servant, noticing that one of the horses was very restive, went to see what was the matter, and fancying he could distinguish something, suddenly put his hand on the beast's withers, and secured the vampire. In the morning the spot where the bite had been inflicted was easily distinguished from being slightly swollen and bloody. The third day afterward we rode the horse, without any ill effect.

Concerning the vampires, Flower and Lydekker write:

> These Bats present, in the extraordinary differentiation of the manducatory and digestive apparatus, a departure from the type of other members of the family unparalleled in any of the other orders of Mammalia, standing apart from all other mammals as being fitted only for a diet of blood, and capable of sustaining life upon that alone. Travellers describe the wounds inflicted by the large sharp-edged incisors as similar to those caused by a razor when shaving: a portion of the skin being shaved off and a large number of severed capillary vessels thus exposed, from which a constant flow of blood is maintained. From this source the blood is drawn through the exceedingly narrow gullet—too narrow for anything solid to pass—into the intestine-like stomach whence it is probably gradually drawn off during the slow process of digestion, while the animal, sated with food, is hanging in a state of torpidity from the roof of a cave or the inner side of a hollow tree.

The sanguivorous nature of the vampires has thus long been known to mammalogists, but so far as I recall, these bats have never been referred to as among the parasites of man or other mammals. If many of the blood-sucking arthropods, such as the bedbug, are parasites, surely the vampires must be so classed.

The vampires range in distribution from Mexico, through Central America and throughout the warmer parts of South America. Several forms of them are known, being placed in three genera, *Desmodus Diphylla* and *Diaemus,* the last known only from Brazil and Guiana. Contrary to popular belief, these bats are of small size, the length of head and body being but about three inches. They are fairly common in many places and consequently must do considerable biting in order to exist.

No instance is recalled in which their attacks on human beings have resulted in more than trifling annoyances. Goldman[3] quotes Dr. Linnaeus Fussell, who had medical charge of a U. S. Government surveying party in eastern Panama in 1870 as follows:

> The bites of vampire bats should be referred to, as the stories told of them are by many deemed rather apochryphal. We were troubled with them more or less during the whole time we were out, but ordinarily they did not prove a serious annoyance; toward the latter part of our trip, however, someone was bitten almost every night; one night, the 13th of May, nine men were bitten. The men were rarely awakened by the bites, which, however, bled freely, sufficient blood being usually lost to saturate the clothing and to show its effects very perceptibly in the loss of color and general feeling of weakness experienced.

[3] "Mammals of Panama," Smith. Misc. Coll., Vol. 69, p. 209, 1920.

The same manner of attack and the apparent lack of sensation in the act of biting is described by William Beebe.[4] He says of them:

> For three nights they swept about us with hardly a whisper of wings, and accepted either toe, or elbow, or finger, or all three, and the cots and floor in the morning looked like an emergency hospital behind an active front. In spite of every attempt at keeping awake, we dropped off to sleep before the bats had begun, and did not waken until they left. We ascertained, however, that there was no truth in the belief that they hovered or kept fanning with their wings. Instead they settled on the person with an appreciable flop and then crawled to the desired spot.

Although the vampire bats must be regarded as among the free-living or temporary ectoparasites of man and other mammals, they can scarcely be regarded as more than curiosities in the field of human medicine. They are very much more easy to secure protection from than are mosquitoes and bedbugs. It has never been shown that they are carriers of any infection. In the field of animal husbandry they may at times be of more than passing interest.

MARCUS WARD LYON, JR.

SOUTH BEND, IND.

CONCERNING EARLY DIAGNOSIS OF WHOOPING COUGH

BEFORE diagnosis is attempted by the cough-plate method,[1] the beginner should master three important technical steps:

(1) The medium should be sterile, bright red and the surface should not be dry.

(2) A series of Petri dishes should be inoculated with B. pertussis and the small, discrete, round, elevated, shiny gray colonies should be studied from day to day. On the third to fifth day the colony approximates 1 mm in diameter and is surrounded by a zone which appears translucent in transmitted light and darkened in reflected light.

(3) Duplicate plates should then be exposed to early cases of known pertussis. Over-growth by mouth saprophytes can in part be avoided if the child drinks water just before the plates are exposed. An

[4] "Edge of the Jungle," p. 18, 1921.

