

Cultura houses members of various professions from whom, the Society is informed, the Ministry has not asked for any declaration or guarantee of a political character. Further, the Ministry has not compelled those, who for special reasons, prefer to remain in Madrid, or to live in other places, to go to Valencia. While teaching has had to be interrupted in the universities, the Ministry has not ceased to pay salaries to professors and others who have remained in the provinces under the authority of the Government. The Ministry is also trying to apportion help to Spanish professors and scholars abroad who have not rebelled against the Government.

Complete detachment from prevailing social and political conditions is usually impossible for the

scientific and literary worker and, during the last few years, the work of many well-known scientists and scholars has been adversely affected by conditions against which they have been powerless. A census of outstanding advances in knowledge achieved during this period by those so adversely affected and helped by their colleagues and sympathisers would provide a unique and important historical record.

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Points from Foregoing Letters

PHOTOGRAPHIC records of electrical disturbances occurring during a thundercloud discharge, obtained with a cathode ray oscillograph, are submitted by Dr. F. W. Chapman. By means of a device in which the photographic film moves at right angles to the time-base deflection, electrical pulses only a few micro-seconds apart can be resolved. The records show a volley of discharges, presumably to be identified with the 'brush' discharge often observed in an active cloud as a prolonged flicker or flow, followed after a brief quiescent interval by the main lightning discharge. The volley radiates a long series of electromagnetic waves producing interference in radio receivers, while the main discharge consists of series of steps separated by 30-100 micro-seconds, their quasi-period corresponding to a wave-length of 15-30 km.

It is known that the beryllium nucleus, irradiated by γ -rays, emits neutrons, but it has not been decided by physical methods whether the nucleus is thereby transformed into an isotope of beryllium of mass eight, or into two helium atoms. By a micro-chemical method, Prof. F. A. Paneth and Dr. E. Glückauf have detected, in irradiated beryllium, helium in such quantity that the helium-forming process seems to be the main, if not the only, reaction.

A method for the estimation of enzyme activity by following the change in the density of the medium is described by Dr. K. Linderstrøm-Lang. Small drops of the enzymatic reaction mixture, at different stages, are introduced into a vertical glass tube containing kerosene and bromobenzene in suitable proportions to give a practically constant specific gravity gradient, and their density is determined by comparison with similar droplets of known composition which float at given levels, according to their density. Curves are shown giving the change in specific gravity with time and the amount of amino-nitrogen liberated in the case of mixtures containing *dl*-alanylglycine and peptidase.

What appears to be a complete cycle of development of malaria parasites has been observed by Prof. K. B. Williamson and M. Zain in controlled experiments with *Culex biterniorhynchus*, a mosquito hitherto not considered a malaria carrier. The authors suggest that its ability to carry the malaria germs may be related to the fact that it breeds in pure, uncontaminated water.

In East Greenland and northern Spitsbergen the littoral mite *Moligus littoralis* extends its range beyond the shore, probably due to the non-occurrence

of big competing mites. In southern Spitsbergen it seems to develop more than one generation in the year. In East Greenland, according to H. Madsen, only one generation is developed, the species wintering in the egg.

In experiments on the semicircular canals of the pike, Dr. O. Löwenstein shows that the sense organ in the ampulla of the horizontal canal has a tonic function, and that a single horizontal canal is capable of evoking muscular responses to both clockwise and anticlockwise rotation of the fish in a horizontal plane.

In an investigation on the lower limit of voltages with which artificial radioactivity can be produced, E. Bertl, Prof. R. Fürth, F. Obořil and Dr. K. Sitte have obtained two active components, of period 22 and 100 seconds, by irradiating silver with slow neutrons produced by the action of slow deuterons (positively charged heavy hydrogen nuclei) upon beryllium-coated mica.

The addition of saponin (1 in 1,000) to cream, which usually churns in 60 minutes, delays the formation of butter for several hours, according to Dr. W. Clayton and J. F. Morse. Similar inhibition was observed with egg albumin. The authors accept Rahn's theory that during churning the milk proteins around the fat particles are removed by the aeration and frothing, and this leads to the coalescence of the fat globules.

Drs. R. S. Cahn and R. F. Phipers report that commercial 'activated' aluminas contain relatively large amounts of adsorbed alkali and can bring about, in neutral solvents, reactions normally associated with alkaline reagents in hydroxylic solvents. They suggest that the alkalinity may be responsible for abnormal results recorded by other workers.

Commenting on Dr. Huggins's communication on "Synchronized Oscillations in Hydrogen Bridges", Dr. D. M. Wrinch points out that similar speculations have been put forward by Wrinch and Jordan. The author claims that the mechanical characteristics of protein films are in good agreement with her 'cyclol' hypothesis and its predictions.

An experiment is described by Prof. R. Granit showing that the difference in the initial positive electrical response from two test stimuli applied to a retina is increased (from 8 per cent to 34 per cent) when the retina is 'charged' by an earlier stimulus. This may explain why visual acuity, brightness discrimination, etc., are favoured by bright stimuli and an illuminated background.