THE BRAZILIAN PORCUPINE.

In Southern America the porcupines find a representative in the coendoo, an animal which is not only remarkable for its array of quills, but also for the prehensile power of its long tail.

As might be presumed, from the prehensile tail and the peculiarly armed claws, the coendoo is of arboreal habits, finding its food among the lofty branches of trees. On the level ground it is slow and awkward, but among the more congenial boughs it climbs with great ease, drawing itself from branch to branch by means of its hooked claws; but seldom using its tail, except as an aid in descent. The food of this animal consists of leaves, flowers, fruit, bark, and the soft woody substance of young and tender branches, which it slices easily with its chisel-edged incisor teeth. During the summer months the coendoo becomes extremely fat, and its flesh is then in great request, being both delicate in flavor and tender in character. The young of this animal are born in the month of September or October, and are very few in number.

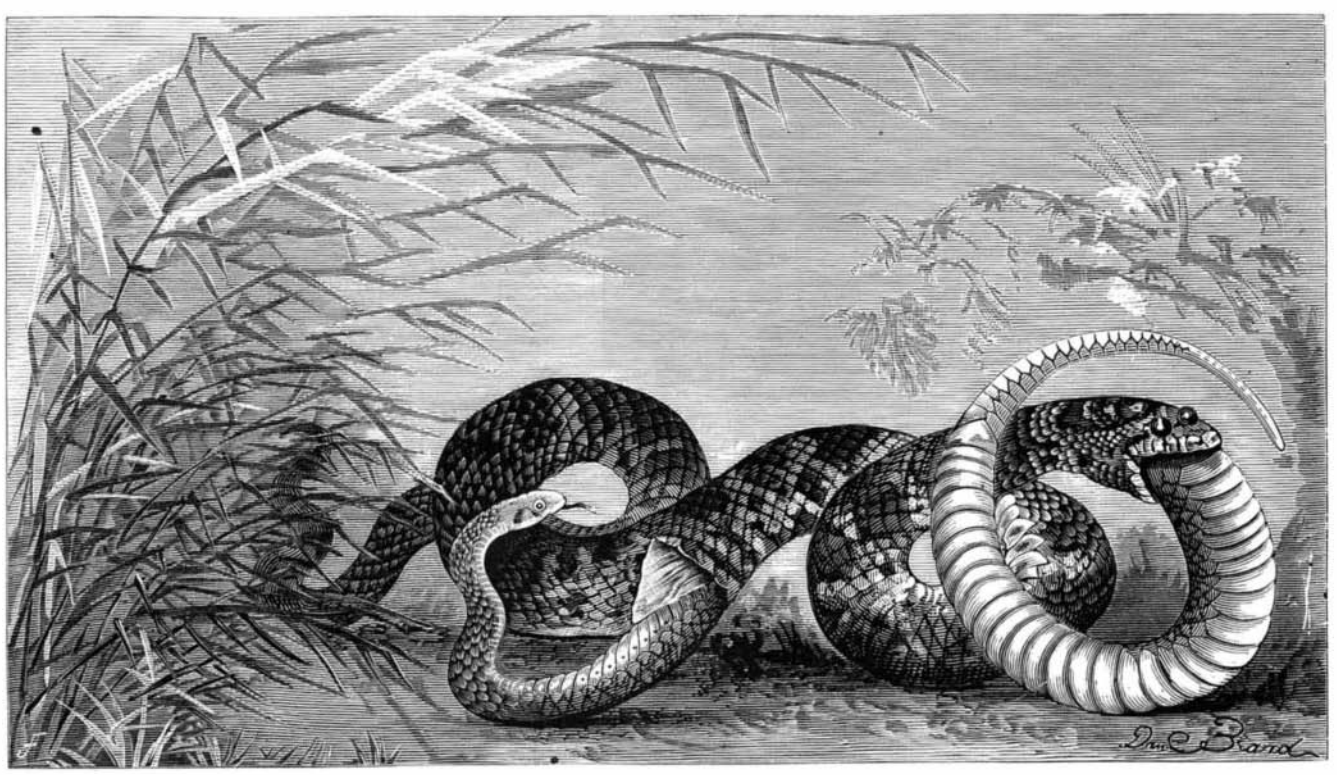
The total length of the coendoo is about three feet six inches, of which the tail occupies one foot six inches. Its nose is thick and blunt, like that of the common porcupine, and the face is furnished with very long whisker hairs of a deep black. The numerous spines which cover the body are parti-colored, being black in the center and white at each extremity. Their length is rather more than two inches on the back, an inch and a half on the fore legs, and not quite an inch on the hinder limbs. A number of short quills are also set upon the basal half of the tail, the remainder of that organ being furnished with scales, and tapering to its extremity. The color of the scales is black. The entire under surface of the tail is covered with similar scales, among which are interspersed a number of bright chestnut hairs. The abdomen, breast, and inner face of the limbs are clothed with dense, brown, coarse hairs. It is a nocturnal, sleeping by day, and feeding by night.

