

H. Gerischer showed how the measurement of A.C. polarization resistance can help with the analysis of processes in metal deposition. Thus, in the case of silver ion deposition on silver from simple salt solution, it appears that the rate of the reaction is controlled by the building into the surface of the metal atoms and that discharge of the ions is rapid. Correspondingly, interesting data were presented by H. Fischer, who treated the various stages of action of an inhibitor in metal deposition in terms of the theory of crystal growth. T. P. Hoar described experiments which strongly suggest that dissolution of an anode which is undergoing polishing or brightening occurs through a compact solid film on the surface and that this film dissolves its outer surface as fast as it is formed at the metal/solution interface. This account summarized the points in favour of a theory which probably represents the essential solution of the long-standing problem of electropolishing. W. F. Franck showed that the polarization resistance measured at an attackable electrode suddenly changes at the equivalence point of a titration and illustrated how this property could be used in analysis.

Among other subjects treated were: the definition of a chemical potential in an electrochemical system; the influence of the electronic structure of a metal on the rate of an electrochemical reaction taking place at its surface; cathodic reduction of oxygen to hydrogen peroxide; the inhibition of corrosion; and the electrokinetic potentials of sols in silver iodide. The papers and the discussion material will appear in the *Comptes rendus* of the Committee, which is published yearly.

The Commission on Electrochemical Definitions and Nomenclature (J. O'M. Bockris, R. Defay, E. Lange, R. Piontelli, P. van Rysselberghe and G. Valensi) held several sessions in London and Cambridge and will publish a second report in the *Comptes rendus* for 1952. A Commission on Experimental Methods in Electrode Processes was formed, consisting of J. O'M. Bockris, H. Gerischer, R. Gauguin, R. Piontelli and G. Valensi, and will make its first report in 1953. The total attendance at the meeting was about seventy. The next meeting will be held at Stockholm in July of this year.

### THE TIAN-CALVET MICROCALORIMETER IN SEED GERMINATION STUDIES

PROF. H. PRAT, of the Institute of Biology, University of Montreal, has described some preliminary investigations of thermogenesis in germinating seeds of various cereals, flax, tomato, etc., using the new Tian-Calvet calorimeter (*Canad. J. Bot.*, 30, 4, 379; 1952). The use and advantages of the new instrument are indicated.

The type of thermogenic curve obtained from the germination of wheat seeds seems likely to have a general application. Immediately upon the contact between the dry seed and water there is a quick, then a falling off, and then a more slowly developing, production of heat; that is, the curve shows a steep rise and fall and then a slow steady rise. The initial phase of rapid rise and fall in the curve is common to both living and dead seed and is ascribed to physico-chemical thermogenesis. The ensuing phase of depression may be endothermic or

weakly exothermic. The third phase of steadily increasing heat production, which corresponds to the onset of growth, with its concomitant respiration, is described as biological thermogenesis.

By using the new microcalorimeter it is possible to determine with considerable accuracy the effects on the thermogenic curve of such factors as temperature, dehydration of seed, ageing of seed, and additions of substances to the soaking water; for example, biological thermogenesis is increased by indoleacetic acid at low concentrations and diminished by alcohol and iron sulphate. A comparison of the thermogenic responses of different seeds opens a wide field of study: the interesting and suggestive preliminary data which are given seem likely to have both an academic and a practical importance.

### RECENT MARINE BIOLOGY

THE first two numbers of Vol. 31 of the *Journal of the Marine Biological Association* cover a wide field in the studies of the seas and their inhabitants.

Three papers are further instalments in their respective series. Dr. G. P. Wells contributes his sixth paper on *Arenicola*, dealing with the proboscis of three species and its mode of action, in which there are beautiful photographs of both the exterior and interior of the proboscis. Dr. H. G. Vevers's fourth article on the biology of *Asterias rubens* describes the variation in the sex ratio; the highest percentage of females occurred in the period March-June and the lowest during January-February, and he found no trace of hermaphroditism. In his third paper on *Chaetopterus variopedatus*, Dr. J. A. C. Nicol discusses factors affecting the light response. Stimulation of the photogenic glands occurs through their nerve fibres; but augmentation of the response takes place locally in the glandular tissue itself. There is, however, a process of central facilitation in the nerve cord, most apparent in the posterior region of the body. The luminescent reaction is a triggered response which can be produced by a single stimulus.

There are three papers on Ascidians. Dr. R. H. Millar worked out the annual growth and reproductive cycle in *Diplosoma listerianum*, *Ciona intestinalis*, *Ascidella aspersa* and *Botryllus schlosseri*. Each species behaved as an annual, settling as a larva, breeding and dying within a period of from twelve to eighteen months; breeding occurred in summer. Miss P. Kott, in a résumé of certain compound Ascidians of the Plymouth area, with a description of two new species, considers that *Aplidium nordmanni* and *A. proliferum* are forms of the same species, and that Giard's *A. densum* is synonymous with the latter; Berrill (1950) regards them as distinct species. Obviously we require comparative details of specimens from different areas around the British coasts before lumpers or splitters are accepted as authorities.

Dr. J. S. Alexandrowicz has been able to complete his investigation, begun in 1931, of the innervation of the heart of *Ligia oceanica*. He found three systems of nerve elements—six neurons constituting a local system, a pair of nerves connecting this with the central system, and the nerves of the arterial valves; the alary muscles have their own innervation.

Dr. W. Wieser carried out an intensive population count of the microfauna inhabiting single tufts of seaweeds on the rocks below the Plymouth Labor-