facts. We have shown[1] both under practical and experimental conditions that the trouble is primarily one of phosphorus deficiency. We have demonstrated that it can be entirely prevented and completely cured by the continuous use of sufficient phosphate supplement in the ration. Apparently worthless cattle have become valuable producers after their cure. Limestone has practically no value in alleviating the conditions because it is rare to find animals in this region suffering from calcium deficiency. Bone meal, wheat bran, cottonseed meal and other feeds are effective because of their high phosphorus content. These facts are supported by the observations of Alway,[2] who finds that "phosphate hunger of the soils is very common and wide-spread" in the same region.

We do not wish to give the impression that the sulphate content of the water is of no importance in the difficulties mentioned. Ever since our investigation of this problem began in 1923 we have been trying to determine to what extent the excessive amount of magnesium sulphate in many samples of water in the affected region is a factor in augmenting the poor condition of the livestock. Although it was very clear from our first studies that this could not be the major factor, we have obtained some experimental evidence that magnesium sulphate may at times be of minor importance. However, the phosphorus deficiency overshadows it so greatly that we are no longer concerned with the water as a major contributing factor.

Readers who are not familiar with this problem may be interested to know that the regions of phosphorus-deficient soil and correspondingly poor livestock are not confined to Minnesota, North Dakota and Montana, mentioned by Dr. Allison. Similar conditions have been reported on the coastal plain of Texas, on both the Wisconsin and Michigan sides of Lake Michigan and in limited areas in New York. There is some evidence that the trouble occurs in the irrigated section of the Southwest and intermountain region. It is also rather common in other parts of the world—in Europe, Africa, Australia and New Zealand. The investigations of phosphorus deficiency in South Africa by Theiler[3] are the only ones comparable in extensiveness to our own studies in Minnesota.

The economic condition of many of the farmers in the affected regions of Minnesota is pitiable. The seriousness of the situation becomes apparent when it is realized that these people have no surplus cash income with which to start alleviating their plight through the purchase of fertilizers or proper feed supplements rich in phosphorus.

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[1] C. H. Eckles, R. B. Becker and L. S. Palmer, "A Mineral Deficiency in the Rations of Dairy Cattle," Minn. Agr. Exp. Station Bull. 229, 1926; L. S. Palmer and C. H. Eckles, "Effect of Phosphorus Deficient Rations on Blood Composition in Cattle," *Proc. Soc. Exp. Biol. Med.*, 24: 307, 1927; L. S. Palmer, C. H. Eckles and D. J. Schutte, "Magnesium Sulfate as a Factor in Retention of Calcium and Phosphorus in Cattle," *Proc. Soc. Exp. Biol. Med.*, 26: 58, 1928.

[2] F. J. Alway, W. M. Shaw and W. J. Methley, "Phosphoric-acid Content of Crops Grown upon Peat Soils as the Index of the Fertilization Received or Required," *J. Agr. Res.*, 33: 707, 1926.

[3] A. Theiler, "The Cause and Prevention of Lamziekte," *J. Dept. Agr.* (Union S. Africa), 1: 221, 1920.

AGE OF THE HOUNSFIELD BENTONITE

THE Hounsfield bentonite, here defined, has its type section in the small quarry just north of the Dexter-Brownville road two miles east of the town of Dexter, Jefferson County, New York; the township of Hounsfield is a mile south of the locality. In the quarry it occurs as a bed of gray-white, homogeneous clay reaching three eighths inch in thickness lying above the Leray limestone and below the Watertown limestone in the Chaumont formation of Ordovician, upper Black River age. In Ontario the Hounsfield occurs within the intermediate Glenburnie member of the Chaumont near Kingston and in the Coboconk limestone of the Lake Simcoe district; in the upper Mississippi Valley it is found consistently within two feet of the base of the Spechts Ferry member of the Decorah formation; the presence of the bed has been reported in Minnesota and Tennessee.

The fact that the Hounsfield bentonite has been found to occupy the position that it has in the type Black River section establishes a new basis for the correlating of beds in other regions within which the bentonite occurs with those in the type section.

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REGULATION OF BODY TEMPERATURE IN OPOSSUMS OF THE GENUS MARMOSA

RECENTLY in SCIENCE (April 25, 1930) under the title "Banana Stowaways Again," Robert K. Enders records another instance of the small marsupial, genus Marmosa, coming into this country with bananas from Central America. Since they are supposed to feed only on ripe bananas he is perplexed at their ability to withstand such a long journey without food, only green bananas being available, and in a temperature much lower (57° F.) than they are accustomed to in their native habitat.

