles. The glacier is covered with moraine material. The long valley ends in a vast upper glacial cirque, on the east of which they recognized at once the ice slope which rises with an easy gradient and few crevasses to the Sarpo Laggo saddle. Having thus connected with the former survey, they joined the expedition at Paiju, at the foot of the Baltoro.

They then turned their attention to the Punmah valley. This valley had been partly explored in 1856 by Adolph Schlagintweit; in 1861 by Col. Godwin-Austen; and in 1887 by Sir Francis Younghusband, all bound for the so-called New Muztagh pass, at the head of the Chiring glacier, an eastern tributary of the Punmah, which, after the old Muztagh had become impracticable, had been used for a time by the natives to cross into Turkistan. Only Godwin-Austen nearly reached the pass.

From a camp at the confluence of the Chiring with the Punmah, Desio and Ponti in two days reached the upper basin of the Chiring at an altitude of 18,000
feet, in view of a pass which they had already observed from the Sarpo Laggo. This col, probably to be identified with the New Muztagh, can be easily reached and crossed with skis. Having returned to the foot of the Chiring, they proceeded up the Punmah towards its large north-western tributary, Nobundi Sobundi. The upper Punmah is flat, bare of moraine and perfectly easy. Here and there they observed feathers and bones of birds, including the carcase of a large vulture, the victims of cold, starvation, and snowstorms. The Nobundi Sobundi was ascended to the upper end, where an ice wall about 60 feet high leads to a small saddle marked by a rock pinnacle shaped like a blade. They stood upon this saddle (17,000 feet) on August 14 and saw that it led south into the next large tributary of the Punmah, the Choktoi glacier. Desio also climbed another saddle at the head of the glacier, 18,300 feet high, which leads into the upper basin of the Biafo glacier. They then crossed the col first explored into the Choktoi glacier, following which they returned on the Punmah and so back to Askole. They had completed a topographical and geological survey of the Punmah.

The return journey of the expedition was uneventful, except for some difficulty in crossing the Indus, still swollen by the flood which had happened a few days before, due to the bursting of the Shyok dam. We crossed the Deosai plateau and arrived at Srinagar in the first week of September.

Having thus outlined a sketch of the expedition, I shall briefly summarize the results achieved in the various fields of research, although definite conclusions will only be possible when the elaboration and careful study of the data and material collected can be completed.

In the field of exploration the excursions made by Professor Desio and by myself have covered the whole extent of the Baltoro glacier and of both its northern and southern upper branches.

Col. Balestreri and Professor Desio have surveyed the Sarpo Laggo glacier and the saddle which connects it with the Baltoro basin, ascertaining its easy accessibility from both sides. The Shaksgam valley has been explored from the Sarpo Laggo junction up to the Kyagar glacier. The portion of the valley lying between the foot of the Urdok and that of the Kyagar had never before been traversed.

Professor Desio with Ponti explored the Dunge and the Trango glaciers, northern tributaries of the Baltoro, and proved the existence of a comparatively easy saddle between the Trango and the Sarpo Laggo. The Trango glacier is much longer than it had been formerly believed. They also explored the Punmah glacier and its tributaries, ascertaining the accessibility of the New Muztagh pass and its topographical position. They also found a saddle at the head of the Nobundi Sobundi, one of the largest tributaries of the Punmah, which gives access to the upper basin of the Biafo.

Turning to physical geography, Professor Desio will be able to describe the characteristics of several large glaciers, including those that flow on the northern slopes of this portion of the Karakoram into the Shaksgam valley. He has also made interesting observations on the configuration of the mountains in connection with their geological structure and the disintegrating action of the atmosphere.
With the help of my fellow-members of the expedition I completed a survey of the Baltoro basin with the Wild photo-theodolite. The position of our station in Urdukas base was accurately fixed by astronomical observations and by wireless time signals, and connected with the summit of K2, which is included in the triangulation of the Survey of India. Gravity pendulums were swung at this station, and also in Askole. We were prevented from repeating them in Shigar owing to the bad weather.

