

## 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.

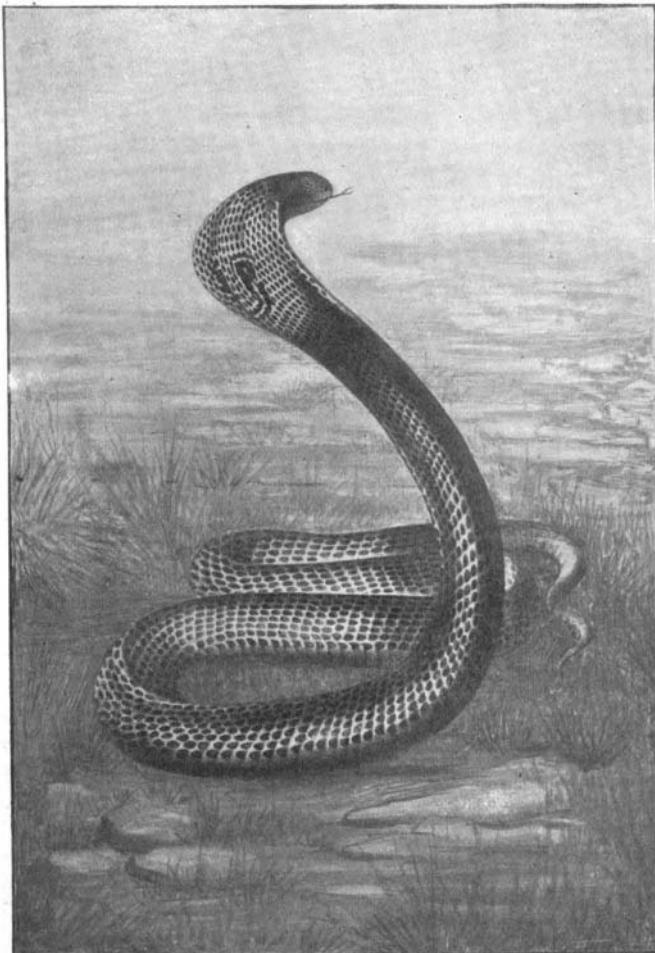
There remains yet to be mentioned that fearful and deadly serpent, the Cobra of India (of which several species occur, and all of which are closely related, anatomically speaking, to the Elapidae or Coral Snakes) and its relative, the African Cobra. The species most generally known is the common Cobra, 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.