been increased in size so that the area of the map now includes a portion of Labrador and of Newfoundland and extends from the American coast in the west to beyond the Ural Mountains in the east. The report also contains much useful information with regard to climatology, observatories, the second international polar year, and international cooperation. In the British Isles 344 stations provided climatological data, while rainfall records were received from 5,329 stations. During 1932 there were 244 earthquakes recorded at Kew, and in eight cases the azimuth of the epicenter could be determined.

Nature, quoting from *Current Science*, states that at a joint session of the Sections of Botany and Zoology of the Indian Science Congress recently held at Patna, under the presidency of Professor Gopala Aiyer, the desirability of establishing a marine biological station in India was discussed. Colonel Sewell opened the discussion. It was suggested that the authorities of the congress should appropriate a certain sum of money which would act as a nucleus for private subscription. The general opinion was in favor of the station being at Bombay, which with its central position and varied coast line offers an ideal site for such a laboratory. It was moved and seconded that a committee of five biologists be appointed to go into the question of establishing a marine biological station in India and the resolution was carried by a large majority. The committee was constituted as follows: Dr. S. B. Setna, of Bombay (convener); Professor Gopala Aiyer, of Madras; Professor George Mathai, of Lahore; Professor R. H. Dastur, of Bombay, and Dr. S. K. Mukerji, of Lucknow.

ACCORDING to *Nature*, Professor A. F. Joffe, of the Physico-Technical Institute of the U.S.S.R., is sending out a scientific expedition to Erivan to establish a laboratory for the study of the cosmic rays. It is proposed to set up the station on Mount Alagöz, in Armenia, at a height of 14,400 feet above sea-level. The object of this station will be to investigate the distribution of the cosmic rays. The leader of the expedition is Dr. D. V. Skobeltzin. It has also been decided to set up on the shore of Lake Gokcha (6,345 feet above sea-level) an astrophysical observatory where a 16-inch reflector will be erected.

DISCUSSION

A MICROORGANISM CARRIED BY THE DUST-STORM

THE pronounced dust-storm which swept the country on May 10 brought to the laboratory a liberal supply of microorganisms.

Its thick haze hung like a fog over tremendous areas the entire day and, in addition, the windblown particles permeated the air of the buildings and interfered to some extent with respiration. While the storm was in progress the students, in the routine of the work in medical bacteriology, had occasion to examine their serial dilutions of several of the slow-growing pathogens. The agar medium had been inoculated the previous day and poured into Petri dishes. To facilitate the inspection of the colonies the covers of the dishes were temporarily removed, thus exposing the surfaces of the nutrient material to the dust-ladened air. Due to the fact that the desired cultures had not developed, the plates were returned later in the afternoon to the hot room, and incubation was continued for another 24 hours. In this manner a total of 120 individuals working in 6 separate rooms opened an average of 5 plates for intervals of less than 2 minutes each.

The following day on examining the dishes several (3–5) glistening, raised, brownish mucoid colonies ranging in size from 6–10 mm were observed on practically every agar surface. This type of growth is not ordinarily encountered by the students in this laboratory. Suspensions were made in water of material taken from a number of the colonies and examined microscopically. In each specimen large, heavily encapsulated slightly motile bacilli were noted.

The organisms in pure culture, isolated by the routine-plating methods, were uniformly shaped rods with rounded ends measuring 1.25 to 2 μ by 4 to 8 μ arranged usually in threads or chains. The thick capsules originally noted were not present in the subcultures. The motility was of a slow creeping variety. Median oval spores without enlargement of the cells were freely abundant in 36 to 48 hours on plain agar. The young cells stained regularly and were Gram positive. The protoplasm was converted into globular highly refractive bodies on sugar-containing mediums.

The colonies on gelatin plates were round with concentric rings of growth. The medium was liquefied rapidly. In the gelatin stab a sacchate zone appeared, followed in some instances after several days by a thin surface film. There was no immediate change in litmus milk, but a gradual peptonization took place with the production of a wine-red color. Dextrose, lactose and saccharose broth were not fermented; there was a rich granular sedimenting growth with no scum formation. On Russell's, Kligler's, Endo's and litmus lactose agar mediums, no change was recorded.

The general morphologic, cultural and biochemical attributes of the contaminant, when compared with authentic strains, indicated that it was *B. megatherium,* a common non-pathogenic spore-forming aerobic bacillus. It is ordinarily stated that this species is a normal contaminator, but such a conclusion does not hold as regards this laboratory, certainly not to the extent noted. The germs were unquestionably storm-borne.

