The essays are intended to be of moderate length, and must be delivered in triplicate copies at the office of the Royal Anthropological Institute by the first of January in the year when they are to be considered by the committee. The first award of the medal will be made next year.

THE *Journal* of the American Medical Association reports that the Prince Leopold Institute of Tropical Medicine, recently established at Antwerp, has for its purpose the creation and maintenance of a school of hygiene and of tropical medicine, for the training of colonial physicians and sanitary agents; for the study of all problems pertaining to the etiology and the therapeutics of tropical diseases, and to establish laboratories and clinics as annexes of the school. The courses given in the new institution will be organized in such a manner as to meet the requirements of the curriculum established by the minister of the colonies for physicians in the government service.

THE London *Times* reports that a new development in the scientific investigation of those problems of marine biology the solution of which is of importance to the fishery industry was marked by the formal opening at the University College of Hull of new fishery research laboratories for the department of zoology and oceanography. When the Hull University College was founded a few years ago one main object of the promoters was the establishment of a department of marine biology by which it was hoped to render scientific services to the fishing industries, and the college authorities appointed as head of this department Professor D. C. Hardy, who, after spending some years in the laboratories of the Ministry of Agriculture and Fisheries at Lowestoft, had joined the scientific staff of the *Discovery* and had then recently finished his work with that expedition. At Hull Professor Hardy has extended his earlier work in fishery research, and that it is appreciated by the fishing industry was shown by the presence of Sir John Marsden, president of the British Trawlers' Federation, who opened the new laboratories, and of Mr. H. G. Maurice, Fisheries Secretary of the Ministry of Agriculture and Fisheries. Professor Hardy is now hoping that both the herring and the trawling sides of the British fishery industry will join in forming a small committee to keep in touch with the fishery research work of the college. The basic problems affecting the fishing industry center in plankton, its different varieties, the different kinds of organisms it contains, the study of the different localities in the ocean where these different kinds most exist, the motions to which areas of particular species are subjected by the ocean currents, the kinds of fish that are attracted to or repelled by the different waters, and the ascertainment of the facts which determine the movements of these varying feeding grounds of the different species of fish. The whole study is now pursued on international lines by the scientific men of many countries, who are united in the International Council for the Exploration of the Sea. It is hoped that the work at Hull will fit into and form part of this plan of oceanographic research.

THE regular correspondent of the *Journal* of the American Medical Association reports that a record low death rate and a low infant mortality rate are the two main features of the annual demography bulletin for 1930, which deals with the population and vital statistics of Australia. The infant mortality rate was 47 per thousand; with the exception of the New Zealond rate, this is the lowest in the world. The rate for New Zealand in 34.5. The death rate was 8.59 per thousand of the population. This rate was the lowest ever recorded in Australia and compares most favorably with that of other countries. The principal causes of death were heart disease, 15.6 per cent.; cancer, 11.1 per cent.; tuberculosis, 5.9 per cent.; acute and chronic nephritis, 5.7 per cent., and pneumonia, 3.5 per cent. The maternal mortality rate was 5.29 per thousand children born. At the end of 1930 the population of Australia reached the total of 6,476,032, which represents a growth of 1,064,735 during the last ten years. To this total gain, natural increase contributed 73 per cent. and net migration 27 per cent. The rate of growth during 1930 was 1.81 per cent., and is among the highest rates of increase in the world. The birth rate was 19.93 per thousand of population, the lowest ever recorded. Compared with that of many other countries, the Australian rate is low, but fortunately it is accompanied by a low death rate giving a rate of natural increase which is equaled in few countries. Exnuptial births were 4.62 per cent. of all births registered. The average family per mother in 1930 was 2.92 as against 2.96 in 1929. The density of population, that is, the number of persons to the square mile, in Australia is only 2.18 and varies from 1 person in 100 square miles in the Northern Territory to 20.38 to the square mile in Victoria.

DISCUSSION

TWISTING IN LOWER FORMS OF PLANTS

WITHIN recent months a number of notes have been published in SCIENCE regarding twisting in the bark and wood of trees. Various factors have been invoked to account for the twisting, such as sunlight and wind, thus explaining the more frequent occurrence

of twisted trees on the edge of forested areas rather than within them.

