ment program for the congress a series of exhibits of the various phases of tropical diseases, on which the faculty of the school has been working. All departments were represented. After viewing these exhibits, the visitors attended a symposium on tuberculosis held under the auspices of the Insular Department of Health.

AT the time of the International Neurological Congress in London, a meeting of those particularly interested in epilepsy was held on July 31 at the Lingfield colony. Thirty-two doctors, representing fourteen countries, were present. After discussion, it was unanimously decided that the International League against Epilepsy should be revived. The immediate efforts should be directed toward the improvement of the social condition and the institutional care of persons with epilepsy. To this end, it was agreed that there should be a publication, issued annually or oftener, acquainting readers with facilities and with remedial efforts carried on in various countries. Plans were also laid for a meeting of the league at the time of the next Neurological Congress in Copenhagen. At an adjourned meeting held on August 2 (Professor A. Ley, of Brussels, in the chair) the following officers were elected: *President,* William G. Lennox, Boston, Mass., U. S. A.; *Secretaries,* H. I. Schou, Filadelfia, Denmark; L. J. J. Muskens, Amsterdam, Holland; *Treasurer,* J. Tylor Fox, Lingfield, Surrey, England. All persons interested in improving the condition of epileptics are invited to join the league.

THE members of the third International Congress of Soil Science took part in a post-congress tour of Britain, making a three-day visit to Aberdeen. They made a tour of the experimental farm of the North of Scotland College of Agriculture at Craibstone, the Rowett Research Institute, the Duthie Experimental Stock Farm, and the Macaulay Institute of Soil Research. They were received at Craibstone by Professor J. Hendrick, of Aberdeen University, and were shown the drain gauges, soil profiles and various experiments in the woodland fields. At the experimental farm W. Godden and A. Crighton explained the work carried out by the institute. In the evening the delegates were given a civic reception at Aberdeen Art Gallery.

THE General Education Board recently made a gift of $2,500,000 to Vanderbilt University for the School of Medicine. About $700,000 will be used for buildings and equipment and the remainder for an endowment.

DR. GODFREY LOWELL CABOT, of Boston, a trustee of Norwich University at Northfield, Vt., has given to the university in memory of his son, who died in the war, a "substantial" sum to found "the James Jackson Cabot professorship of air traffic, regulation and transportation," in the hope that it will promote the formulation of an international air safety code in which the United States might lead the way.

F. D. RICHEY, chief of the U. S. Bureau of Plant Industry, writes: "A letter from Dr. F. J. F. Shaw, director of the Imperial Institute of Agricultural Research, Delhi, India, under date of July 25, notes that 'the Pusa Institute was wrecked in the great Bihar earthquake of the thirteenth of January, 1934. The Government of India in consequence of this decided to move the entire Research Institute to a site near Delhi where new laboratories are now in process of erection and the farm is being laid out. For this reason I am now stationed in Delhi as the work of design and layout falls upon me and the Botanical Section at Pusa is for the present in charge of Dr. Pal. I am glad to say that we had no loss of life and that the actual Botanical Section Laboratory did not sustain serious damage. I am sending you this information so that our correspondents abroad should realize that the Delhi Institute is the same as the Pusa Institute. I expect to complete the transfer of all the staff and equipment to the new site about October, 1936.'"

A SPECIAL frost forecasting service for Florida, lasting from the middle of November till April, has been provided by the U. S. Weather Bureau. The service, made possible by a $15,000 federal and a $10,000 state appropriation, will be similar to the services already set up in California, Washington, Oregon, Texas and southern Alabama. Headquarters have not been selected. E. S. Ellison—trained in frost forecasting in California—will have charge of the work. Five others will forecast each day minimum temperatures for the following night in the sections assigned to them. These forecasts—based on the regular weather maps and on special temperature, moisture and air mass observations made with equipment installed for the purpose throughout the state—will be published by the press and broadcast. Besides warning growers of dangerous crop weather, thermometers and equipment used in heating orchards will be checked.

DISCUSSION

ON THE FORMATION OF LAKE BALLS

BALLS of vegetable or animal matter are at times found on the shores of lakes or of the sea, but only in a few widely scattered localities. They have been variously named (see Ganong[1, 2] and Schröder[3]) and

[1] *Rhodora,* 7: 41, 1905.

vary considerably in composition. The *Cladophora* balls (see Kindle[4] for description and figures) result from the radial growth of this Alga. Schröder gives quite a number of cases of both plants and animals (*e.g.,* sponges) which may take a spherical shape in their growth when free from the bottom and kept rotating by water oscillations. In 1923 the Biological Board boat *E. E. Prince* obtained at a few fathoms depth in an arm of the Bay of Exploits, in northeastern Newfoundland, roundish masses of the calcareous alga, *Lithothamnium,* as much as six inches in diameter and three inches deep. They were hollow and usually there was an opening through to the central cavity, which had evidently been formed by the disintegration of the oldest part of the plant, the shell that remained and continued growing on the outside being for the most part less than half an inch thick. These masses had been resting loosely on the bottom on one of the flattish sides.