Complete series of magnetic determinations were made along the whole way. Some of these magnetic stations were in localities where magnetic data had already been collected by the De Filippi expedition of 1913–14; and the comparison of results will lead to conclusions about the secular variation.

Professor di Caporiacco has made extensive zoological and botanical collections: 20,000 of the fauna, and over 2000 of the flora. The detailed classification will tell how many different species were found, and their distribution. Many specimens of water containing plankton and benthos, animal and vegetable, were also collected.

For the first time a systematic geological survey of the district explored was made by Professor Desio. Up to now the geology could only be incompletely surmised, from small collections of stones and rocks brought back by Sir Martin Conway and the Duke of the Abruzzi’s expedition. Of great interest is the discovery of fossils in the basin of the Baltoro and of the Punmah, and especially at the foot of the Gasherbrums. Though slightly deformed by orogenic movements, these fossils will enable us to fix the age of the limestone enclosed in the crystalline series of the Karakoram. The Shaksgam valley also yielded a large number of fossils. It is superfluous to point out that in this district, mainly consisting of rocks of marine origin, we had as yet no geological information.

Finally, Dr. Allegri collected a series of anthropological measurements and photographs, which are a further contribution to the anthropological observations of Dr. Ujfalvy, and especially to those of Professor Dainelli.

DISCUSSION

Before the paper the President (Colonel Sir Charles Close) said: His Royal Highness the Duke of Spoletto has most kindly consented to give us an account of the results of the Italian Expedition to the Karakoram. The expedition took place last year, and His Royal Highness was the leader. I need not remind you that that enormous mountain mass to the north of the Western Himalaya, roughly 100 miles from Srinagar at its nearest point, has been the subject of exploration by most distinguished travellers, amongst whom one may mention Godwin-Austen, Sir Francis Younghusband, Sir Martin Conway, the Workmans, H.R.H. the Duke of the Abruzzi, uncle of our lecturer to-night; Dr. Longstaff, Dr. Filippo De Filippi, General Bruce, Major Mason, Mr. and Mrs. Visser, and Captain Morris. Now amongst those expeditions no work of a more valuable character has been done than that by the Italian Expeditions, and the Duke of Spoletto is carrying on the excellent tradition which was set by H.R.H. the Duke of the Abruzzi and Dr. De Filippi. To-night His Royal Highness will tell us what has been the result of the latest expedition, by the leadership of which he has enrolled himself in the goodly company of Italian explorers in the Karakoram.
Looking up the Baltoro glacier: Conway's saddle hidden by mountains on right
Among the pinnacles of the Gasherbrum glacier
The pyramid and saddle of Biachenau, Nohendi Suhudi valley
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H.R.H. the Duke of Spoleto read a telegram of greetings sent by General Vacchelli in the name of the Royal Italian Geographical Society, and then the paper printed above, and a discussion followed.

Sir Francis Younghusband: First of all, I should like to congratulate His Royal Highness on the great skill with which he led the expedition. The Italian expeditions to the Himalaya have gained a reputation for perfect organization. I was very much struck when I was in Kashmir with the organizing ability of His Royal Highness’ uncle, the Duke of the Abruzzi. And the Italian expeditions are not only well organized and well planned, but they have also the supremely valuable characteristic of being able to make use of the people of the country, the Baltis, the people of the highest valleys. Their ability to use these people enabled them to get into those very remote parts which, without their assistance, would have been inaccessible.

Personally, I did not think it would be possible to take such a large party into that very remote region of the Shaksgam valley. I have visited that region twice, and on each occasion was the only European. I was of opinion that probably His Royal Highness was making a mistake in taking a large party into that rugged region you have seen on the screen. But he has been able to overcome the difficulties. He has got his geologists, surveyors, and others there, and has brought back a thorough scientific record of the country. To me the most valuable is the collection of photographs. The region which the expedition explored is one of the most remarkable in the whole world. Probably no part of the Himalaya is more rugged than that around K2, especially on the northern side in the Shaksgam. It is no good bringing back to a London audience a map alone, valuable as that is; we want to know something of what the country is like, and the photographs we have seen give a certain idea of it. They are about the best that have been taken, but I think even those who took them will admit that, after all, they only give perhaps a slight idea of the magnificence of the region.

