

effected mainly by a better knowledge of the properties of steam and studies on the creep of metals. Important conclusions have been arrived at by researches on wind pressure on overhead lines, heating of buried cables and cables in ducts, the armouring of cables and methods of efficient earthing. The work done on the design and use of concrete poles may lead the Electricity Commissioners to reconsider the present stringent regulations relating to their use. Important advances have been made in new types of switches to break large currents at high voltages. We are now abreast of the work done in competing countries and in some directions we are in advance. Thanks to experimental research and advanced mathematical calculations, the problem of the interference caused by power circuits on communication circuits can now be regarded as solved. Good progress has been made in the study of problems of importance in railway engineering. The printed schedule of headings under which the railway researches are being conducted now runs to twenty pages.

Training the University Graduate

In the annual report presented by the Vice-Chancellor, Sir Charles Grant Robertson, to the court of governors of the University of Birmingham on February 23 comment is made on the increase in the number of students in spite of the general depression. It is pointed out that on the Continent, the universities are greatly congested, the attendances being, paradoxically, greater the greater the depression. The chief increase is in the faculty of medicine. The Vice-Chancellor raises the question whether the universities are doing all that they might or ought to do to meet the requirements of the rapidly changing social conditions. For example: "if the Universities are providing, and will have to provide to an increasing extent, direct training for careers, not contemplated twenty years ago, and those careers require a special technique, the essential problem is as to whether that technique can be taught, or whether the true function of the University lies in preparing for the most rapid acquisition of the technique elsewhere and as a post-graduate business. 'Technocracy' is the latest American gift, and we may fear the United States—especially as a giver—but do we not need as a nation, *outside* the Universities but definitely correlated to them, a series of 'schools' which will do for the University graduate, who has not been like the engineer technologically trained, what the Hospital does for the medical graduate who becomes, for a strictly limited period, a House Physician and a House Surgeon? Do we not also need a much closer connexion between the big Technical Colleges and Schools and the Universities?" In referring to the report of the Joint Standing Committee on Research, the Vice-Chancellor gives his opinion that "the Committee ought to be in a position to support a plan of research conducted by a *Department* as a whole on definite lines and for a definite purpose and extending over a defined period". The only obstacle to such a policy is of course the financial one.

Specialist Posts in Industrial Management

AN article by Dr. W. H. Coates in the January number of the *Journal of Careers* reviews the developments in industry which have led to the creation of specialised posts in industrial management. These developments are the outcome of the changed conditions of industry and the heavier demands upon human qualities in management which are made by the growth of the scale of industrial enterprise and organisation. Where formerly several men filled one function in several small businesses, there are now several men each specialising in one function in large-scale business. These specialised activities can be broadly classified as they are concerned with production, sales or administration. We thus have the new key positions such as planning and production manager, transport manager, sales manager, secretary, personnel manager, labour officer, purchasing officer, etc. Specialisation in this way, concentration of research, thought, and practice within a limited field, is steadily leading to more efficient management, to fuller knowledge and to new ideas, and affords also a way of applying the scientific method to an increasing extent to the problems of administrative and executive control. Dr. Coates visualises alike a large field in which scientific methods have to be applied with an accuracy, patience and persistence comparable with those applied in the fields of physical science, and a field of human co-operation which makes large demands upon team work if the problems of large-scale industrial management are to be solved. Given such conditions, Dr. Coates sees no limits to successful management implicit in the size of the undertaking, and is confident that there is no lack of young men who are capable of tackling the present and future problems of large-scale management.

Fat in Aestivating Animals

IT is a matter of common knowledge that many hibernating animals, in cold climates, survive their long and enforced fast by accumulating fat within the body, or immediately under the skin. It is by no means so generally realised that a precisely similar accumulation is made by many animals living in hot climates, which must also fast, in a state of aestivation, until food is again procurable. A good opportunity of making observations on some aestivating types has just been furnished by the birth at the Gardens of the Zoological Society of London of four 'fat-sand-mice' (*Steatomys*) and four 'fat-tailed gerbils' (*Pachyurus*). For this curious adjustment has now apparently become fixed, since even in captivity the fat is still stored, though its need has disappeared. But there seem to be no records as to whether the amount of fat formed is less in captive animals, which have no need to fast, and at what stage in the growth of the young animal it begins to make its appearance. There seem to be no possible means of discovering why, in these two types, living under precisely similar conditions, one should form a deposit of fat over the greater part of the body, while in the other it should accumulate in the lower part of the back and tail.