In order to determine the form in which the organisms were transported, several portions of dust were collected from the tops of the desks in one of the laboratories which had not been in use on the day of the storm. One specimen was mixed with water and examined directly under the microscope. The results, however, were quite unsatisfactory. Another sample weighing about 1 g was suspended in 5 cc of physiological saline and heated at 60° C. for 1 hour to kill vegetative cells if present. Nutrient agar surfaces were subsequently streaked with the suspension, and after incubation colonies identical with the ones originally observed appeared in large numbers. Naturally other varieties of microbic life were present, but no attempt was made to identify the total flora.

It is, therefore, assumed that the organisms in the spore state were swept up by the wind with the dust particles and were transported mechanically for great distances in the upper atmosphere.

It would be interesting to know whether or not this species predominates in the native soil of Nebraska and South Dakota, the alleged origin of the dust particles.

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CAMBRIAN GRAPTOLITES

THE writer has in Bulletin No. 3, Vol. 12 (1933) of the Public Museum of the City of Milwaukee published an account of the Cambrian graptolites as far as they are known. All are Dendroidea. As this is the first time that Cambrian graptolites have been reported from various regions of America (Lower Canada, Vermont, Wisconsin and Minnesota, Tennessee and Dakota) it is of great importance that the record should be correct and no errors introduced into this new field. However, as the paper was several years in printing, some determinations have meanwhile been changed and also some labels have been found to have been misleading.

It is now known that all these graptolites are from the Upper Cambrian only and no Middle or Lower Cambrian graptolites occur. *Dictyonema schucherti* was described as coming from the Lower Cambrian of Vermont (top of Colchester formation) and thus regarded as the oldest graptolite known. Professor B. F. Howell has since found that the form comes from an Upper Cambrian horizon (Russell slate formation). Likewise *Dendrograptus edwardsi major* and *Callograptus antiquus,* which are described as coming from the Elbrook formation of Tennessee, which is Middle Cambrian, according to Dr. Chas. E. Resser, were obtained in the Nolichucky shale, which is latest Upper Cambrian. Dr. Resser also informs me that the form which he collected in an unnamed Upper Cambrian formation on the "North side of the Shoshone Canyon, just above bridge, west of Cody, Wyoming" and which I described and figured as *Dictyonema cf. minnesotense* on pp. 322–323 (*op. cit.*) may now be cited as coming from the "Deadwood series," equivalent to the Upper Cambrian. As it is a new species, distinguishable from *Dictyonema minnesotense* by the more rapid bifurcation, it may be known as *Dictyonema wyomingense.*

As the bulletin on the Cambrian graptolites had been already widely distributed by the Milwaukee Museum before I became aware of the necessary changes in age determinations, the students interested in these faunas are asked to make the changes indicated above in their copies.

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THE MECHANISM OF METHYLENE BLUE ACTION ON BLOOD

THE mechanism of the action of methylene blue as a catalytic agent in CN and CO poisoning[1] has been questioned by various writers.

Wendel[2] claims that in CN poisoning the dye changes hemoglobin to methemoglobin in the bloodstream, that this unites with CN to form a stable compound and that in this way CN is taken out of the blood stream. Henderson[3] and Haggard and Greenberg[4] claim the same action for methylene blue and conclude from this that if, as they suppose, the dye inactivates a certain per cent. of the hemoglobin by forming methemoglobin, its use in CO poisoning is a hindrance rather than an aid to recovery.

Haggard and Greenberg[4] have made experiments on dogs in which the oxygen capacity of blood containing methylene blue was determined, according to the Van Slyke-Hiller method. They found from 8 to 12 per cent. reduction of oxygen capacity, which is supposed to indicate that this proportion of the oxyhemoglobin is transformed to methemoglobin.

The writer has, however, shown by experiments on

[1] M. M. Brooks, *Proc. Soc. Exp. Biol. Med.,* 29: 1228, 1932; 30: 493, 1933. *Amer. Jour. Physiol.,* 102: 145, 1932; 104: 139, 1933.

[2] W. B. Wendel, *Jour. Amer. Med. Assoc.,* 100: 1054, 1933.

[3] Y. Henderson, SCIENCE, 78: 408, 1933.

[4] H. W. Haggard and L. A. Greenberg, *Jour. Amer. Med. Assoc.,* 100: 2001, 1933.