

THE LATEST HIMALAYA-CLIMBING EXPEDITION.

BY HERBERT C. FYFE.

A serious attempt is about to be made to ascend the highest mountain in the world, Mount Everest, which rears its stately head 29,002 feet above the level of the sea.

The highest point to which man has so far climbed is 23,080 feet.

This is the height of Aconcagua, the loftiest summit of the main cordillera of the Andes. Aconcagua was scaled by the famous guide, Mathias Zurbriggen and Mr. Vines, two members of the expedition sent out by the Royal Geographical Society in 1887 under Mr. E. A. Fitzgerald, who himself failed to reach the summit. Before this event the record was held by Sir William Martin Conway's expedition, which in 1892 climbed a mountain in the Karakoram Himalayas 22,600 feet high. Mr. W. Graham in 1883 claimed to have ascended Kabru (24,015 feet), but his claim is generally disallowed.

The new expedition, which has just started for the Himalayas, is under the direction of Mr. Eckenstein. Very few details regarding the plan of operations can be ascertained, but it is known that Mr. Eckenstein and his companions have set before themselves the task of ascending to the loftiest peak of the two highest mountains not only in the Himalayas, but also in the world, Mount Everest (29,002 feet) and "K 2" (28,250 feet).

Some day or other a mountaineer will succeed in

scaling Mount Everest. There is nothing impossible in it. Two things are wanted, time and money; and provided these are forthcoming, success may very well be looked for.

Most of the great climbers of to-day agree in affirming that man could exist at an altitude of 29,000 feet, provided of course that careful precautions were taken

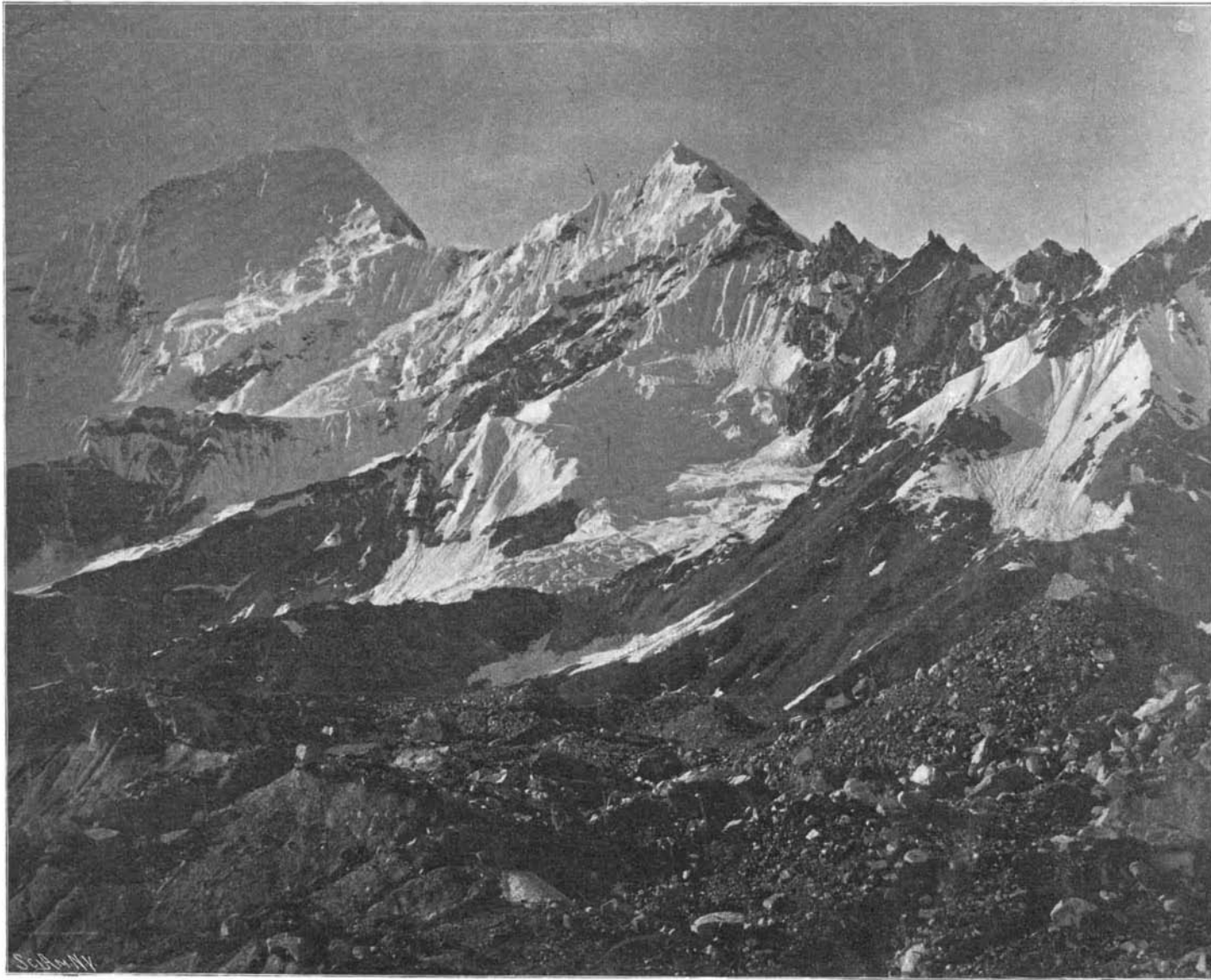
little time, and if he is strong enough to withstand the cold and the rarefied atmosphere, it is possible that one day his ambition will be satisfied and that he will be able to take his stand on the highest point of the earth's surface and to rejoice in the fact that he has accomplished something which no one else has ever done since the world began. Let us see