[1] L. W. Sauer and L. Hambrecht, "Whooping Cough—Early Diagnosis by the Cough-Plate Method," *J. A. M. A.*, vol. 95, p. 263, July 26, 1930.

uncovered plate is held vertically, a few inches from the open mouth at the moment of expulsive coughs from the deeper bronchi. The plate should be incubated at 37° C. within a few hours, and be examined daily for four or five days. Rapidly growing saprophytes should be cut out with sterile platinum wire. The characteristic, zoned colonies usually appear on the third to fifth day. A hand lens used in bright light is helpful in finding the raised, circular colonies in thickly seeded plates. Poorly exposed plates should not be incubated. After mastery of the technic, aluminum boxes (4 cm × 1.5 cm) may be used. They require less medium, can conveniently be carried, and dry out more slowly (broad rubber band over seam).

Pertussis organisms are minute, oval, gram-negative bacilli which stain feebly. Polar staining may be present. If the cough has already persisted for several weeks, plates exposed to the other, susceptible children of the family will more likely be positive. A negative plate does not exclude pertussis, and a second plate may be positive. If the cough has persisted too long, or if it is not whooping cough, pertussis bacilli will not be found.

LOUIS W. SAUER

EVANSTON, ILLINOIS

THE FINDING OF LARGE CENTIPEDES IN WYOMING AND WESTERN NEBRASKA

ANY one acquainted with the Southwest is also more or less familiar with the wide-spread occurrence of centipedes, in sizes of two or three inches up to eight or more inches in length; and one of the items that has been considered an advantage to camping in the North is the absence of these pests. The writer has spent parts of every year for more than twenty-five years past in camp pretty well all over the region in question, and in contact with many others very familiar with such matters, and it has been a generally accepted belief that east of the Rockies in Colorado none of the centipedes of material size were ever to be found north of Colorado Springs and but very seldom north of Raton Pass along the New Mexico-Colorado border.

It was with astonishment, therefore, almost bordering on incredulity, that I heard Graham Bell Fairchild, student entomologist from Harvard University, casually mention killing about a four-inch centipede in camp about three miles south of Torrington, Wyoming, in the hills bordering the North Platte Valley, in the latter part of June, 1930. However, others were also killed here later this summer, and shortly after this members of the Country Club killed a four-inch centipede in the Country Club house at Scottsbluff, Nebraska, at a point about thirty miles east of the Torrington locality. These people thought it must have been a centipede brought in with fruit from the South in some fashion, but there would seem to be no chance of this being true at the Torrington locality. As local people who have lived all their lives in these sections and the surrounding region have never seen such centipedes before and as this is nearly five hundred miles north of the common range of such species the occurrence seems worthy of record. No attempt was made to identify the species, but the writer has requested that if others be found they be preserved in alcohol.[1]

HAROLD J. COOK

AGATE, NEBRASKA

THE EXCELSIOR GEYSER AGAIN

IN a letter from T. E. Hofer, Clinton, Washington, referring to my communication to SCIENCE, vol. lxviii, pages 644–645, I find the following testimonial to the vigor of Excelsior Geyser when it was active:

> Reading your Excelsior, Yellowstone Park notes, I was once crossing with a pack outfit about 200 yards below the geyser, when the darn thing exploded. We got all the animals safely across (on the geyser side), when the river rose about 10 inches, enough to have killed the whole outfit. The geyser threw out many rocks, some of them a foot square. I saw that geyser go off once after that. It was before a bridge was built.

EDWIN LINTON

ZOOLOGICAL LABORATORY,
UNIVERSITY OF PENNSYLVANIA

SPECIAL CORRESPONDENCE

THE ELLA SACHS PLOTZ FOUNDATION FOR THE ADVANCEMENT OF SCIENTIFIC INVESTIGATION

DURING the seventh year of the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation, seventy-eight applications for grants were received by the trustees, sixty-two of which came from twelve different countries in Europe and Asia, the remaining sixteen coming from the United States. The total number of grants made during this year was twenty-five, one of these being a continued annual grant. Twenty-one of the new grants were made to scientists in countries outside of the United States.

In the seven years of its existence, the foundation

[1] Since the above was written, several other reports have reached me of the finding of similar centipedes the past summer, including one in the gymnasium of the Chadron Normal College, at Chadron, Nebraska, reported to me by a student.—H. J. C.