You can well believe the interest with which I sat here this evening and watched the photographs and heard the description of the country, having visited it so many years ago; and I should like to say a word with regard to the Muztagh Pass, which I crossed in the year 1887, and of which you saw a most beautiful photograph this evening. As I looked at that I felt quite certain that it has altered very considerably in the last forty years. The great mass of ice has advanced. It had evidently come down a good deal farther when I was there in 1887 than when my man Wali had crossed it twenty-five years before. Now it has come down farther still. In my day, at any rate, we thought the glacier was impassable, and so we crossed the pass where His Royal Highness indicated, down the rugged part which was ascended by the German climber, Ferber, about fifteen years after me. Now the ice-fall seems to be more or less accessible. It did not look very nice going. But anyhow the Italians were able to get up it and over the Muztagh Pass and down the Sarpo Laggo glacier into the Shaksgam valley. Before reaching the valley they passed the Suget Jangal, which apparently is much as in my time, a resort of wild asses and hares, and there the expedition found the remains, probably, of my camp.

I have been talking with Professor Desio, and I am sorry to say his party missed a most beautiful view of K2 up the valley near Suget Jangal. Professor Desio explained that, unfortunately, the day they were near Suget Jangal it was cloudy. I remember perfectly well as I came round the corner and the view of K2 burst on my sight I was almost overwhelmed; it was so stupendous. On the other hand, I unfortunately crossed the ridge between the Sarpo Laggo and the Shaksgam valley after dark, and so was unaware that from it it is possible to get that magnificent view of K2 which has been shown to-night.
Then in the Shaksgam valley is the Durbin Jangal, which I so named because I lost a pair of field glasses there. Apparently the Italian Expedition neither found my field glasses nor the Jangal. All seems to have been swept away. I am sorry, because I took great care to fix its latitude and longitude.

Then they came to that tremendous glacier coming down from the Gasherbrum right up against a cliff on the other side. I was fortunately at that spot later in the season, when there was not so much water, so I was able to go between the glacier and the mountain side. Not only that, but I took ponies along there and up the Urdok glacier almost to the foot of the pass at the head, which I think is called the Indira pass.

As to the Baltoro glacier and the southern side, a very important point which has been cleared up by the Italian Expedition is that the northern side of the Karakoram Himalaya can be reached not only by the Muztagh Pass but probably, as His Royal Highness has pointed out, by other passes—by the Nobundi Sobundi pass, and by the other pass or saddle which they explored from the southern side. What that means is that it is possible to get from the Indian side into the Shaksgam valley on the north comparatively easily. And that having been done by the Italian Expedition I hope use will be made of the information they have obtained, because the region on the far side of the Karakoram is, as you have seen from the photographs, one of the most splendid regions in the whole world. If we could only get a photographer up there by himself—it need not be a great expedition or numerous; it might be just one or two men with some good porters, who can get over one of those passes and down the Shaksgam valley. I should like to see them ascending the spurs on the Aghil range opposite K2 and looking about from there for the best view-points from which to photograph K2, Gasherbrum, and all those magnificent peaks, including those first noticed by Sir Martin Conway from the southern side. They would do something not only for geographers but also for every mountain lover. I wish, in conclusion, to congratulate you, Sir, on the magnificent photographs you have shown and on the lecture you have given us.