COENDOO, OR BRAZILIAN PORCUPINE.—*Cercolabes prehensilis.*

SNAKE EATING SNAKE.

We do not know that either of the snakes shown in the engraving is a snake-eating snake, but it is certain that a portion of one snake, by accident or otherwise, has passed between the jaws and through a considerable portion of its body. The double specimen from which our engraving is made, and which we now have before us, was captured in a hay field near the village of Collinsby, Canada, by Mr. John Filmer, a well known engraver of this city.

It is Mr. Filmer's opinion that while thrusting the fork into the hay to get a lift he must have struck the belly of the larger snake, making the opening through which the smaller one was partly liberated. Both snakes were alive. The larger one is familiarly known as the garter snake; the smaller one as the common brown snake.



SINGULAR RESULT OF A SNAKE ENCOUNTER.

Sea Snake Caught in Submarine Telegraph Wire.

Mr. Moginie has called upon me, says Frank Buckland, the celebrated naturalist, in *Land and Water*, with a lovely specimen of a sea snake which he wanted properly mounted in a bottle for the board-room of the Eastern Extension Telegraph Company. One of the cables belonging to this company was being raised from the bottom of the sea, I believe in the Indian Ocean. When the cable came to the surface the snake in question was found coiled tightly round the telegraph cable. Luckily it was killed before it could do any mischief, as these sea-snakes are excessively poisonous. In the College of Surgeons there is a sea snake which crawled up the anchor chain of a man-of-war when she was moored in the mouth of the Ganges. The midshipman of the watch saw something moving along the chain, and without thinking, went to pick it up. The venomous brute immediately turned upon him and bit him. The poor young midshipman did not live many hours after the accident. Mr. Moginie's snake is about a yard long, and the general color of it is white, and it is most beautifully marked on the back with black, or rather dark chocolate, patterns.

The tail is, as in all sea snakes, quite flattened, like the end of an oar. This, of course, gives the animal great power of swimming. My friend, Dr. Day, luckily came in just as I was consulting Sir Joseph Fayrer's magnificent illustrated work on the "Venomous Snakes of the Indian Peninsula." and I am now enabled to give the following account of it by Dr. Day:

"The example of sea snake (*Pelamis bicolor*) which you showed me as having been killed by a deep sea telegraph wire in the Indian Ocean is a species having a very wide geographical range. I have taken an example in Scinde, another in Orissa, while it is reported to extend throughout the subtropical and tropical portions of the Indian Ocean. I have only met with a few examples, and do not look upon it as nearly so common as the blue-banded *enhydrina*. All these seasnakes, I need scarcely observe, are exceedingly venomous.

"This instance recalls to my mind a circumstance which," continues Dr. Day, "occurred off the coast of Beloochistan, near the Persian Gulf, in 1871, when the telegraph cable was ruptured. A few days subsequently the dead body of a whale was discovered on the sea beach, and I think the end of the cable was found wound round the animal's tail, just in front of the tail fin. It appeared to me that the accident must have occurred somewhat in the following manner, premising that (as all know) the tail fin of a whale is placed transversely to the body, and not as in a fish. If the telegraph wire passed from one rock to another, or from an elevated spot to the bottom of the sea, it would not be difficult to imagine that a whale swimming past might very easily become entangled. Should its transverse tail have hitched over the wire the animal would become frantic, and rolling itself round and round, it might burst the wire in two, but still be held fast, due to telegraph wire encircling its tail just below the origin of the fin."

