

## SPANISH GROUP OF SEDIMENTOLOGY

THE second (biennial) reunion of the Grupo Español de Sedimentología was held in Seville, at La Escuela de Estudios Hispano-Americanos, during October 16-21. The reunion was attended by 28 Spanish scientists interested in sedimentology as geologists, mineralogists, pedologists and engineers, and was organized by the Consejo Superior de Investigaciones Científicas, Madrid, Sección de Petrografía Sedimentaria. D. F. Ball, of the Nature Conservancy, Bangor, attended as an invited guest. The papers presented covered the wide field of approach to the subject of those participating.

Techniques discussed included the applications of phase-contrast microscopy to soil mineralogy by Dr. M. Delgado (Granada); electron microscopy studies of sediments of the Tagus basin by Dr. J. Alonso; differential thermal analysis of clays in podzols of Lugo Province by Prof. Muñoz Taboadela (Santiago) and X-ray fluorescence spectrography by D. F. Ball. The methods of determining sandine in sediments were reviewed by Dr. P. Arévalo.

Papers of particularly pedological significance included thin-section studies of Andalusian braunlehm by Drs. N. Bellinfante and G. Panoque (Seville), investigation of opaline silica particles in soils and sediments from Ecija (Seville) by G. Panoque and of distribution of major soil groups in Wales by D. F. Ball. The work on braunlehm fabric has shown that this is present at depth in Tertiary sediments in what would be considered C horizon material and not only as a pedological product in the upper horizons of the solum. Prof. González García (Seville) discussed trace elements, particularly manganese and cobalt, in soils and sediments of Seville Province.

Some of the important geological contributions were those of Prof. O. Riba (Zaragoza) with Dr. Perez Mateos (Madrid) on the Tertiary and Quaternary sediments of the Huelva area, and of the same author on a palaeogeographic reconstruction of the Ebro basin. This utilized heavy-mineral studies and a statistical investigation of mica-orientation in cross-bedded sands to determine direction of flow of the depositing currents. The identification of loess as occurring in Toledo Province was described by Dr. J. Benayas (Madrid). Dr. L. Alias Perez and Dr.

Rodríguez Gallego (Granada) gave accounts of work on the sand and clay fraction of sediments carried by rivers draining the region of Granada.

Geological studies linking sedimentology with engineering problems included the papers of Prof. F. Hernández Pacheco and Dr. I. Asensio Amor (University of Madrid) on the forces responsible for building the sand-bar and banks across the bay of Santander. Their work showed that marine-eroded and current-borne sediments, rather than sediments derived from rivers draining into the bay, are the materials from which the bar and banks are constructed. Some of the first joint studies between sedimentologists and engineering geologists of bore-hole samples from the Ebro delta were reported on by Sr. Macau Vilar (Ministry of Public Works), Prof. L. Solé Sabarís and Dr. C. Virgili (University of Barcelona) and their collaborators. The problems involved in studying silting in reservoirs and behind dams were interestingly reviewed by F. Suárez Gómez, who described methods for sampling sediment load in rivers and for measuring the bottom profile across reservoirs.

A field-tour visited areas near Huelva, in particular the extensive Almonte Forest, on cemented sands with what are probably relict podzol soils. The deep A<sub>2</sub> horizon of these, 99 per cent quartz sand in composition, forms the present surface soil. Relict peats occurring in basins within the sand are now being exploited. Experimental plots of such crops as beans, maize, and tomatoes were seen on irrigated sandy soils with which this peat has been mixed. Interesting results are being achieved on this field-trial scale; for example, tomatoes planted at the beginning of September had well-developed fruit by mid-October. Orange trees planted in peat-filled holes were showing good early growth.

The full proceedings of this reunion will be published as II Reunión de Sedimentología, by the Instituto de Edafología, Serrano 113, Madrid (6). The third reunion of the group is planned for Santiago, north-west Spain, in the summer of 1963. Details can be obtained from Prof. Muñoz Taboadela, Department of Applied Geology, University of Santiago, Spain.

DAVID F. BALL

## MEASURING PRODUCTIVITY OF NORTH AMERICAN DUCKS

A N evaluation of sex and age ratios in North American duck populations and the ways in which, in waterfowl management, these ratios can be used to measure productivity has been carried out by Frank G. Bellrose, Thomas G. Scott, Arthur S. Hawkins and Jessop B. Low\*. Determination of sex composition in duck populations presented a difficult sampling problem which was complicated by differences in species, seasons and places, and by

inadequate sampling techniques. Most trapped or bagged ducks that could not be readily sexed by differences of plumage were sexed by cloacal characters. Four methods of sampling waterfowl populations for sex ratios were used: (1) examination of trapped ducks, (2) inspection of ducks taken by hunters, (3) observation of ducks in the field, and (4) examination of disease victims.

Baited, funnel-type traps tended to take disproportionate numbers of drakes, while gate-type traps placed on shore tended to catch a predominant number of hens. Inspection of ducks in hunters' bags made possible the separation of drakes and hens in moulting adults and in juveniles. Most sex ratios

\* State of Illinois: Department of Registration and Education, Natural History Survey Division, Bulletin, Vol. 27, Article 6 (August 1961): *Sex Ratios and Age Ratios in North American Ducks*. By F. G. Bellrose, T. G. Scott, A. S. Hawkins and J. B. Low. Pp. vi + 391-474. (Urbana, Ill.: Department of Registration and Education, Natural History Survey Division, 1961.) 1 dollar.