what the experts have to say respecting the possibility of scaling Mount Everest.

Quite recently a paper was read before the Alpine Club by Dr. Malcolm L. Hepburn on "The Influence of High Altitudes in Mountaineering." Summing up his remarks as to the ascent of Mount Everest, Dr. Hepburn said: "Provided he has plenty of time, plenty of suitable food, and fine weather, I see nothing unavoidable in the conditions of the atmosphere at high altitudes to prevent a man with healthy organs from ascending the highest point on the earth's surface."

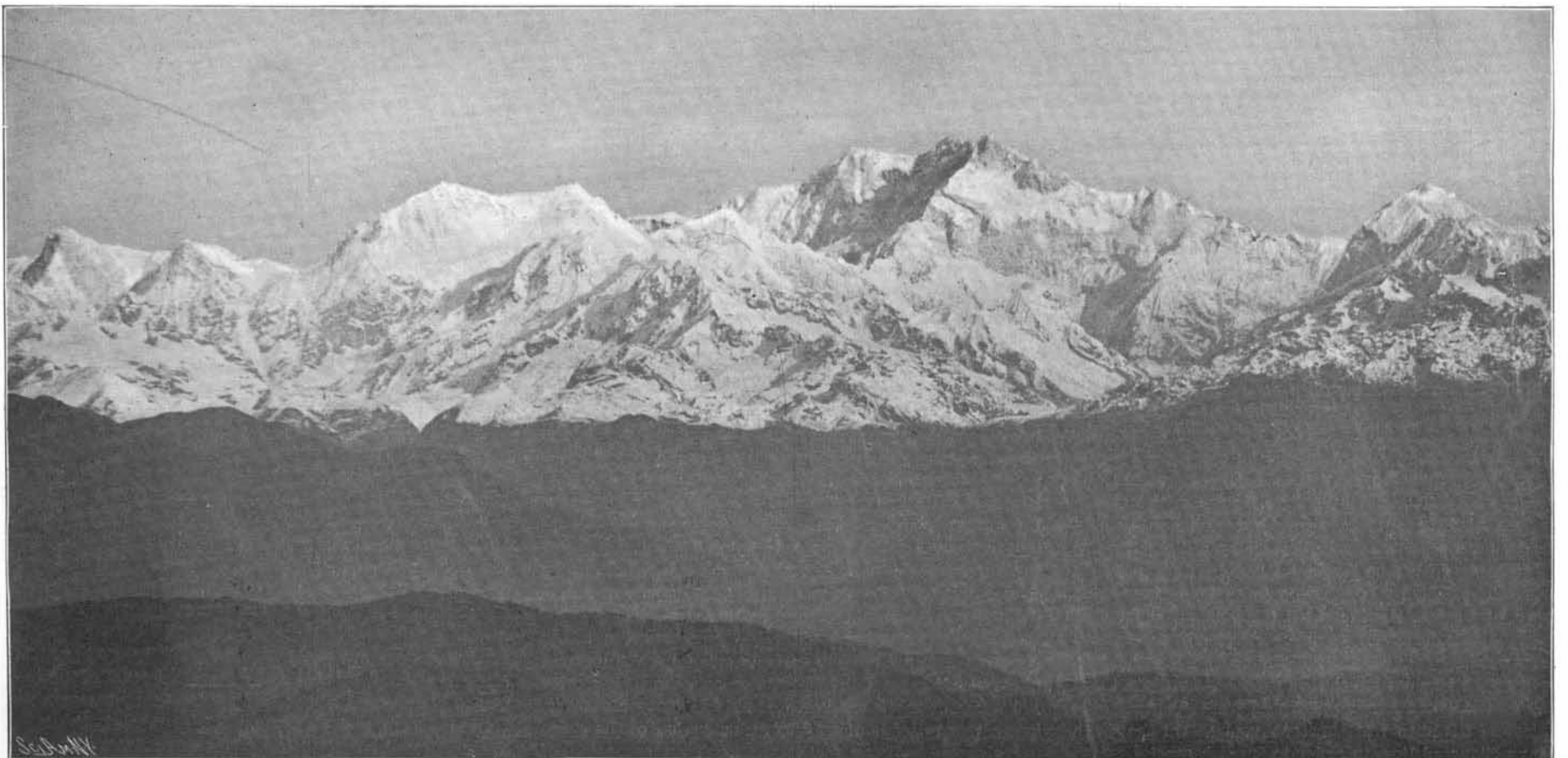
Among the speakers at Dr. Hepburn's lecture was Sir Martin