Professor DESIO: I thank the President for the kind invitation to speak, but it is not easy for me to summarize in a few words the geographical and geological results of the expedition. The regions explored south of the watershed of the Karakoram are mostly constituted of crystalline and generally metamorphic rocks, and on these the most extensive outcroppings are the gneisses and the granites, but the country is crossed by a belt of limestone and shales, more or less metamorphic, in which I was able to discover fossil remains of the Carboniferous age. On the northern side of the Karakoram there are rocks of marine origin, but in the Shaksgam valley the sedimentary rocks also outcrop with normal facies generally of calcareous material. In this area the fossil remains are very numerous and well preserved, and belong to the Permo-Carboniferous age.

Enclosed in this crystalline series was limestone, but the tectonic structure was very faulted. I was able to recognize two anticlinal zones. I also observed evidence of the old extensions of the glaciers during the Ice Age in the Baltoro and Shaksgam valleys. Lastly, I collected data on the recent limits of the fronts of all the existing glaciers.

Sir GEOFFREY CORBETT (Himalayan Club): I first came into contact with the Italian Expedition about two years ago, when His Royal Highness the Duke of Spoleto, with characteristic modesty, arrived almost unannounced at Bombay. Some few of us at Simla were at that time occupied in trying to found the Himalayan Club, and one of its founders was Lord Irwin, the present Viceroy, who at once asked the Duke to come to Simla and talk things over with us. Major
Kenneth Mason, to whom His Royal Highness has so kindly referred, was at Calcutta at the time, and we got him up to Simla, ready to meet the Duke and Commander Cugia; and Major Mason spent the best part of one day telling them what he knew about the Shaksgam. I remember he came to me at the end of the day and said, "You know it is all very well to fetch me from Calcutta; but the Duke knows it all already." That, I think, is a characteristic of Italian expeditions to which Sir Francis Younghusband has referred: the very careful preparation which leads to ultimate success. Mason told me that His Royal Highness had thoroughly mastered the previous history of the Shaksgam valley and the Karakoram, and was familiar with the names of places, so that it did not take long to pass on any further information.

Well, I think we had no doubt in Simla that the Italian expedition would not climb K2, but otherwise would be the great success it has been. Our reasons for expecting that the expedition would be successful were twofold. I was in Ladakh not long after the Duke of the Abruzzi and Dr. De Filippi were there, and travelling through the country I was greatly impressed with the memory they had left behind amongst the natives. If you want to travel in the Himalaya, it is no use trying to drive your men: you only drive them away. I think the whole idea of Italian expeditions is that they do carry their men with them. You never hear of any grievances afterwards. And also the arrangements are very complete. I can say that from personal experience. I was going to the Nubra valley with a very light load, and when I arrived at Leh I heard that it was a wonderful place where there were hares, and more vegetation than usual in that part of the Himalaya. I wondered what on earth I was to do for red-currant jelly, and mentioned my difficulty to the Moravian Mission at Leh. They said they had half a dozen tins which the Duke of the Abruzzi had left behind, and that made a great deal of difference to my comfort.

The second reason why we felt the expedition was bound to be successful was the Duke of Spoleto's own personality. The thing that impressed us most was his modesty and his sense of proportion and of humour, which we have seen to-night. I think we all felt that if we were going on a big expedition to the Himalaya, he was the kind of man we would like to follow. Although he seems to be of a very quiet disposition, we felt that if he were up against it he would be not unworthy of that motto which is derived from a poet of his own country, and which has a great history behind it in India: *Mens aequa in arduis.*

It has been a matter of great delight to me, by the kindness of the Council, to have been present this evening to hear the very brief outline that the Duke has given of his expedition. I tried to suggest to him this evening that he should give us something more for the *Himalayan Journal*, but he said we should have to wait for his book, which we would then be able to review. Listening to what he said, there is one thing I should like to call attention to, and that is that we have heard very little of the hardships of travel in the Himalaya. I have no doubt that the expedition went through a great deal more than His Royal Highness gives it credit for, but at the same time I think he has reminded us that exploration in the Himalaya can be a very pleasant thing and can be enjoyed enormously. The hardships are not insufferable, provided one does not try to do too much, though I am not suggesting that the Duke did that! It is good country to travel in and quite a good country to climb in, so long as you do not try to go too high. There are hundreds of fine peaks in the Himalaya that will give all the climbing one could wish for without getting up to the height at which mountain sickness and atmospheric troubles become insufferable to the ordinary person.

