processes. It seems to me that many notable advances depend on using some raw material in a new way, such as using rubber for tyres instead of rubbing out pencil marks. By neglecting to finance this kind of research, are we not leaving the most fruitful field without fertilizer ?

From the financial point of view, the main expenditure on research is on the salaries and wages of the research workers. At present, there are glaring irregularities owing to differences in organization and finance. Scientific workers in universities are in permanent positions; but they are paid for their educational services rather than for research. Scientific workers in the many Government establishments are in permanent establishments and are paid upon recognized salary scales to do research. Scientific workers in the employ of private firms are likely to have a permanent career and prospects if the firm is sufficiently stable, and they may be paid to some extent by results. At present, the position of scientific workers in research associations is the least satisfactory. The continuance of their employment is only reasonably assured over the quinquennial period for which Government grants are arranged. My experience, which may be usual, is that young people join the staff to gain valuable experience of industrial research, and seek an assured career in a Government research station, where a better salary and prospects are open to them, or they leave to enter private employment in industry.

This means that co-operative research undertaken by an industry and partly paid for by the industry is at a disadvantage in retaining an experienced staff, compared with an industry, which for some reason or other pays nothing towards co-operative research, either getting it done by a Government establishment or relying on individual and private effort. This is neither just nor advisable. Co-ordination of research effort all along the line is necessary, and research workers should choose their field because they are attracted to it, not because it offers the best opportunities of a career.

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Points from Foregoing Letters

PROF. N. BOHR, discussing the recent observations on the break up of certain heavy nuclei when bombarded with neutrons into particles of approximately equal size, suggests that this effect might be treated approximately as a classical mechanical problem, on the assumption that the excitation energy is distributed among the various degrees of freedom in a way resembling the thermal agitation of a solid or liquid body. The usual radioactive phenomena would then be analogous to the evaporation of a molecule from a liquid drop.

Experiments reported by Prof. J. A. Hedvall and Dr. G. Cohn indicate that the adsorption of phenolphthalein (in alcoholic solution) by cadmium sulphide, is reduced when the latter is activated by irradiation with white light. A similar effect has been obtained with various organic dyes.

Further experiments by Dr. T. F. Wall show that in iron tubes the reduction in the value of H inside the tube becomes greater as the thickness of the wall increases, and is a maximum when the tube is magnetized to a condition which about corresponds to the knee of the magnetization curve. This, he states, supports the views previously formulated that one aspect of the classical theory of magnetization is incorrect, and that the magnetization of a material is initiated at the surface and is transmitted inwards by a kind of 'chain effect'.

An X-ray diffraction photograph of a drop of supercooled liquid sulphur at 25–30° C. is submitted by S. R. Das and K. Das Gupta, who point out that the study of supercooled liquids by X-rays has not hitherto been reported.

X-ray studies of potassium chloroplatinate crystals lead H. Brasseur and A. de Rassenfosse to the view that the $SnCl_4^{--}$ group is not co-planar. In other respects (that is, size of unit cell and space-group), their findings agree with those of Cox, Shorter and Wardlaw.

By examining with a very low dispersion spectroscope any source of artificial light giving a continuous spectrum, it is possible, according to Prof. D. Keilin and Dr. E. L. Smith, to observe two diffuse absorption bands at about 495 and 455 mμ. These, they state, are due to a pigment in the retina which may be either a flavin or a carotinoid compound, or possibly a mixture of both.

At *p*H 3·5, taka-maltase is stable, but taka-sucrase is quickly destroyed. Hence, according to Dr. J. Leibowitz and S. Hestrin, these two are distinct enzymes.

Discussing results obtained by Dr. T. Moewus in his genetical experiments with unicellular algæ, U. Philip and Prof. J. B. S. Haldane find that the probability of their occurrence is so low that one must assume that either a new type of biological regulation is involved or that the author has consciously or unconsciously adjusted his observations to fit his theory.

Dr. O. W. Tiegs describes the development of the embryo of the Australian arthropod *Hanseniella*. It indicates that the Symphyla, the insect class to which it belongs, are survivors of a very ancient stock of myriapods distinguished by the acquisition of a secondary anterior genital opening.

From observations of the chromosomes of salivary gland nuclei of *Chironomus*, pressed out into paraffin oil, Dr. H. H. Pfeiffer concludes that they show definite double refraction of the transverse bands, particularly when stretched. The author considers that Dr. Wrinch's model of net-structure offers interesting possibilities of explaining the contractile and swelling properties of the chromosomes.