Many of the balls that are found on shores are not living growths, but are composed of varied debris. These seem to have been universally attributed to their constituent parts becoming matted together under the action of waves in shallow water. If built up in this fashion, they would tend to have, not a radial structure, but an interlacing or felted structure with more or less distinct concentric lamination. Perhaps the best instances of this type are the balls found on certain shores of the Mediterranean, the essential parts consisting of thread-like fragments of the rhizomes of *Posidonia,* as described by Russell.[5]

While some of the balls formed of debris may have had such an origin there are those that must be explained otherwise. They show no concentric lamination, and the materials of which they are composed tend to separate under wave action on a beach. I have been able to examine a number of balls, obtained in 1919 at Little Kedron Lake, New Brunswick, by Dr. H. S. Everett. He obtained others in 1931, and Ganong[6] obtained and described one from this same lake in 1904. They are not found elsewhere in the many lakes of the region so far as known, and they are found only in one bay of this lake. They are locally known as "spill balls," as they are largely made up of the "spills" or needles of fir and spruce. While some were almost perfect spheres, others were somewhat irregular, though well rounded. When sawn through there was no evidence of concentric, but some of transverse, lamination. The surface was evidently being worn away by rolling on the bottom, and the spherical shape seemed, therefore, to have been produced in the same way as the rounding of stones on an exposed beach. Ganong appears to have had only one dried specimen and, believing that it had been put together by wave action, comments: (1) "It is very remarkable that such smooth objects (the needles) can thus cling together, but still more remarkable that they should become interlocked in the first place." One of the balls, on being dried, promptly went to pieces, showing how insecurely the needles were interlocked. It may be safely surmised that the needles settled into some relatively deep and quiet water, forming in the course of time a thick dense mat, which would be broken into pieces by an exceptional storm and the pieces rounded on the beach by wave action. The combination of conditions which would make this possible is sufficiently unusual to account for the rarity of these "spill balls." It seems probable that the balls of fir needles mentioned by Russell[7] as being in the Zurich Museum and coming from lakes of the Engadine were formed in similar fashion, as also the "sea-balls" from the coast of Nova Scotia figured by MacKay.[8] As this method of the formation of lake balls seems not to have been hitherto recognized, it seems worth while to present the case for it.

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THE SOLDADO ROCK SECTION

IT is to be regretted that Dr. H. W. Shimer's recent correlation[1] is marred by a serious error on plate 122 where the Soldado Formation is referred to the Upper Eocene and placed as equivalent to the St. Bartholomew limestone, the type of the Upper Eocene of the Antilles. In truth the Soldado Formation is the type of the Lower Eocene of the Antillean and northern South American areas.

The faunas of Soldado Rock, Gulf of Paria, were described and figured by me in 1912,[2] bed No. 2 being correlated as basal Eocene. Later I extended this horizon to Margarita and Toas Islands, Venezuela.[3] In SCIENCE, 1925, I named this No. 2 bed the Soldado Formation,[4] "to stand as the type of northern South American and of Antillean basal Eocene deposits."

In 1928, Mr. Liddle gave the name Soldado Formation,[5] *as new,* to a very different geological formation

2 *Rhodora,* 11: 149, 1909.
3 *Die Naturwissenschaften,* 8: 799, 1920.
4 *Amer. Midl. Nat.,* 15: 752, 1934.
5 *Rev. gen. de bot.,* 5: 65, 1893.
6 *Bull. Nat. Hist. Soc. N.B.,* 23: 304, 1905.
7 *Loc. cit.*
8 *Proc. Trans. N.S. Inst. Sci.,* 11: 667, 1908.
1 Hervey W. Shimer, *Bull. Geol. Soc. America,* 45: 909–936, Pls. 118–122, 1934.
2 Carlotta J. Maury, *Jour. Acad. Nat. Sci. Philadelphia,* second series, XV: 23–112, Pls. 5–13, 1912.
3 C. J. Maury, *American Jour. Science,* fifth ser., IX: 53, 412, 1925.
4 C. J. Maury, SCIENCE, LXI: 1567, 43, January, 1925.
5 R. A. Liddle, "Geology of Venezuela and Trinidad," p. 225 and elsewhere, 1928.