The supposed influence of position as related to the sun and to prevailing winds has suggested that if the right twist is more common in the northern hemisphere, as the results would indicate, the left twist should be more common in the southern.

Twisting in vines and their tendrils is familiar to all; the direction of the twist is, I believe, quite constant for any species. Different trophisms have been thought to be the cause, and a frequent experiment is to determine the effect of rotation of the plant in different axes on the twisting.

It may not be known to many that a similar phenomenon has been noted in lower forms of plant life. Boas[1] described and pictured a symmetrical bending of the filaments of a colony of *Oidium lactis* growing on agar. He stated that he has also noted the same symmetrical bending of the hyphae in the case of the molds, *Penicillium brevicaule* and *Rhizopus nigricans*. He believes the spiral-like growth is widespread among the fungi.

The bending of the threads, consisting of a number of parallel rows of cells, of the bacterium variously known as *Bacillus mycoides* or *Bacillus ramosus*, is a striking example of what seems to be comparable to the twisting in higher plants. This organism, when seeded at one point on the surface of a disc of agar, spreads out uniformly in all directions. The appearance to the eye is that of a tangled mass of threads, the main branches of which bend in a uniform direction. The bending of the threads in the various strains which the writer has isolated is counter clockwise. Strains have been described by European bacteriologists in which the bending is to the right and others are what might be called neutral, the bending being neither to the left nor to the righ in an apparent manner. These various forms are thought to be identical in other respects, as determined by the usual methods of the bacteriological laboratory, including the antibody reactions.

The factors, wind, sunlight, etc., which have been invoked to explain the twisting of higher plants, do not enter here. Several have studied the effect of position on the bending and have noted no effects. The writer, following the lead of the botanists, has observed the effect of rotation of the culture during its growth. The constant rotation of the culture on a horizontal axis parallel to the surface of the substratum exerts no influence on the appearance of the growth, nor does rotation on a vertical axis at a right angle to the surface of the substratum, while rotation on an horizontal axis at a right angle to the surface of the substratum causes such a lack of symmetry as to be recognizable by observers ignorant of the conditions existing during growth. The distortion is noticeable not only in lack of symmetry but in the breadth of the threads. The distortion is most marked when the rotation is in the same direction as the normal bending of the threads, that is, counter clockwise.

If the bending of the threads of the bacterium is comparable to the twisting of vines and trees, the lower organism offers many opportunities to the student to measure the effect of this and that factor and possibly to discover a more adequate explanation than those yet presented. The writer, for example, is attempting to find what may be the effect of growing the organism in the southern hemisphere through the aid of a friend in Australia.

It is possible to obtain a growth in which the bending is not present, by using a medium which is less firm than the usual agar of the laboratory. Changing the type of growth does not, of course, offer any explanation for the usual bending of the threads in a definite direction. One writer has spoken of biological isomerisms, the three forms of the organism being comparable to the left, right, and inactive compounds as regards polarized light. Variation in the spacial arrangement within the cell may be a common occurrence. It may account for the type of optical activity of the compounds formed by organisms.

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[1] *Zentb. f. Bakt.*, II, 49, 412. 1918.

METEORITES IN SEDIMENTARY ROCKS?

FOR many years I have searched for meteorites or meteoritic material in sedimentary rocks. About fifteen years ago, one of my students found a meteorite in a bed of gypsum in western Oklahoma. At first, it was thought that the occurrence represented a fall at the time of the deposition of the gypsum, which is Permian in age. A careful study of the occurrence of the meteorite, however, proved that it was evidently recent. I have interviewed the late Dr. G. P. Merrill, of the U. S. National Museum, and Dr. G. T. Prior, of the British National History Museum, both well-known students of meteorites, and neither man knew of a single occurrence of a meteorite in sedimentary rocks. Dr. Prior knew of a meteorite that was found in recent stream gravels but of none occurring in sediments of past geologic periods.

This letter is a petition for any information indicating that meteorites do occur in the sediments. Dr. Merrill was of the opinion that we should not expect to find them in the sediments because they would decompose before they could be buried. Although we may admit that the iron-nickel meteorites might