It has occurred to me that possibly the explanation may be the very fact that they were kept in "cold storage" with a constant temperature of 57° F. during

the voyage to New York City and also during the seven days' trip from there to Albany.

It is known that the capacity for temperature regulation is imperfect in the lower mammals as the monotremes and marsupials. Sutherland reports the temperature of the wombat to be 34.1° C. Martin also suggests that the power of marsupials to regulate body temperature is less than that of higher mammals.

Might it not be possible that these small opossums of the genus Marmosa, kept in a subnormal temperature, were unable to maintain their body temperature and became lethargic or partially so with the consequent reduction of metabolic activities? Under such conditions no food taking would occur and with the metabolic rate greatly lowered the animals could survive extended periods of adversity. This would be still more plausible for the immature individuals as the young of many mammals do not have the regulation of body temperature well established at first.

It would be extremely interesting to make some observations on the variations in body temperature of this particular genus of opossums and also to find out their behavior when placed in an environment with the temperature as low as 57° F. It happens that this temperature approaches very closely to the ideal hibernating temperature of mammals exhibiting this phenomenon, with which I have had some experience.

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CONCERNING OWL ATTACKS

IN a note in SCIENCE for November 1, 1929, attention was called to the attacking of persons in Morgantown, West Virginia, by screech-owls, and a vague inquiry was made as to whether others had had a similar experience.

It was not long before the inquiry was answered so emphatically as to leave no doubt as to the fairly common occurrence of this experience.

Several answers appeared in forthcoming issues of SCIENCE, and the author received personal letters from more than a dozen individuals scattered from Oregon and Texas to Ontario, Canada. Several of the writers were college professors, two were physicians, one was an eminent chemist, one was apparently a lumberman and the occupations of the others could not be determined from their letters.

Several mentioned specifically the screech-owl as the attacking bird; one said the attack was by a great horned owl; one bird was apparently the snowy owl, and a few writers did not name the owl.

In most cases the attack was at dusk, though one was at dawn and one on a moonlight night.

Five of the writers said the owls had nests or young near by, and gave that as the cause of the attack. One writer thought the owl mistook the hair on the head of the person attacked for some mammal on which it preyed.

Several persons said that the owl swooped down close to the head, snapping its beak but not actually touching the one attacked.

A majority of the correspondents reported the victim struck with claws or beak and sometimes painfully injured. In one case a lumber-jack was said to have "carried a sore neck for a number of months." In another case a Louisiana Negro lost an eye by the attack of an owl.

In a certain part of one town policemen were much annoyed by the attacks of owls.

The following list will show the wide distribution of the persons reporting these owl attacks:

C. F. Adams, M.D., Indianapolis, Indiana; W. B. Anderson, Corvallis, Oregon; Hugh Bahlert, Pound, Wisconsin; W. W. Chapman, Mississippi; Watt Chung, New York; W. P. Flint, Illinois; L. S. Frierson, Shreveport, Louisiana; Forry R. Getz, Forest Hills, New Jersey; Arthur Goshorn, Winterset, Iowa; M. S. Green, New York City; R. T. Hall, American Museum of Natural History; H. Hapeman, M.D., Minden, Nebraska; Dr. A. G. Ingalls, Seneca Lake, New York; Chas. Macnamara, Arnprior, Ontario; G. W. Martin, Iowa City, Iowa; L. S. Owens, Lebanon, Ohio; Chas. L. Reese, Wilmington, Delaware; Maurice Ricker, Woodside, New York; Thos. B. Rogers, Orange, New Jersey; Clarence E. Shaner, Westminster, Maryland; A. Sion, Kyle, Texas; O. M. Smith, Stillwater, Oklahoma; T. C. Stephens, Sioux City, Iowa.

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HOMO SAPIENS, VAR. CHICAGOIENSIS

THE following excerpt from *Variety*, the theatrical trade paper, of July 30, may be of interest to the readers of SCIENCE:

What Chi Goes For

Chicago, June 29.

Astrology fortune telling joints are popping up along Michigan avenue.

All are getting a terrific play. Fad started with the opening of the Adler Planetarium on the lake front in Grant Park a few weeks ago. Star peeking house is now drawing 3,000 a day, with about half the number, as soon as they hit the boulevard again, hot-footing it to the star mitt readers, who are charging from $1 to $10 for connecting up the stars the folks saw with their destiny.

Play has become so strong local picture house chain is working desperately on a plan to bring some of the star gazers into the lobbies of their nearby houses, where it is planned to spot star teller.

RAMSAY SPILLMAN