Conway, who spoke as follows: "On the two occasions when I have been close on 23,000 feet I have felt that I could have climbed further, and that if I could have slept there I might have climbed much further. The problem of climbing Mount Everest will be comprised of two main difficulties—politics and finance. If the governor of India would persuade the government of Nepal to let the Alpine Club try, and if about £10,000 were forthcoming, and a good party, with an ample supply of porters, could devote two or three



PEAK TO THE NORTH OF SINIOLCHU—SIKKIM.

and that all the details of the expedition were worked out in a thoroughly practical manner. The climber must not attempt to ascend Mount Everest right off. He will have to take some years over it, climbing each year to a certain height and resting weeks here and there on the road in order to accustom his body to the unwonted altitudes. Supplies will be a great problem, but if he can manage to insure food, clothing, and other necessaries reaching him at the various camps at which he will be forced to remain for some



THE HIGHEST MOUNTAIN PEAKS IN THE WORLD.—MOUNT EVEREST SEEN FROM DARJEELING. HEIGHT 29,002 FEET.

consecutive years to the attempt, there would be some chance of conquering the peak."

Another great mountaineer is Mr. Douglas L. Freshfield, who recently took an expedition to the Himalayas and attempted the ascent of a mountain in Sikkim, 28,156 feet in height, situated as far south of the Karakoram range as Etna is of Mont Blanc. Mr. Freshfield got no

higher than a little over 21,000 feet, but he was the first explorer to take a party of over fifty men, most of them carrying loads varying from 15 pounds to 40 pounds, over a pass of above 21,000 feet, sleeping twice at close upon 20,000 feet. Here is Mr. Freshfield's opinion as to the climbing of Everest:

"There seems to me to be no sufficient reason for thinking that climbers may not attain 29,000 feet. Considering how much more gradually the rarity of the air increases between 20,000 feet and 30,000 feet than it

does at inferior levels, I have every confidence that the highest mountain in the world will, if Nature has not forgotten a ladder to it, be some day trodden by human foot. I felt slack while we were above 15,000 feet, and on reaching the foot of the final ascent (21,000 feet) after wading over a long plain of snow, followed by a short, gentle slope, was completely out of breath. After a meal I found the ascent of some 500 feet to the pass, partly over rock, less fatiguing; and on the top, in the excitement of the discussion that ensued, I lost the sense of exhaustion, and it did not return."

Those famous climbers, Mr. Whymper and Mr. Dent, agree in declaring that the ascent of Everest is not impossible, though it would be costly, laborious, long, and possibly not free from risk.

