about three fourths of an inch long, of greatest diameter at the base and tapering to the apex. At the base of this peculiarly formed corolla there were three spurs about one third of the circumference of the corolla apart. The apex of the corolla terminated in a circular crown, which was orange-colored, like the palate in the ordinary flower. At the upper end of the tubular corolla, close to the orange-colored crown, there were three petal-like tips equally distant from one another.

J. B. Turner

THE INDIAN BEDBUG AND THE KALA AZAR DISEASE

It is not generally known by the entomologists of this country that the common bedbug of India is not *Cimex lectularius* Linnæus, but *Cimex rotundatus* Signoret (= *macrocephalus* Fieber). Captain W. S. Patton, of the Indian Medical Service, has recently published important papers on this insect, especially in regard to its pathogenic relations. In a brief note on the distribution of these two house-infesting bedbugs published in the *Indian Medical Gazette,* XLII., February, 1907, he points out the above-mentioned fact, and leads us to form the opinion that enough observations have not been made along that line. *Lectularius* is apparently distributed mainly throughout the North Temperate Zone, while *rotundatus* is tropical or subtropical; and though until very recently known from Burma only, it is now recorded by Dr. Patton as occurring throughout India, Assam, Malay, Aden, Mauritius and Réunion (Patton, *ibid.*) and still more recently (Patton, April 4, 1907, *in litt.*) it is recorded from St. Vincent, Sierra Leone and Porto Rico. I have specimens from Madras Presidency (South India), Réunion, Mauritius and St. Vincent, kindly sent by Dr. Patton.

These facts in regard to the distribution of the Indian bedbug become of economic importance in view of the now definite evidence which Patton presents that the dreaded kala azar disease of India is carried by that insect. This evidence is published as No. 27, new series, *Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India,* Calcutta, 1907, and is entitled 'Preliminary Report on the Development of the Leishman-Donovan Body in the Bedbug.' By the means of extensive experiments with bedbugs, it is fully demonstrated that these bodies, the cause of the disease, are ingested from patients and go through considerable development. In a postscript to this paper, Patton states that all of the intermediate stages of development and fully developed flagellates have since been found in the insect, and he states his belief that 'it is beyond all doubt that this insect transmits the disease.' Owing to conditions, it is impossible for him to test this directly by exposing healthy persons to the attack of infected bedbugs, but as it is, the evidence is complete and all of the facts point to the conclusion reached by Dr. Patton.

The establishment of this relation of the Indian bedbug to the transmission of a much-dreaded disease naturally directs our attention again to the pathogenic relations of our own common household pest, *Cimex lectularius* Linnæus, which is now under investigation by some of the medical profession.

A. Arsène Girault

Washington, D. C.,
May 25, 1907

SPECIAL ARTICLES

THE SOLENODON OF SAN DOMINGO; ITS EXTERNAL CHARACTERS AND HABITS

A specimen of this rare and curious insectivorous mammal (*Solenodon paradoxus*) recently obtained by Mr. A. Hyatt Verrill in San Domingo and preserved in formol, has been submitted to me for study. Owing to the introduction of the mongoose and other causes this creature has become very rare and local. It is, without doubt, on the verge of extinction. At present, it is scarcely known in the great museums of Europe, and no specimen is known to be preserved in any American museum. A single skeleton is said to exist in the museum of Berlin. The only other *Solenodon* (*S. cubanus*), of eastern Cuba, is said to be nearly or quite extinct. It is a smaller and more hairy species, with shorter tail

The San Domingo specimen is about 14 inches long, to base of tail; the tail is 13 inches long, round and scaly, like that of a rat. The long, tapered, flexible snout is naked and pinkish white. The body is mostly covered with long, coarse, brown hair, which becomes finer and light yellowish brown or tawny on the head, shoulders and neck. The hind quarters and thighs are partly naked and covered with rough, wart-like excrescences and irregular coarse wrinkles. The fore legs are strong, with large stout claws, which are less curved than in the Cuban species.

It is nocturnal in its habits, living by day in the deep holes and crevices of the cavernous limestone. It feeds, in the wild state, largely on insects and their larvæ, tearing old logs and stumps in pieces to obtain them. But it will also eat the eggs and young of birds, as well as various fruits, and sometimes it is destructive to young poultry, it is said. In confinement it is almost omnivorous and will eat meat freely. This specimen is a female. It gave birth to three naked young ones soon after its capture, but very soon devoured them. It is said to be very stupid when pursued by dogs.

A. E. VERRILL

A NOTE ON THE HAMMERHEAD SHARK (SPHYRNA ZYGÆNA) AND ITS FOOD

DURING the third week in July, 1906, several large sharks were seen, at high water, in various parts of the harbor of Beaufort, N. C. On the twentieth Captain Ed. Robinson, of the sharpie *Gladys,* harpooned one which was chasing large sting-rays (*Dasyatis say* is the form most common at Beaufort) over some sand flats. The harpoon tore out, but, when the fish came up again, another throw was more successful and the shark, which proved to be a hammerhead, was secured. Practically all those who have recorded the capture of hammerheads have noted that when hooked they made violent efforts to escape. This one, when harpooned, made so little resistance that Captain Robinson in describing its capture expressed considerable disappointment at the tameness of the affair. This capture was made in a narrow channel within two hundred yards of the wharves of the business part of Beaufort. Eighteen hours later I secured the fish, towed it over to the laboratory wharf and swung it up by a block and tackle to a davit, where it was photographed, measured and dissected.

This was the largest shark ever captured in Beaufort Harbor, and it was carefully measured. Thinking that these measurements may be of interest and value, I give the most important. Length all over, 12 ft. 6 in.; length of 'hammer' between eyes, 3 ft.; girth at first gill-slit, 4 ft. 2 in.; girth in front of pectorals, 4 ft. 2 in.; in front of pelvics, 4 ft. 1 in.; at root of caudal, 1 ft. 6 in.; length of right pectoral fin, 2 ft. 1 in.; of dorsal, 2 ft. 6 in.; of right pelvic, 1 ft. 1 in.; of second dorsal, 10 in.; of ventral lobe of caudal, 1 ft. 7 in.; of dorsal lobe of caudal, 3 ft. 6 in. There being no means at hand for weighing the animal, estimates only could be made, but, judging by the number of men required to hoist it with a tackle having three pulleys, it must have weighed at least 800–1,000 pounds.

This shark was a female and was dissected with the hope that embryos might be found in the uteri, but all the generative organs were practically unrecognizable. This was due to the stones thrown down the gullet by boys while it was hanging overboard the sharpie (the head being above water), and to the churning brought about by the movements of the tide and by its being successively hauled up for people to inspect and let go into the water again. The posterior cardinal sinuses were in good condition and were as large as a man's thigh. Their walls were cavernous by virtue of the extraordinary development of the tendinous prolongations of the lining membrane.

The stomach contained, in addition to the stones above mentioned, an almost perfect skeleton of a fair-sized sting-ray together with many cartilaginous fragments plainly having the same origin. However the most interesting thing found in the beast was the great number of sting-ray (*Dasyatis say?*) stings present in the body and mouth. In the process of skinning the fish, several were found in the neck region and in the back. However, in cutting out the jaws for a museum specimen,