There is one other point that struck me very much in what His Royal Highness said, and that is the use the expedition made of skis. In India a year or two ago we
started a Ski Club which is now a very active organization, and which goes up every winter to Gulmarg, where there are winter sports. Although I admit that just sliding down a snow slope does not appeal to me very much, I always have felt that the encouragement of skiing in the Himalaya is going to be of enormous value to Himalayan exploration, because it will enable one to get on the ground quickly and early when there is still heavy snow, as we saw in the picture of the Zoji La, which a month later is merely an ordinary mule track. I hope those going to the Himalaya to explore will bear that in mind and not despise ski-running as an aid to travel in these regions. I appreciate what His Royal Highness has said, and I regard his paper as a first instalment of a very fine book which is coming out later, and of which I hope the Himalayan Club will receive a presentation copy.

General Bruce: I am very glad indeed to have the opportunity of following Sir Geoffrey Corbett. I was with the Calcutta Club when attempts were being made to form the Himalayan Club, and I believe that Club is now prospering to a degree we should not, two or three years ago, have thought possible, having amalgamated with the Calcutta Club. We are particularly delighted about that, because we hope to back up from the Himalayan Club all further movements for exploration of the Himalaya.

There are one or two points with which I am particularly impressed, and the first is the immense success which all the great Italian expeditions have had with their native help. I know a good deal about this because I have handled Baltis since 1892. The Balti is not a warrior; he is quite a timid little man. With good leading it is possible to do anything with him, but he is not a thruster. He is a great carrier of loads, and if you back him up you can get any amount of work out of him. I know of an expedition which got to Askole and the whole village took to the hillside; no porters were available. This was due to fright from previous treatment. I always feel tremendous admiration for those who go out and get real value from the native help they get. Think of the Vissers; but they were dealing with people who are infinitely finer, far stronger, and more intelligent than the Baltis, and yet think what the Italian expedition have done with their, so to speak, inferior help. You can take it from me that if we had had Baltis on Everest we should have done very little indeed. Yet the Italian expeditions have carried out some of the very finest mountain exploration that has ever been done, by intelligently and sympathetically handling that rather low type, people of low mentality; and they have got them to work cheerfully for them. That is a very great thing. I hope His Royal Highness will allow me to congratulate him on that.

There is one thing in the lecture that I missed. From the Crystal Peak on which, with Sir Martin Conway, I made one of the most delightful climbs I have ever made, we got a view of the Muztagh Tower, in my opinion, the most magnificent mountain that I have ever seen, next to Makalu. His Royal Highness did not show that. It is really a wonderful view.

Something else that was not stressed at all was the very hard work entailed in going up a place such as the Baltoro; even to go from Askole to the Baltoro is rough climbing and rough work. You have to cross a shaky bridge over the Punmah stream. The valley is shockingly hot; a miniature Sahara—no trees, no grass, and the sun pouring down on your back. Then you come to the foot of the glacier. Any one who has seen the Aletsch or the Gorner glacier knows what the end is like, but you cannot compare it to the end of the Baltoro, which is, roughly, 2½ miles across, with a stream coming out nearly as wide as the Zermatt River when it joins the Rhone at Visp. Then you get on to the top, but it is not level; wave upon wave covered with moraine, all loose; up and down you go, slipping the whole time, and you have to do that for three and a half days before you are out of it. Nobody is ever required to do this in the Alps, or thinks of it. Such
work was never mentioned by His Royal Highness, and it really is most tiring going.