"If Everest were only in England," Mr. Dent has remarked, "the problem would have been solved long ago." It is agreed that the easiest side for the ascent is from the north, but the government of India do not care about travelers penetrating into Tibet, and it is possible after Mr. H. Henry Savage Landor's reputed experiences that the travelers themselves would fight shy of the Tibetans, who are not a kindly race as far as strangers are concerned.

Starting from the south side, the mountaineer will be exposed to malaria; but as it is now known that you cannot contract malarial fever provided you are not bitten by mosquitos, it is possible that this difficulty could be overcome. There are geographers who do not seem to be convinced that Everest is really the highest peak in the Himalayan chain, but we hope if Mr. Eckenstein does succeed in reaching the summit of Everest, he will not find a still higher peak awaiting the climber. The Himalayas have several peaks over 28,000 feet, and more than a thousand which have been measured, exceed 20,000 feet.

From any point of view to which Europeans have access, Everest fails to impress the observer with its great height. Indeed, it is difficult to believe that other mountains do not far exceed it.

"Owing to its great distance in the interior," says Major L. A. Waddell, in his book "Among the Himalayas," "behind the outer snowy peaks that tower in front of it, the enormous height is not apparent, and this was only revealed by the scientific measurement of the Indian Survey Department."

About the year 1850 the Great Trigonometrical Survey of India extended their triangulation to the foot of the Himalayas, and measurements were made from this newly gained base to the snowy peak beyond the frontiers.

Between November, 1849, and January, 1850, it was discovered that in Tibet, at 27 deg. 59.3 min. latitude

culminating pinnacle of the world, Mount Everest."

The traveler need not dread the terrors of the region, for the worst torrents have been bridged and travelers' staging houses have been erected along some of the chief routes, thus greatly facilitating the exploration of these mighty mountains.

Before concluding this article it may be interesting to recall the fact that the great Russian painter, Vassili Verestchagin, when traveling in Northern India, made an attempt to ascend the next highest mountain on the face of the globe after Everest and K 2, viz, Kazchenjunga, 28,000 feet odd above the level of the sea.

Verestchagin attempted the ascent in January when the mountain was covered with ice and snow, and he got no higher than 15,000 feet. He was considered a madman for trying to do that. "Some English officers in the neighborhood,"

says a recent biographer of the painter, "when first they heard of his project did all they could to dissuade him from it. With his characteristic obstinacy he simply thanked them for their advice and went on with his preparations for the ascent. 'At least,' they said, 'you will never take the lady?' Madame Verestchagin was with him, and had insisted on accompanying him. 'That will depend upon her,' said Verestchagin, and his wife went with him all the same. It was a frightful ascent. The coolies abandoned them when they had gone a very little way—these dark-skinned races cannot stand the cold—and at last they had only one man, who carried the color-box and drawing tools, the use of which was Verestchagin's main

object in the journey. The painter wanted to go up there to study effects of snow and cloud. By and by even this man's courage failed him, it became so intensely cold. They were wading in snow up to the knees in some places and in others up to the waist. The ponies had been left below. There was no house or shelter of any kind. They called a halt, and the courier went back to get help, leaving Verestchagin and his wife on the mountain in the midst of the snow, with only a small wood fire between them and all but certain death, and with nothing but snow for meat and drink. They covered over the fire till the falling snow put it out, and then for all that day and night till far into the next day they struggled as best they could for life. As a final and desperate effort, Verestchagin, taking leave of his wife, whom he never expected to see again, descended until he found men whom he forced to accompany him to the rescue of his brave wife."

The French Naval Department is evidently sharing the skepticism entertained by the naval authorities of other countries in connection with submarines, since the Minister of Marine has decided to complete only twenty of the fifty submarine boats at present in various stages of construction. There are various types of submarine vessels in the French navy, ranging from the 30-ton "Gymnote" to the 270 tons of the "Gustave Zédé." Thirteen boats each of 175 tons displacement are in course of erection, but work is to be stopped upon them. The French Naval Department for some reason is apparently antagonistic to these heavy submarines, since the twenty boats to be completed are only of 70 tons displacement.



PHALDONG LLAMAS.