Intellect in Brutes.

The Duke of Argyll, in his "Reign of Law," was, I think, the first who promulgated the dictum that man is the only tool-making animal. As far as I can ascertain, this assertion is admitted by developmentists, yet it is undoubtedly true that the Indian elephant makes two *implements*, or forms and alters certain things so as to adapt them specially to fulfill definite purposes, for which, unaltered, they would not be suitable.

One evening soon after my arrival in Eastern Asam, and while the five elephants were as usual being fed opposite the Bungalow, I observed a young and lately caught one step up to a bamboo stake fence and quietly pull one of the stakes up. Placing it under foot, it broke a piece off with the trunk, and after lifting it to its mouth, threw it away. It repeated this twice or thrice, and then drew another stake and began again. Seeing that the bamboo was old and dry, I asked the reason of this, and was told to wait and see what it would do. At last it seemed to get a piece that suited, and holding it in the trunk firmly, and stepping the left fore-leg well forward, passed the piece of bamboo under the armpit, so to speak, and began to scratch with some force. My surprise reached its climax when I saw a large elephant leech fall on the ground, quite six inches long and thick as one's finger, and which, from its position, could not easily be detached without this scraper, or scratch, which was deliberately made by the elephant. I subsequently found that it was a common occurrence. Leech scrapers are used by every elephant daily. On another occasion, when traveling at a time of year when the large flies are so tormenting to an elephant, I noticed that the one I rode had no fan or wisp to beat them off with. The mahout, at my order, slackened pace and allowed her to go to the side of the road, where for some moments she moved along rummaging the smaller jungle on the bank; at last she came to a cluster of young shoots well branched, and after feeling among them, and selecting one, raised her trunk and neatly stripped down the stem, taking off all the *lower* branches and leaving a fine bunch on top. She deliberately cleaned it down several times, and then laying hold at the lower end broke off a beautiful fan or switch about five feet long, handle included. With this she kept the flies at bay as we went along, flapping them off on each side every now and then. Say what we may, these are both really *bona fide* implements, each intelligently made for a definite purpose.—*S. E. Peal, in Nature.*

Mating of Queen Bees.

At the late Bee-keepers' Convention, Chicago, Professor J. Hasbrouck, of Bound Brook, N.J., after relating many failures, went on to state the plan which he had finally found successful. It was as follows:

I took an empty sugar barrel, clean and tight, with a cover fitting tightly over the upper hoop, and into this cover I cut a round hole about four inches across in the center, and fastened a piece of glass against it on the under side. I now waited until I had the queen again in the trap, which happened about 2 o'clock. I put three drones with her, and threw them all into the barrel, standing in the bright sunlight, and quickly closed the lid. They all immediately flew to the glass, and before I had got ready to look at them fairly, the queen had mated with one of the drones. I took the barrel into a room and caught the queen and returned her to the nucleus. I had two other young queens which I expected would soon be out, and I had traps then set to catch them; but in my anxiety to see if the thing could be done again, I could not wait for them to come out, so I went to the hive and caught one of these queens with a queen cage and put her into the barrel with drones. She mated about as quickly

as the other. I next tried the third, and she likewise mated; not one of the three being in the barrel five minutes.

This was my last queen for the season. But I have done. I can hardly expect that every queen will mate as soon as these did; but the arrangement, simple as it is, accomplishes everything that seems to be necessary—namely, it induces the bees to fly without the loss of any time, to fly in close proximity to each other, and to keep constantly turning so as to notice immediately a mate when near; and so, I believe that queens can be put through the process with sufficient rapidity to make the method satisfactorily practical. With the right kind of a fertilizing cage, it does not appear to be essential that the queen should be caught on her way out to mate. I think she should be confined to the nucleus, till she is certainly old enough to mate, and then picked out and put into a fertilizing cage; but neither she nor the drones should be taken hold of with the hands nor squeezed or touched with anything that would daub them in the least.