In one point that country differs from the other end of the Himalaya to its advantage, namely, the lack of wind. When we were up there we only once got into a really terrible wind, and that was on our way down at the beginning of September, when we were camped on the slopes of Masherbrum; but it was nothing to what is experienced at the other end of the Himalaya. At the same time, you have there far more danger from avalanches, far more danger from great cold, especially if you are there early. We were rather late, and right to the foot of K2 we could never have used skis. It was absolutely dry when we made our attempt, all the way up to the Golden Throne which is itself the left great boundary on the right of which is the Kundus Saddle and the Chogolisa Saddle; all the way up were open crevasses and no chance of using skis. They would have been absolutely and entirely out of the question. Nevertheless, if the whole of our route had been covered with snow it would have been much easier to cross and an advantage to use skis.

Dr. T. G. Longstaff: The account which we have had the great pleasure of listening to this evening clearly sets up the fascinating problem set us by Sir Francis Younghusband more than forty years ago. Only twenty years ago one could still write in the Geographical Journal that there was no other region of the Himalaya of which we knew less: for the 100 miles between the Muztagh and the Karakoram Pass we knew of no passage across the ranges. Notwithstanding the subsequent work of the Workmans, of Dr. Filippo De Filippi and Major Wood, and of Major Mason’s expedition, it has been left to H.R.H. the Duke of Spoleto to complete the solution. Topographically, it is the exploration of the upper Shaksgam valley—the joining up of the farthest points reached by Younghusband and by the late Major Minchinton—that is most interesting. This was accomplished by what we may call “polar methods,” or supporting parties; the sending forward of a party to dump provisions, so as to give the exploration party that necessary margin of “food-days,” in order that lack of food should not force them to return with their work uncompleted, which, as a matter of fact, others had to do. The Italians have successfully achieved what their predecessors were unable to accomplish. I hope we shall learn the lesson to be derived from their thoroughly deserved success.

Then there is the exploration of both sides of the Sarpo Laggo pass. From the photographs we have seen it appears to me as if they have shown us a better route across the main chain than the difficult Muztagh Pass. They have also cleared up the topography of the head of the Punmah glacier system—a very fine piece of work. The topography of that region has puzzled geographers ever since Sir Martin Conway drew attention to it last century. Apropos of that I would plead very strongly for the acceptance of His Royal Highness’ suggestion that the name “Conway Saddle” should be given to the saddle on which the Duke camped at 20,000 feet at the head of the Baltoro, which probably looks down on to the Kundus, because Conway’s was the first of many “Alpinist” expeditions which went to this very difficult region of the Karakoram. Our prejudice against giving personal names to peaks in the Himalaya is, I know, very great, but the real point is that the Duke went to that point because of the real topographical importance of it, and it was the point that Conway, so to speak, laid his finger on. Though Conway did not reach it he pointed out the importance of that spot. The Duke is the first man to get there, and he suggests, very generously, that Conway’s name should be attached to it. In my view the historical arguments for using Conway’s name in that connection are very great, and though I know that the Royal Geographical Society and the Survey of India object to personal names, I
still hope that His Royal Highness' suggestion will meet with the support of the Society.

Further, I wish to take this opportunity of making myself still more unpopular with the orthodox. I want to press most strongly for the retention of the name "Younghusband's Saddle," which I put on my map of 1909, for the uncrossed pass at the head of the Urdok glacier. This name has priority over "Indira Col," subsequently bestowed by the Workmans. Of course I only saw it from the south. The Duke's expedition has at last proved that the position I gave for it was correct. Now that after forty years the problem set by Younghusband has been solved, let the map hold the name Younghusband's Saddle. That name is the historical key to the exploration of this region, and should be preserved.

Sir Francis Younghusband, you will remember, came from the north. He was on other business of some importance, but he diverged to come through the Aghils and look for the reputed "Saltoro" pass that led through the 150-mile uncrossed section of the Karakoram, and went up a glacier which he called the Urdok glacier. When I came to make my map, which was a sketchy one, I fortunately got the position of that saddle at the head of the Urdok glacier pretty well correct; Colonel Balestreri, Professor Desio, and Signor Ponti have proved that what the Workmans afterwards christened the "Indira Col" is "Younghusband's Saddle" of my map. The name Indira Col is derived from Sanskrit and French; nothing could be more out of place in a country where only Balti or Turki is spoken. There are no native names in this region because there never were any inhabitants. Even so old and experienced a traveler as Sir Francis Younghusband has to name a glacier after a dead bird he found upon it. I therefore invoke the law of priority of nomenclature also, for the retention of the name Younghusband's Saddle, as recorded in the Society's Journal twenty years ago.