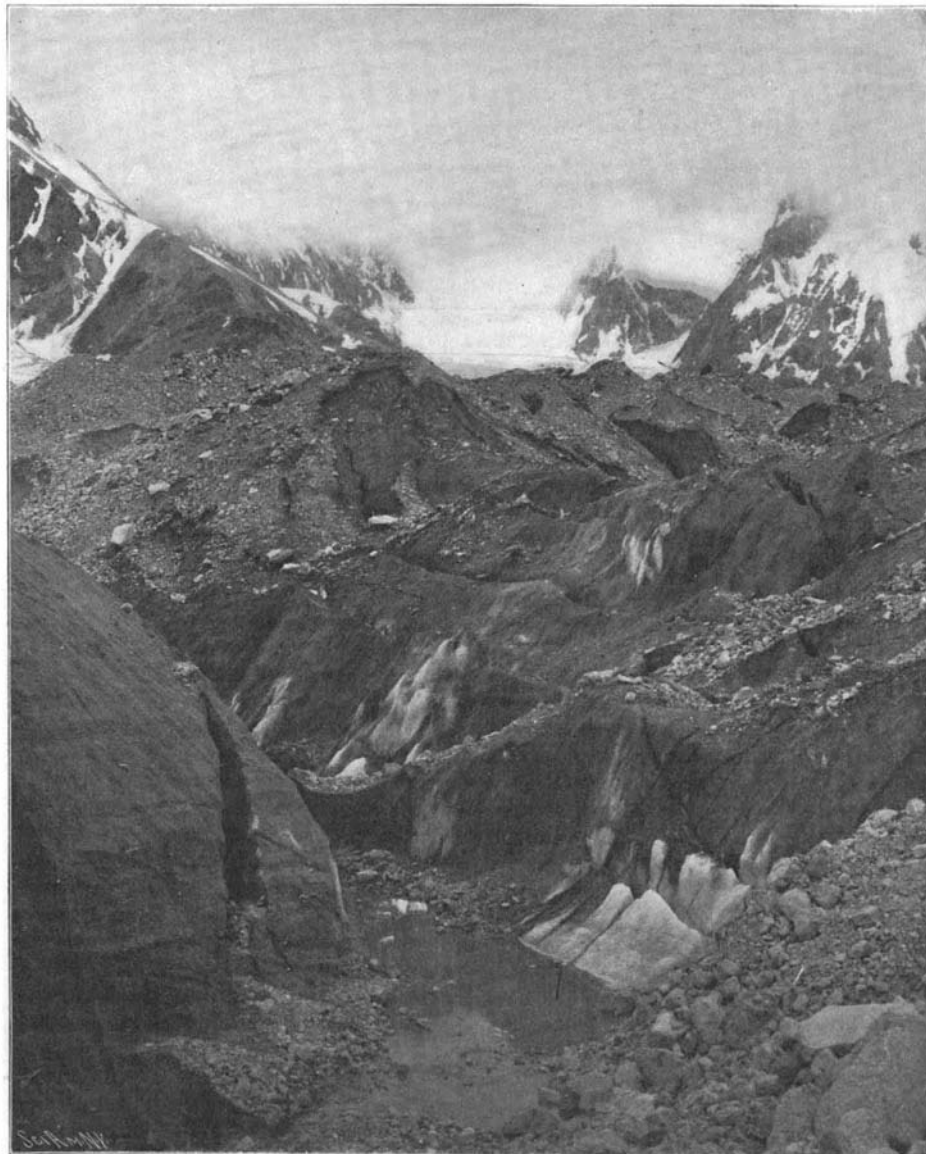


TWO LLAMA PRIESTS

and 86 deg. 54.7 min. east longitude from Greenwich a peak rose to the enormous height of 29,002 feet, the highest measured elevation on earth. He who has never seen the Himalayas from Darjeeling has missed one of the grandest views the world can afford.

Darjeeling is within 24 hours of Calcutta, and Calcutta is less than three weeks from England, so the traveler who is weary of Switzerland and who knows his Europe well, may be recommended to betake himself to the Himalayas.

"Roads have penetrated," says Major Waddell, "the mountain fastnesses in nearly every direction in the state of Sikkim, a Switzerland of the East, situated in the heart of the Himalayas, within sight of the



A GAP IN THE SNOWS-ALTITUDE, 19,300 FEET; SHOWING HOLE IN GLACIER ALTITUDE 17,500 FEET.