Observing this caution, I think that any bee-keeper who will try, can in this way have all his queens fertilized in confinement; while the trouble required is as nothing compared to the loss he can prevent, and the control he can exercise over the purity and improvement of his stock.

J. Boggs, of Havana, Ill., gave his experience in the matter. He had covered over a hive in which were some queen cells with mosquito netting. When one of the queens hatched out and flew against the netting she had mated with a drone.

Mr. Clemet, of Iowa, had tried an experiment almost similar, and with equally good results.

Mr. King, of New York, stated that he had a correspondent in North Carolina who stated that he had been successful in fertilizing artificially.

An Oil-Producing Insect.

We extract from *La Emulacion*, published at Merida, Yucatan, the following notes on an interesting insect to which we briefly referred not long ago. This insect, which has considerable economic use in Central America, belongs to the same genus as the cochineal, and is called by the native name of "ni-in." Being unknown to science, the author names it *Coccus adipofera*. The females are of a coral-red, and are covered with a fine whitish powder. They live on trees belonging to the genus *Spondias*, and known as "hog plums," their food consisting of the sap. They adhere to the trees by means of their beaks, remaining motionless, and existing in such large numbers that they frequently cover every portion of the plant.

There is extracted from these females 26 to 28 per cent of their weight of a bright yellow fat having an odor *sui generis*, and which when recently melted is homogeneous, but in a short time becomes granular and of a lighter color. It is the most quickly drying oleaginous substance known, since it becomes immediately covered over with a pellicle full of wrinkles and folds; and, if this pellicle be dipped into the grease to exclude its surface from contact with the air, the whole mass shortly becomes transformed into an infusible and insoluble resinous substance. Applied to paper or any other surface, this grease dries in six or seven hours so as to form a smooth lustrous surface, and almost odorless. Mixed with copal, or any other resin, and turpentine, it forms a golden-yellow drying varnish. Its melting point is 36°. Heated to a temperature of 200° to 210° until it becomes glutinous, it changes on cooling into a bland elastic mass (caoutchouc of ni-in) which is almost insoluble in spirit of turpentine, but soluble in bisulphide of carbon. In 95 per cent alcohol it is but slightly soluble. The various properties of this fatty matter, and its behavior with acids and alkalies, prove that its chemical composition differs from that of all other oils known. Like all drying oils, it forms by the action of heat a glutinous substance; but, while heat is indispensable to make such oils more siccative, the ni-in grease loses a portion of this property through heating. The elastic substance of oils is soluble in ether, and especially in turpentine, but that of ni-in is nearly insoluble in these materials.

In some localities in Central America this oil is largely employed for painting wooden utensils, such as ladles, etc., a mass being made with color, chalk, and the grease, and applied precisely as in ordinary oil painting. It has been observed that articles painted with it may be preserved for a long time. Guitar manufacturers also use the grease in varnishing their instruments. As yet it has received no application in pharmacy. It is probable that the ancient race which formerly peopled Central America used this grease in painting their buildings, and it is for this reason that, after a lapse of several centuries, the decorations are still to be seen in that perfect state of preservation which caused the admiration of Mr. Stevens when he visited these ruins in 1842. The journal above quoted trusts that attention will be paid to the propagation, instead of the careless destruction, of the insect, to the end that a native industry may spring up which will give the country a supply of oil that shall prove a substitute for linseed oil, which is now imported from foreign lands, and which, it adds, is often adulterated with fish oil.

Skatol.

In his researches on the volatile substances contained in human fæces, Brieger isolated a series of bodies belonging, some to the fatty and others to the aromatic class. The principal aromatic product of the decomposition of albumen in the intestinal canal, is a substance resembling indol, to which he has assigned the name skatol. It crystallizes in brilliant white plates and possesses an intense fecal odor. It fuses at 93·5°, and is difficultly soluble in water. Warmed with dilute hydrochloric or nitric acid, it gives a violet color. Analysis gives it the formula C_9H_9N, its vapor density being 65·2. Blood albumen, digested with pancreas and water at 36° C. for six to ten days, yields skatol on distillation. Two and a half kilogrammes albumen gave one gramme of skatol.—*Ber. Berl. Chem. Ges.*

How English Carpets were Driven out of American Markets.