It is getting late. I am not here to pay compliments; but we must all realize, and experienced travellers in this audience do realize, that the success of the Italian expedition is due to the leadership displayed. The organization and the handling of so large a party; the complete success in the accomplishment of a large and complicated programme; the reticence of the lecturer as to his own part in the expedition; his care for his coolies and the avoidance of any accidents or unnecessary hardship to them—all these evoke our admiration. I beg to congratulate your Royal Highness on an achievement which I am confident will ever remain most remarkable in the annals of Himalayan exploration.

I would like to add the following note: When I reached the middle Siachen glacier in 1909 I saw a depression at its head which I marked on my sketch-map (G.J., 35, 744) as Younghusband's Saddle, placing the Urdok glacier on the far side. I think this is confirmed by the Italian explorations from the Shaksgam side. On the Workmans' map (G.J., 43, 232) they rechristened this the Indira Col, and their photograph opposite p. 128 is given as a view of the Gasherbrum glacier from the Indira Col. I think it is clear now that this photograph shows the Urdok Glacier and not the Gasherbrum glacier. They drew the Urdok glacier farther east, articulating with their Turkestan La, which I think must really articulate with the Stagar glacier of the Italian expedition. It is clear that I could not have seen their Turkestan La from my station on the middle Siachen, so there can be no confusion.

I would also take this occasion to urge that the name Saltoro Pass, bestowed by Vigne in 1835, and used on Younghusband's map, ought to be preserved for the pass since called the Bilaphond La (vide G.J., 35, 622, and G.J., 43, 144).—T.G.L.]  
The President: I am sure you would wish me in the name of the Society to send a telegram to-morrow to General Vacchelli thanking him for the kind message
which His Royal Highness read to us before commencing his lecture. Secondly, I have to announce that Sir Martin Conway intended to be present but was forbidden by his doctor. Thirdly, I should like to mention that $K_2$, as far as we know, really is the second highest mountain in the World. Although you will see it stated, in this week’s *Illustrated London News*, that Kangchenjunga is the second highest, this is probably not the case; most geographers who have studied the question would say that, although there is some uncertainty, $K_2$ is the second highest.

We are all very grateful to the Committee which assembled at Milan, to the Italian Royal Geographical Society, to the Milanese section of the Italian Alpine Club, and to His Royal Highness for organizing the expedition. We congratulate His Royal Highness on the thoroughly scientific organization of it. The expedition carried out not only exploration and survey but magnetic and gravity observations; it did geological work, as we know from Professor Desio’s remarks; it made careful surveys; it did scientific work in zoology, botany and anthropology. Another fact on which we congratulate the expedition is the use of skis, triumphant use, one might say, in the Karakoram, probably for the first time, certainly for the first time on an extensive scale. And last, but not least, we congratulate the expedition and His Royal Highness on his use of the Wild phototheodolite, from which we expect the most happy results.

As regards the Conway Saddle, I am not, personally, a purist in these matters. I think we shall lose a certain amount of history if we do not attach to features in the Karakoram some of the names connected with the exploration of the region. It would be a good thing for those who follow us 2000 years hence to find a few English names on the maps. Supposing our Anglo-Saxon ancestors had not put a few personal Saxon names about England! We need not overdo it, but I think I can promise that the Council of the Royal Geographical Society will consider sympathetically His Royal Highness’ kind suggestion.

It remains for me only to congratulate His Royal Highness on the success of the expedition and to thank him very heartily for the admirable lecture to which we have listened.