VENOMOUS SERPENTS—IV.

BY RANDOLPH L. GEARE.

There is a large group of serpents known as the Elapine snakes, in which the abdomen is supplied with broad band-like plates, the head is shielded and the tail is pointed. Most of them are non-poisonous, but in the few venomous forms the poison-fangs do not fold down as in the viper and rattlesnake, but remain erect. In some the fang is grooved, while in others it is perforated through nearly its entire length.

In this group attention is first invited to the King Cobra, or Hamadryas. This terrible serpent belongs to the same genus as the common Cobra (*Naja*). It feeds almost entirely on reptiles, venomous and otherwise. It is a comparatively frequent eater, requiring food at least once a month. As soon as the food is within reach, the snake hisses loudly, and, expanding its hood, rises two or three feet, and darts on it very much in the same manner as the Cobra.

The King Cobra has a wide distribution in South-eastern Asia, from Bengal, through the whole Indo-Malayan region to the Philippines. It is one of the most deadly of all snakes, and is known to follow persons and attack them. It is of gigantic size, one recorded specimen measuring sixteen feet nine inches. Fortunately it is not as venomous as the common Cobra, although it is doubtless responsible for a large share of the twenty-two thousand deaths which, according to official statistics, are caused annually in India alone by the poison of venomous snakes.

The King Cobra inhabits chiefly grassy jungles. Its favorite food seems to be snakes of all kinds. To this peculiarity is due the belief among the people of India that it receives royal honors from all other serpents, and hence its name "King" Cobra. It is occasionally handled by the Indian snake-charmers in common with other Cobras, but it is not quite so showy on account of its inability to expand its hood to so large a degree.

In South America is found the Labarri (*Elaps lemniscatus*), which is closely allied to the Harlequin Snake of North America. The Labarri is usually found coiled on the stump of a tree, or in some other place where it can hardly be distinguished from the object on which it is lying. It is mortally poisonous when adult. It may be described as rainbow-colored in life, but its brightness fades soon after death. It is said that specimens eight feet long have been killed.

A genus common in Natal, and occurring also in other parts of South Africa, is the Narrow-headed Dendraspis (*Dendraspis angusticeps*). It is long, slender, unusually active and a good climber. Its poison-fangs are very long, perforated, and permanently erect. It is olive-brown, greenish above and of a pale green beneath. It sometimes reaches a length of six feet.

Another venomous serpent of South Africa is the Atractaspis (*Atractaspis irregularis*). Its fangs are longer in proportion than those of any other known serpent, reaching nearly to the angle of the mouth. It is believed to burrow in loose ground. It rarely measures over two feet in length, and its color is blackish-green above, shaded with orange-brown and orange-buff below.

