

## News and Views

## Mechanisation in Industry

IN his chairman's address to the Birmingham and District Association of the Institution of Civil Engineers on October 23, Mr. C. H. Bailey, after indicating the way in which scientific research and its applications have enabled the number of explosions of coal dust and firedamp in mines to be controlled more effectively, so that the loss of life in this way has been reduced to about  $1\frac{1}{2}$  per cent of what it was thirty years ago, referred to the growth of the professional spirit in the organisation of industry, alike on its financial, commercial and technical side. Already industry is regarded as a public service to a much greater extent than in previous generations. The professional man carries out his work to the best of his ability for the sake of sound workmanship, and the same spirit makes industry interesting and worth while. The special function of a body such as the Institution of Civil Engineers, however, is to provide a standard of professional conduct and ability for those engaged in the technical direction of industry, and such institutions are accordingly closely concerned with those changes in the structure of industry and society which are associated with rationalisation. Mr. Bailey directed special attention to the unification of an industry and the size of the industrial unit, but in doing so he also pointed out its bearing on individuality.

If democracy means anything, it means a social system which will give free play for individuality, and accordingly free education for all is a first consideration in the minds of the leaders of democracy. If, however, machines can only be used efficiently in large concentrations, there is grave danger that opportunities for the expression of individuality will be severely limited. The real incentive to the best effort is the consciousness of occupying sooner rather than later a position of free responsibility. Engineers are ultimately responsible for the tendencies in industrial organisation and at the same time are the victims of their own machines. The technical side of industry seems to have outrun the financial side, and it may be that the great changes on the technical side demand a reconstruction of the financial framework. The essential problem before us is to fit mechanical manufacture into an organisation which affords more men the opportunity of using their capacities to the fullest extent. Industry should perhaps be organised more in small units in which more men could look forward to occupying positions of real free responsibility, and Mr. Bailey suggested that the Institution of Civil Engineers has a real responsibility to its younger members to see that opportunities of utilising their ability are available from the point of view of the community, as well as of the profession. Industry should be regarded from the point of view of a life as well as of production.

## Archæology in Iraq

IT would appear that the way is being paved in Iraq for a drastic revision of the regulations affecting

archæological exploration. That at least is the obvious conclusion to be drawn from the campaign of propaganda to which Dr. C. Leonard Woolley refers in his letter to the *Times* of December 12. It has been known for some time that a new Antiquities Law was contemplated. It was indeed this fact, combined with the difficulties arising from the division of the antiquities from Arpachiyah as between the Bagdad Museum and the organisers of the expedition, which led to the closing down of that important excavation at the end of the season of 1933. The character of the agitation against archæological expeditions from outside may be gauged from the statement made to Dr. Woolley personally by the curator of the Bagdad Museum that the archæological finds assigned to that Museum in the division with foreign missions had amounted only to one half of one per cent. Dr. Woolley, by quoting the actual percentage allotted to the Museum year by year, was able to show that the statement was without foundation so far as concerns the division of antiquities from Ur; while his explanation of the principles which had been followed in making the allocation was sufficient to exonerate the Director of Antiquities from any charge of unfair discrimination, due to his being a foreigner, if indeed any defence were needed.

DR. WOOLLEY places his finger on the crux of the situation in Iraq when he points out that, had it not been for the foreign archæological missions, there would have been no museum at Bagdad, or at least the finest collection of antiquities in the Near East would not have come into existence. The exploration of archæological sites in Iraq has hitherto been carried on by museums or bodies for research and higher education, such as the Oriental Institute of the University of Chicago and the recently constituted British School of Archæology in Iraq, bodies which in the ultimate analysis are normally the channels whereby the private individual is able by subscription to further his interest in archæological research, whether general or specific. While ready to recognise the equity of a division of the material results of excavation with the country of origin, these subscribers look to the enrichment of the collections of the museums through which they contribute as the staple return for their outlay. Further restriction of this return will dry up the source of supply. That it has already had this effect is indicated by Dr. Woolley's statement that, whereas eleven expeditions were recently at work in this field, now there are but two. It is deplorable that, while funds can be raised, archæological activity should be diverted from the area which at present provides the most important and the most fruitful of all the fields for archæological research, and at the same time a possibility of solving some of the most insistent problems of prehistory. A logical solution which would maintain Iraq's control of all antiquities discovered would be the institution of an active Archæological Survey service, on the lines of that of India,

powerfully manned and adequately financed for exploration no less efficient than that carried on by foreign missions; but for this clearly the time is not yet ripe.