Commenting on the influence of the power looms invented by Erastus B. Bigelow, whose recent death was noticed in a late number of this paper, a contemporary says:

Prior to Mr. Bigelow's invention America was making ingrain carpets, but the demand was limited and the popular impression favored English goods. The adoption of his loom by the Lowell Company at once sent the products of that now famous corporation to the front, and for a while the good housewives of the country would have no other. From that time the trade has steadily increased until to-day, with the exception of a few yards of such goods as those designed by Mr. Morris, no such thing as a foreign ingrain is ever seen in this market, the total importation of their goods last year being $957, while the city of Philadelphia alone last year made over twenty million yards, mostly ingrains, and the Lowell and Hartford Companies, E. S. Higgins, Stephen Sanford, D. M. Read and others added several millions more. The enormous extent of American consumption can be seen from the fact that the total production of Great Britain in all kinds of carpets was less than fourteen million yards.

In other grades of carpets the advance has been no less astonishing. Next in popularity and extent of consumption to the ingrain come the tapestry Brussels. A glance at the figures of the Custom-House will probably surprise the uninitiated reader. Beginning with the time when importations were at their highest, the following are the numbers of square yards of tapestry carpets landed in this country:

1871-2	2,759,000	1875-6	546,000
1872-3	2,958,000	1876-7	279,000
1873-4	2,099,000	1877-8	94,000
1874-5	1,454,000	1878-9	23,000

On the other hand all the American manufactories were running on these goods in 1872 only 143 looms. There are now in operation, and in many cases running over-time, 649 looms, producing over 8,500,000 yards of (three-quarters wide) carpet. There are now going up or contracted for by various manufacturers 200 more looms, which will bring the production up to 13,000,000 yards.

In the more expensive body Brussels the importations have decreased in nearly the same ratio, as follows:

1871-2	1,168,000	1875-6	256,000
1872-3	868,000	1876-7	132,000
1873-4	638,000	1877-8	93,000
1874-5	410,000	1878-9	55,000

It is noticeable, moreover, that our machinery has improved with equal rapidity, until to-day the Murkland or Duckworth looms are almost as much better than the old Bigelow looms as these were better than their predecessors.

An Englishman's View of Protection.

In a long letter to the Sheffield *Daily Telegraph*, discussing the causes of industrial depression in England, Mr. Edward Sullivan, of Sheffield, uses some plain language with regard to "the sophisms, the paradoxes, the theories of Free Trade." He says: "In America, France, Belgium, Germany, Switzerland, Holland, in fact, wherever the common sense of mankind is allowed to assert itself, the first and great commandment, the 'whole law and the proph ets' of political economy is allowed to be this: 'That national prosperity depends on general employment.'

"The skill or industry of the workman in his trade is his capital, 'the capital of labor;' in an industrial community the capital of labor is the chief productive capital of the country, but without general employment it is valueless. It is general employment that turns over this capital, and makes it increase and multiply.

"The 'capital of labor' cannot afford to remain long idle. If employment is denied in one place it speedily emigrates to another more congenial.

"This is the first lesson of political economy as read by the light of universal suffrage in France and America, and so it would be the reading in England, too, if we had universal suffrage."

Further on he says: "America, France, and Belgium have never swerved in one single instance from their policy of protecting the employment of the people; and what is the result?—that the capital of labor has been steadily turning over, accumulating and multiplying, and enriching all classes of the community. In America, especially, the effect of protecting the employment of the people has been little short of marvelous. The best workmen of England have flocked to her; industries that ten years ago had no existence, have sprung into vigorous life; she has multiplied her make of Bessemer steel eighteen times in ten years; she has seven hundred iron works in full operation; she now supplies herself in almost every manufactured article she requires; and neither war nor rebellion, nor debt, nor soft money, nor hard money, has been able to cause more than a temporary derangement of her prosperity.

"This is the country that Mr. Vivian tells us, in his interesting notes on America, 'has the curse of protection upon it,' 'and,' adds he, with a genuine burst of free trade fanaticism, 'where man interposes his short-sighted laws, the best provision of Providence is shackled and blighted.' Are we to understand that America is shackled and blighted, or merely that free trade has a Divine origin?