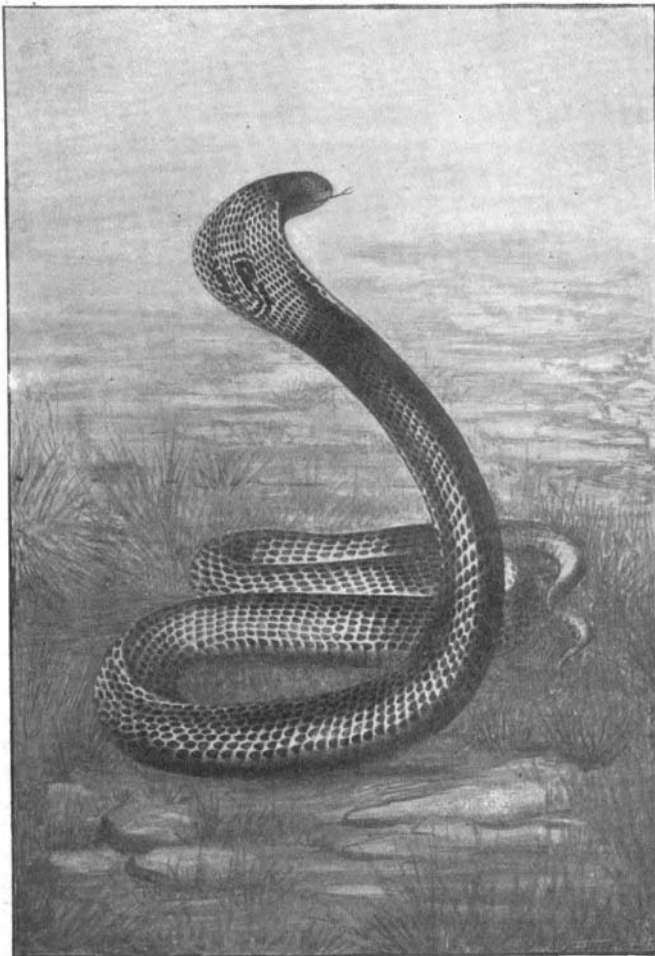
There remains yet to be mentioned that fearful and deadly serpent, the Cobra of India (of which several species occur, and all of which are closely related, anatomically speaking, to the Elapidae or Coral Snakes) and its relative, the African Cobra. The species most generally known is the common Cobra, or Cobra di Capello (*Naja tripudians*). When irritated, it has the power of bringing the "ribs" of the neck and fore part of the head forward. This action distends the skin, and displays the hood (or neck expansion) to the best advantage. On the back of the hood of many specimens are two large spots, like eyes, which are joined by a curved black stripe, and the whole resembles a pair of spectacles. This curious feature is the basis of an Indian legend, to the effect that one day when Buddha was asleep, a Cobra came near him and raised its body between him and the sunbeams, spreading its hood so as to shade his face. Buddha on waking acknowledged his thanks and promised to repay the snake. Now it happened that Cobras, huge and venomous though they are, had been liable to attack from a certain bird, called the Brahminny Kite; and this particular snake, fearing after a while that Buddha had forgotten his promise, petitioned him to grant him perpetual relief from the attacks of this bird. Buddha immediately granted his prayer, by placing a pair of spectacles on the Cobra's head, which so frightened the Kites that they have never since dared to attack a Cobra.

Another popular myth is that the Cobra loses a joint of its tail every time it emits poison, and this is just the reverse of the idea regarding the rattlesnake, namely, that it adds a new joint to its rattle for every person it kills.

There is probably no other snake which has been used so extensively as the Cobra by Indian snake charmers for displaying their supposed powers over

serpents. It should be remembered, however, that these huge creatures are exceedingly indolent, and therefore less easily aroused to using their terrible weapon. It may also be that the charmer possesses means, not commonly known, of rendering himself proof against the effect of the venom. There are also certain remedies, said to be effectual, the knowledge of which would doubtless add courage to the charmer in his daring feats. One of these is the Birth-wort (*Aristolochia indica*). This is a creeping plant, the fresh leaf of which is very bitter and aromatic. It is not an universal specific, however, for some dogs which had been bitten by a Cobra and treated with the leaf of this plant, died apparently quicker than if the remedy had not been given them. It is said that human beings become cold as marble under the influence of the venom, whereas dogs are thrown into a high fever. The probabilities are that this plant is merely a powerful stimulant, and as such simply lessens, rather than counteracts, the effect of the poison.

The Cobra is said to be proof against its own poison, but a non-poisonous snake quickly succumbs to its bite. The venom is harmless if taken internally, the same being true of rattlesnake venom. Nor is it fatal when brought in contact with a mucous surface, such as the interior of the stomach or the eye. The color of the Cobra di Capello, which usually is from three to four feet long, varies greatly. In some species the body is brownish-olive, and the "spectacles" are white, edged with black. Another, also brownish-olive, is covered with irregular cross-bands of black.

INDIAN COBRA (*NAJA NAJA*).

Others are olive, marbled richly with brown below. Some are of uniform brownish-olive without any "spectacles," while yet others are black with white spectacles, and still others black without any spectacles. Those without spectacles are recorded as occurring in Borneo, Java, the Philippines and other eastern islands.

The African Cobra is fully as poisonous as its Indian relatives. Its native name is "Spuugh-Slange," or Spitting-snake, on account of its being able to project the venom to a distance of several feet. It is a furious fighter; seldom running away, and more frequently commencing the attack. It is fond of climbing trees in search of prey and is also a good swimmer. Its coloration is variable; sometimes a yellow-brown, uniform or covered with irregular patches. Others are black when full grown, while before maturity they have a series of broad yellow bands on the fore part of the body. The length of this snake ranges from five to six feet.