#### Suggested Use of Red Filters for Improving Vision

IN the *Klinische Wochenschrift* for November 3, Dr. Arnold Berliner, editor of *Die Naturwissenschaften*, has advocated the use of a red filter for improving vision when the media of the eye are hazy, as from vitreous opacities, incipient cataract, etc., since in such media light of short wave-length is scattered more than that of longer wave-length. The theoretical validity of this physical argument is undoubted, but physiological considerations render it doubtful whether much advantage would accrue. It is interesting to note that somewhat similar improvement of vision has been predicted for a glass of very different transmission characteristics by Dr. Birch-Hirschfeld (*Z. Augenheilkunde*, 77; 1932) and Dr. Danmeyer (*Hansa Deutsche Schiffarts-Z.*, December 1933). This 'neophan' or 'neodym' glass contains neodymium, and is slightly blue-violet in colour. It will be remembered that Sir William Crookes made and investigated the light transmission of such a glass, which differs little from that of the 'Crookes' glass now on the market, though it apparently has a rather more pronounced absorption band between 550 m $\mu$  and 650 m $\mu$ . It is held that the diminution of the yellow reduces the dazzling effect upon the retina. Prof. H. Hartridge, however, has given good reasons for thinking that these rays of highest luminosity in the spectrum are those most important for accurate discrimination of the retinal diffusion image with incident white light.

It might well be expected on physical grounds that monochromatic light would afford the sharpest retinal image, and the observations of Uhthoff and others support this view, provided that the intensity of the light is adequate. The eye, however, is an extremely complex optical instrument, and its physiological properties are such that maximal central discrimination depends not only upon the accuracy of the optical image, but also upon the sensitivity of the neural receiving apparatus. This is profoundly modified by the conditions of adaptation to light, and also by the condition of the surrounding retina. In many cases, central vision is enhanced by moderate illumination of the surrounding field. Hence the normal scattering of light which takes place in the eye may quite possibly be beneficial. Too much optimism should not therefore be indulged in when based only upon theoretical considerations of a purely physical nature.

#### Eyesight with Yellow Light

THE high luminous efficiency of the sodium vapour electric light makes it probable that it will be more extensively used in the future, if it can be shown to have no deleterious effect on human eyesight. Under the supervision of the Port of New York Authority and the United States Public Health

Service, this question has been investigated by Mr. James E. Ives, senior physicist of the Public Health Service, and his conclusions are included in Public Health Report No. 1640. Two groups of clerks, each about a dozen in number, worked four hours a day at their usual tasks, one group in a room illuminated solely by sodium vapour lamps, the other group with the usual gas-filled tungsten lamps. In each case the illumination of the plane of work was 10 foot candles. The eyes of each subject were examined clinically four times during the investigation, which lasted three months. The sodium light was found soft and easy on the eyes, and no permanent effect on the eyes could be detected, nor was there any difference in the amounts of work done by the two groups.

#### A Scottish Bird Station

SCOTLAND is well placed for intercepting certain movements of birds on migration. The records made by Dr. Eagle Clarke and after him by the late Admiral J. H. Stenhouse at Fair Isle, ably supplemented by the skill and knowledge of the islanders themselves, have made that remote spot between the Shetland and Orkney Islands a name known to all students of bird migration. But Fair Isle is remote and difficult of access, and it must be admitted that it receives the full tide of migration only under peculiar conditions of weather. On the other hand, the Isle of May, situated off the entrance of the Firth of Forth, is not far from centres of population, is easily reached in most kinds of weather, and has been proved, by many annual visits of Miss Baxter and Miss Rintoul, to be a good post of observation. Accordingly a few enthusiastic ornithologists, the Midlothian Ornithological Club, have decided to make the Isle of May a bird station at which regular, and so far as possible continuous, observations of bird movements will be made, partly by field study, partly by trapping and ringing adult birds. The carrying out of the project has been made possible by the permission of the Commissioners of Northern Lights, and every naturalist will wish success to this promising enterprise.

#### Pioneer Bird Observatories

THE first bird observatory for making day to day records of passing birds and marking migrating species with numbered aluminium rings in the adult stage, where mortality is much less than in the nestling stage, was formed at the beginning of the present century by Prof. Thienemann at Rossitten, East Prussia, followed shortly after by Prof. Rudolf Drost's observatory at Heligoland. In the United States, the first bird-ringing or 'banding' station was established by S. Prentiss Baldwin on a 100-acre farm at Cleveland, Ohio, with a winter branch at Thomasville, Georgia, but the United States Bureau of Animal Biology now maintains two bird observatories, at Berkeley, California, for migration and waterfowl studies, and North Eastham, Massachusetts, for migration, in addition to general observation reserves for birds and mammals. In the British