

Appropriate action has already been taken with the setting up of a sub-committee on seismology within the organisation of the Commission of Cartography of the Pan-American Institute of Geography and History. Interested nations have been invited to designate committee members, and Dr. Federico Greve, director of the Seismological Institute of the University of Chile at Santiago, has been appointed president. The Seismological Institute has undertaken to provide the necessary library and office space and will assign suitable personnel to carry out the work of the sub-committee. Engineering seismological work, with the object of improving structural design practice, will be prominent in the programme already undertaken by Dr. Greve in view of the grave importance of this matter in the seismically active Andean region. The Seismological Institute has built a number of strong-motion accelerographs for field-study of the motions characteristic of destructive earthquakes.

Germination of Yezo Spruce Seed

A MONOGRAPH of 140 pages has been published dealing with physiological studies on the germination of Yezo spruce seed (*Picea mar. Agric.*, Hokkaido Imperial University, Sapporo, Japan, 1942). The investigations were carried out on the germination of seeds of *Picea Glehnii* and *Picea jezoensis*, and deal with the absorption of water and non-electrolytes, swelling, suction force, change of reserve material and the germination capacity. It is stated that the salts which cause the greater absorption of water by seed grains do not always promote their germination, whereas the concentration of non-electrolytes has a great effect on the germination of the seed. Perhaps a practical point of interest is the statement that temperature plays an important part in the germination of both of the *Picea* seeds, combined with the amount of water available. A temperature higher than 25° C. is unfavourable for germination, whereas a temperature lower than 10° C. exerts no injurious effect upon the germinative capacity of the seeds, since seed was submerged in cold water at that temperature for a long period without loss of germinating power. These facts suggest, it is held, that the climatic conditions of Hokkaido are suitable for the development of the *Picea* forest. It is quite a common event for the *Picea* seeds to be buried under snow and submerged in cold water for as long as five months without any loss of their germinative capacity.

Primitive Vertebrate

THE Placoderms are of considerable interest to the palaeontologist, since they are the earliest of the gnathostomate vertebrates. In 1934, Erik A. von Stensjö published the first part of a monograph of this subclass, with supplements in 1936 and 1939. The present work (on the Placoderms of the Upper Devonian of East Greenland, published as Bd. 139 of the *Meddelelser om Grønland udgivne af Kommissionen for Videnskabelige Undersøgelser i Grønland*. Pt. 1, pp. 662 with 308 text figs.; Pt. 2, 77 plates (Copenhagen: C. A. Reitzels Forlag, 1948.) 55 Kr.) constitutes the second part of the monograph and treats of the sub-family Bothriolepinae, in which two genera, *Bothriolepis* and *Grossilepis* gen. nov., are recognized. The order Antiarchi, to which the sub-family belongs, appeared in the Middle Devonian and became extinct in the Upper Devonian. While off the main line of vertebrate evolution, the order was probably derived from early, primitive Euarthroires

and deserves notice because of its high specialization. The author considers that the order falls into two groups, which he names the Asterolepiformes and the Bothriolepiformes, and the Bothriolepidae form one of the four families of the second group. The work is divided into two parts, the first being a detailed description of the anatomy of the subfamily with a discussion of the homology of the bones, and the second is a full account of all previously described forms and a revision of their systematic position. Undoubted remains of pelvic fins have been found. The work is characterized by its comprehensiveness and by the meticulous care that one has learned to associate with the author's previous publications. It is valuable not only on account of the considerable additions to our knowledge of the subfamily, but also because it gives command of all previous work in the same field.

A Rookery in Winter

DURING the last fortnight of 1947, C. M. Ogilvie made observations at a rookery which had been first built in 1946 in a small beech copse within a few hundred yards of two larger colonies. For four days the behaviour of the birds was closely watched, and in the March issue of *British Birds* (42, No. 3; 1949) Mr. Ogilvie summarizes his observations. The colony was visited by rooks within two hours of dawn every day and, except on two occasions, was finally deserted at least five hours before dusk. The number of birds varied considerably during the day, and jackdaws were rarely present. Though displaying no pairing or nesting tendencies, the majority of birds indulged in group flights and other activities associated with considerable mutual excitement. Several paired birds regularly occupied the nest remnants and frequently, but not invariably, defended their territory; a preference for certain nests and the neglect of others were noted. Observations also showed that 'nesting' rooks indulged in pairing and courtship activity, bill-fondling, mutual preening and ritual feeding, but coition never took place and nest construction was not attempted. The birds appeared to derive a considerable amount of food from the nests. Variation in weather conditions did not obviously influence the behaviour of the rooks or the duration of their visits to the colony. The article concludes with speculations as to the significance of Mr. Ogilvie's recorded impressions.

Permian Glaciation in São Paulo, Brazil

A PAPER by Octavio Barbosa and F. M. de Almeida, which deals with representative beds of the Permian glaciation in the State of São Paulo, Brazil, has appeared in *Anais da Academia Brasileira de Ciências* (Rio de Janeiro, 1949) under the title, "Nota Sobre a Estratigrafia Da Série Tubarão Em São Paulo". In 1908 the 'Tubarão Series' was shown by I. C. White to exist in the coal measures region of the State of Santa Catarina. This series was composed of lower glacial beds and upper fluvio-glacial, lacustrine and swampy beds with coal. Later on, Euzebio P. de Oliveira separated the lower glacial beds in a new series named Itararé, and detailed research in the Tietê basin, São Paulo, showed that the Itararé-Tubarão Series comprises five formations: (a) Itapetinga formation, probably entirely marine; (b) Tietê formation—fluvio-glacial, swampy and glacial, with *Glossopteris* flora and coal; (c) Gramadinho formation—glacial and fluvio-glacial; (d) Capivarã formation—marine, with