acidity. The results obtained thus far mainly tend to emphasize the relation between the length of stay of the metal in the digestive tract and the degree of erosion. Thus, 100 small pieces of aluminum, which generally pass out of the stomach rapidly, have been given from time to time to rats without showing any loss in weight. Pieces of iron and steel, which remain longer in the stomach than aluminum, lost from about 0.1 per cent. (average of 200—1/16 inch stainless steel ball-bearings) to over 5.0 per cent. (average of 100 pieces of No. 18 gauge soft iron rod). Those pieces of iron and steel that remained longest in the stomach (up to 10 days) obviously lost much more weight than the average. A factor that also enters here is that, after the metal has been roughened by the initial erosion, further erosion proceeds at a faster rate. In one rat that was given a large amount of gold and silver in addition to some aluminum, a few pieces of aluminum rod (No. 20 gauge) remained about 3 days in the stomach and were eroded to the breaking point. At the usual gastric acidity of 0.5 per cent., or less, of HCl, aluminum resists erosion more than some kinds of steel and much more than soft iron. Hence, one might expect a fishhook to erode quite completely in a few weeks. Either these observations on mammals are not applicable to fish or Dr. Hurst's allowance of a year's time makes his report a typical fish story.[4]

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POLYDACTYLISM IN MICE

IN a strain of mice which carried factors for posterior duplication Danforth, in the *American Journal of Anatomy,* v. 45, 2, 1930, recorded the occurrence of extra toes on a number of animals. His investigations did not show any indication that the factor which governed the polydactylous manifestations was in any way distinct from that which governed the more pronounced effects (double feet, double legs and finally double posterior halves of the body). Rebaud, in Paris, 1919, reported polydactylous animals in a stock of mice which had an abnormal luxation of the posterior feet. The manner of the inheritance was not determined.

From a study of the literature which deals with visible characters in mice these are the only reports which have come to my attention that record the inheritance of polydactylism in stocks other than those which had been previously subjected to experimental treatment with roentgen rays.

Within the last few months polydactylism has expressed itself in a six-toed condition of the posterior feet in thirty-seven animals of a highly inbred strain of control mice in these laboratories.

The strain from which the polydactylism has arisen, as reported in SCIENCE (1931, 73, p. 482), recently underwent a mutation in hair color from chocolate brown to "leaden." At the time of the color mutation only one six-toed animal had ever been observed in the stock. This polydactylous individual was in the direct line with that of the color mutation but left no polydactylous progeny.

Among animals of the last few generations, however, the polydactylism has occurred eight times in the original stock mice, twenty-three times in pure stock mutants, and six times in the progeny from outcrosses between mutants and four unrelated strains in which the six-toed character has never been observed.

Polydactylism has been studied rather extensively in humans, guinea-pigs and poultry, and from these observations the condition is regarded as being inherited as a dominant character, expression of the character being controlled by certain unknown modifying factors. This nucleus of inbred mice offers a new species on which to investigate the method of inheritance of the character. From the preliminary matings between polydactylous mice it has already been shown that the six-toed condition does not breed as a simple recessive.

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TOXICITY OF SODIUM NITRATE FOR A SPECIES OF MOSS

IN an extensive series of experiments in Hampshire and Worcester Counties, Massachusetts, in which upland permanent pastures were top-dressed with Chilean sodium nitrate and other fertilizer materials, it was observed in 1929 and further confirmed in 1930 and 1931 that the nitrate was toxic to *Polytrichum commune,* a species of moss. This moss is common on "run-out" upland pastures of the New England states, the amount of moss present apparently being inversely proportional to the amount of available plant nutrients in the soil. The nitrate was used in amounts equivalent to 30, 60 and 90 pounds of nitrogen per acre. Toxicity was not as severe with 30 pounds of nitrogen in the form of nitrate as it was with 60 and 90 pounds. No definite evidence of direct toxicity from the use of limestone, hydrated lime, 16 per cent. superphosphate or muriate of potash was observed in 1930.