"We see what America is. What she would have been if free trade had been her destiny instead of protection we can easily realize. There would be no iron works, no cotton works, no glass works, no paper factories, no teeming hives of industries; every manufactured article would be imported from Europe. Her iron and coal mines would be still undeveloped; she would remain a purely agricultural country, like Russia, and her progress and civilization would be indefinitely postponed."

David Haviland.

David Haviland, of New York, founder of the firm of Haviland & Co., porcelain manufacturers, of Limoges, France, died December 12, in his sixty-fifth year. Mr. Haviland was born in Westchester County, N. Y., in 1814. In 1836 he was engaged in the importation of English earthenware, but owing to the superiority of the French ware he visited France in 1840.

Resolving to discover if possible the secret of the production of French porcelain, Mr. Haviland went to Paris and afterward to Forcy, but finding himself unable successfully to prosecute his work in those places, he finally established himself in 1842 at Limoges, the only place where good kaolin is to be found in France. Here he built his manufactory. The industry of porcelain had then hardly obtained a footing, and Mr. Haviland found that he was obliged to manufacture everything connected with the work. However, despite the many difficulties to be surmounted, the undertaking did not prove too formidable for his energy and perseverance He began to make shapes, and employed four professors to educate 200 pupils, as no good painters were then to be found in the place. At first he did not attempt to make any porcelain, but he soon was able to undertake its manufacture. With the increase and development of the business many improvements were made, so that a great part of the modern process of manufacturing and decorating this kind of ware originated with his firm. The faience called the Limoges would more properly be called the Haviland, since it is all produced at their Auteuil factory, it being impossible, it is said, to secure at any distance from Paris artists of sufficient reputation to paint this ware.

The Limoges factory is in the center of the city, and covers three acres of ground. There are nine double kilns for porcelains, twenty-one muffles for fixing the decorations, and about 1,200 persons are continually employed.

The Healing Power of the Imagination.

The records of medical practice are full of illustrations of the influence of the imagination, for good or evil, over the functions of the body; and philosophy finds in them a key to the wonderful persistence of many popular superstitions. The firm belief that any disastrous physiological result, even death itself, will surely follow a given act or occurrence, is very apt to bring about the dreaded calamity; and every repetition of the seeming sequence of cause and effect, tends to confirm and strengthen the mischievous belief. As a means of counteracting this tendency of perverted imagination, charms for averting evil often play a really beneficial part. The protection is as imaginary as the dreaded evil; but, assuming a belief in the fictitious danger—a belief strongly tending to make the danger real, the charm substitutes a more hopeful belief, and the danger ceases.

A curious illustration of this action of the mind is reported from San Francisco, in connection with a case of transfusion of blood. An aged negro, at the point of death, was saved by this operation, the blood—about eight ounces—being taken from his wife's arm. The man recovered, but the woman went into a curious decline, against which tonics and nourishing food were of no avail. At last the patient confided to the doctor the secret of her ailment, which kept her from resting day or night. "I tell you, doctor," she said whisperingly, "its that blood of mine the old man is carrying about inside of him; and, doctor, when that old man comes back, I want you to give me my blood back." The doctor, seeing that the woman would not be appeased unless he complied with her request, promised to return the next day, first informing her of the dangers of the operation, and that it was resorted to only in the most urgent cases. She would hear of no explanations, but demanded that the operation be gone through with. It was accordingly done the next day, the doctor taking from the man about half an ounce of blood and transfusing it into the woman's veins. After the operation the woman brightened up perceptibly, saying, "I'll be all right now, doctor." And that the operation did prove a success was fully demonstrated by the sick woman, who began work a few hours afterward, declaring that the "doctor was a wonderful man, and now that she's got her own blood back again she was all right."

The Electric Light at Sea.

The pioneer in the use of the electric light in passenger steamers, the Inman steamship City of Berlin, arrived at this port, October 14. Six electric lamps were employed, four in the main saloon and two in the steerage, each of 400 candle power. The passengers expressed themselves as highly delighted with the new method of illumination.