Several of the illustrations and some of the material used in the preparation of this article have been furnished by the authorities of the National Museum.

NOTE: In the SCIENTIFIC AMERICAN SUPPLEMENT for March 14, 1903, will be published the last installment of this series. The installment in question will deal with Serpent Venom.

It is said that a company is soon to attempt the sending of wireless telegraphic messages from San Francisco to the Hawaiian Islands.

Prospects of Niagara Power on the Canadian Side of the Falls.

BY ORRIN E. DUNLAP.

Prospects are exceedingly good that a large amount of electrical power will be available on the Canadian side at Niagara within a few years. Already two companies are at work there erecting plants for the development of not less than 100,000 horse power each, and now a third company has secured a franchise. This new company is known as the Toronto Niagara Power Company, and the Ontario government has granted it a franchise to develop 125,000 horse power. Its method of development will be identical with that of the Canadian Niagara Power Company. It will construct a large wheel-pit and a long tunnel, the portal of which will be close to the edge or behind the sheet of water of the Horseshoe Fall.

Inasmuch as the wheel-pit of the Toronto Niagara Power Company will be further upstream than the works of the Canadian Niagara Power Company, the tunnel will be longer by a few hundred feet than the one now building. The inlet of the Toronto Niagara Company will be above that of the Canadian Niagara Power Company; and in order that the water service of the latter company may be unimpaired, the Ontario government will cause the Toronto Niagara Power Company to build weir dams for its protection. The work contemplated under this latest franchise will cost in the neighborhood of \$5,000,000 and will take two or three years to complete. The Toronto Niagara Power Company's objective point for transmission is the city of Toronto, and it is intimated that the street railways and the lighting plants will receive power from the new company.

Each franchise granted adds materially to the revenue of the commissioners of Victoria Park. The Ontario Power Company, which has right for two developments, pays \$30,000 a year rental. The Canadian Niagara Power Company pays an annual rental of \$15,000, and the Toronto Niagara Power Company will also pay \$15,000 a year, making a total revenue at this time of \$60,000 a year, payable in semi-annual installments. But when the companies get to developing power they will, in addition to this annual rental, make payment at the rate of one dollar per annum for each electrical horse power generated and used and sold or disposed of over 10,000 electrical horse power up to 20,000 electrical horse power, and the further payment of the sum of 75 cents for each electrical horse power generated and used and sold or disposed of over 20,000 electrical horse power up to 30,000 electrical horse power, and the further payment of the sum of 50 cents for each electrical horse power generated and used and sold or disposed of over 30,000 electrical horse power; that is to say, by way of example, that on generation and use and sale or disposal of 30,000 electrical horse power the gross rental shall be \$32,500 per annum, payable half yearly, and so on in case of further development as provided, and that such rate shall apply to power supplied or used either in Canada or the United States.

Dr. Brooks Again Honored.

Dr. William R. Brooks, director of the Smith Observatory, and Professor of Astronomy at Hobart College, has been awarded the comet medal of the Astronomical Society of the Pacific, for the discovery of his latest comet. This is the seventh medal awarded to Dr. Brooks by this society for his cometary discoveries—now twenty-three in all. He also has the distinction of holding the first medal ever awarded by this institution.

The Possibility of Another Peary Expedition.

The Peary Arctic Club is trying to fit out another expedition early in the spring.

Nothing definite toward such an expedition, however, has been done yet. Everything depends on raising enough money in time. The "Windward," Mr. Peary's old ship, has been sold, and in the first place another vessel will be required.

Mr. Peary is negotiating with the Italian government relative to the Arctic exploration vessel of the Duke of the Abruzzi, the "Stella Polare," which approached nearer the Pole than Nansen's ship, the "Fram."

Some time ago Lieut. Peary said \$100,000 would fit out an expedition; now he thinks that \$200,000 is necessary, or at least \$150,000. With such backing he is confident that he could reach the Pole.

The "Stella Polare" is one of the few ships suitable for Arctic exploration. She was originally a Norwegian whaler, and is a 500-ton vessel—the minimum size for an Arctic expedition.

According to a dispatch to a London paper, the electrical equipment in use at the Indian durbar at Delhi was the largest temporary plant ever erected. There were sixty tons of overhead cables and fifty tons of buried lines.