In 1931 a new experiment was begun in which were used the following materials: (1) Chilean nitrate of soda; (2) Arcadian nitrate of soda; (3) calcium

[4] M. Dobreff, *Pflüger's Archiv,* 217, 221, 1927, reports the finding of as high as 0.69 per cent. free HCl in the stomach of sharks.

nitrate; (4) by-product ammonium sulfate; (5) calcium cyanamid; (6) urea; (7) potassium nitrate; (8) potassium chloride; (9) sodium chloride. These materials were applied to an area infested with *Polytrichum commune* at the rate of 30 and 60 pounds of nitrogen per acre in case of the nitrogen carriers, and the chlorides were used in chemically equivalent amounts. Application was in the spring. Observations made at the close of the season showed the highest degree of toxicity from sodium and potassium nitrates used in the higher amounts, followed by the sodium and potassium chlorides in chemically equivalent amounts and by sodium and potassium nitrates at the smaller rates. The other nitrogen carriers, including calcium nitrate, showed no toxic effects.

From observations thus far made it appears that toxicity of certain nitrates for this species of moss seems to be due primarily to the sodium and potassium ions. However, the cationic effect seems to be linked somewhat with the anionic effect, for, with one exception the nitrates were more toxic than the corresponding chlorides. This observed toxicity is not an indirect effect, that is, a crowding out of moss by other vegetation, as was first supposed, but is an actual killing of the moss. The effect is immediate and in proportion to the amount of sodium nitrate applied. It is also cumulative, so that after several smaller applications the effect is similar to that of a single larger application.

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PREHISTORIC MOUNDS IN SOUTH FLORIDA

SEVERAL professors connected with the University of Miami have been working on a mound recently discovered on Key Largo which is suspiciously Mayan in character. It is a stone structure carefully constructed by aboriginal masons and is strikingly like several structures in British Honduras. The character of the pottery found in the neighborhood indicates a foreign origin, since there is no pottery clay in Southern Florida. It is black and hard like the pottery of Yucatan. Obsidian knives and other remains discovered in the vicinity of the mound are also indicative of foreign influences. Various canals and small harbors dug in this region indicate that Southwestern Florida was once inhabited by a numerous and enterprising population. The Mayans were great seamen and traders and it is more than likely that they settled in Florida. The abundance of game, especially fish and shell-fish, would have been a great attraction. There is reason for believing that the Calusas were of Mayan stock and that even the Seminole may have Calusa blood in his veins. This region will be included in the proposed National Everglades Park and it is hoped the Seminoles may be used for guards and guides.

The University of Miami, under whose auspices the preliminary researches have been made, will continue its investigations in this region and will later publish fully the results of its studies.

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SCIENTIFIC BOOKS

Comité national français de Géodésie et Géophysique. Assemblée générale du 9 mai 1931. Au Secrétariat général du Comité. Rue d'Anjou, 78, Paris 8e.

THIS publication gives the proceedings of the 1931 annual meeting of the French National Committee on Geodesy and Geophysics. These proceedings cover only some nine pages. The remainder of the volume of over 90 pages is occupied with reports of the sections dealing with the various special branches of geophysics and with membership lists. The reports themselves are summaries, or sometimes summaries of summaries, so it would be rather absurd to carry the process of summarization still farther in this review. The reviewer will therefore confine himself to making a few general remarks, based on this publication as a text, and to mentioning a few of the items found merely because they happen to be connected with fields of work in which he is especially interested or to strike his fancy as odd or noteworthy. A different reviewer would no doubt find texts for different sermons and would single out different items for special mention.

It is instructive to read publications of this sort. They bring before the reader the great diversity and the wide ramifications of geophysics and, in spite of these, its essential unity. The subjects treated in the different sectional reports vary greatly, but the membership of the sections overlaps extensively (just as it does in the case of the American Geophysical Union), and everywhere problems are encountered that concern more than one section. Geophysics extends on one side into geology and geography, on the other sides into technical physics and astronomy. If any one is to be immune from the dangers of too narrow specialization, the geophysicist ought to be.

The meeting of the French National Committee looked both to the immediate past and the near future.