

All paper-testing work, on strength and printing quality, is carried out in this laboratory, where is also installed a small printing machine on which printing tests can be carried out under controlled conditions.

GENERAL offices and library are housed on the ground floor of the Laboratories. From the library, the Intelligence Section of the Association's work is operated and the "Review of Literature" published. The physics department is contained on the first floor where work on colour fading, examination of adhesives and bookbinding materials are carried out. This department also contains a section for photomicrographic work on paper fibres, inks, prints and printing alloys, and a dark room for ultra-violet and infra-red work. The upper floor has been converted into two chemical laboratories. One is mainly for analytical work in connexion with the day-to-day problems submitted by member firms, and the other set aside as a chemical research laboratory for dealing with the longer-ranged problems connected with the working properties and drying of printing inks, lithography, photogravure printing, stereotyping and electrotyping, etc. It is the aim of the Research Association to deal with both the day-to-day problems and the longer-ranged work connected with printing processes and raw materials, and to build up a scientific background to one of the 'craft' industries so that the inherent difficulties, now aggravated by increased speeds of production, can be eradicated and the future developments of the industry guided by scientific research.

The West Indian Volcanoes

At the Friday evening discourse delivered at the Royal Institution on March 12, Sir Gerald P. Lenox-Conyngham described "Montserrat and the West Indian Volcanoes". The island of Montserrat has recently suffered from a series of earthquakes. They began about the beginning of 1934 and continued with varying intensity all through 1934 and 1935. In the autumn of 1935 the inhabitants sent a petition to the Governor praying that steps should be taken to discover, if possible, whether there was danger of an eruption. Their anxiety was due to their recollection of the events of 1902 when eruptions of the Soufrière of St. Vincent and of Mont Pele of Martinique did terrible damage. Such an eruption in Montserrat would be most dangerous to the town of Plymouth. As a result of the petition, a small expedition consisting of a geologist and a physicist was sent out. Frequent severe shocks were felt up to November 1935. After that date the activity of the volcano became steadily less. A good measure of success was attained in locating the positions of the foci, and it is now known that they were all situated in a belt about four miles wide which crosses the island from south-west to north-east. The West Indian island arc bears strong resemblance to the East Indian arc that runs eastwards from Java. In 1929-30 Dr. Vening Meinesz of the Dutch Geodetic Commission made a gravity survey of the seas around these islands and found that there is a belt of negative

gravity anomaly lying outside the island arc. The circular form of island and mountain arcs is suggestive. It is probable that the form is determined by the intersection of a thrust plane with the sphere. Mr. P. Lake has pointed out that the radius of the arc gives the dip of the fault where the thrust plane cuts the surface. It is believed that gravity determinations combined with the consideration of the curvature of the island chain and of the probable position of the over-thrusting foot of the tectonic arc on which the islands have been built up by volcanic agency will throw light on the structure of the region.

New University Studies

At the recent annual meeting of the Court of Governors of the University of Birmingham, the vice-chancellor, Sir Charles Grant Robertson, noted a small decline in the number of students in the University, possibly due to the decline in the birth-rate (though periods of 'boom' in trade have on previous occasions been associated with a slackening in the entry to the University). The Faculty of Medicine, however, shows no such falling off. He commented with satisfaction on the success of the Appointments Board and the evidence of an increasing demand for the product of the University in industry—in fact, during the past year the demand on the Appointments Board exceeded the supply. Sir Charles dealt with the lack of the study of the social sciences in English universities. It has been suggested that the education of a university graduate is incomplete without some such study, but there is the difficulty of finding the time without omitting some other part of the curriculum. It appears probable that little can be done unless there is a specialist social science degree course, or the subject is made one for a post-graduate course of at least one year; and then there is the problem of finding posts for such graduates, with adequate pay and prospects of promotion, so long as the wide field of municipal civil service is barred to university graduates. Sir Charles expressed sympathy with the Government's desire to promote physical training in universities, but, in addition to the fact that the necessary trainers do not at present exist, the thorny problem of compulsion or non-compulsion would have to be solved.

The Universities and Social Science

A SPEECH entitled "A Citizen Challenges the Universities", delivered by Sir Ernest Simon at the summer, 1936, meeting of the Council of the Association of University Teachers in Cardiff, appeared in the *Universities Review* of November last, and a reprint of it has reached us. The challenge relates to the imminent threat to democracy involved in our tolerance of such conditions as those of South Wales and other depressed areas, and the universities' alleged neglect, in the face of that threat, to do their duty by the social sciences: their failure alike to provide adequate inducements, staff and equipment for research in those sciences and for specialized study in them, and to employ effectual measures for ensuring that students, of whatever schools, shall

not graduate without an active and realistic interest in the broader problems of the world to-day. The challenge is not a new one, but its urgency grows with the growing prestige of 'corporative' States. It was an outstanding motive of the remarkable series of eight university supplements published in *Time and Tide* in 1935. To that series Sir Ernest himself contributed an article on "Where our Universities Fail".

SIR ERNEST SIMON'S estimate of the responsibility of the universities in this matter is based partly on the assumption (the validity of which tends to diminish) that public opinion in Great Britain is largely determined by men and women educated at the universities, and partly on the influence the universities exert on the teaching in secondary schools through university scholarships and entrance examinations, and control over examinations in those schools. His argument finds some support in the last report of the University Grants Commissioners. But arguments must be cogent indeed to overcome the inertia of university governing bodies, especially since no provision was made for research in the social sciences when the Government of the day set up the Department of Scientific and Industrial Research. In a postscript to his paper, Sir Ernest announces that the Association for Education in Citizenship is proposing to appoint a committee on the whole problem of the universities and citizenship and invites communications from persons interested in this matter. His address is, Broom Croft, Didsbury.

Public Affairs Forums in the United States

ADULT civic education through "public affairs forums" is now being energetically pushed by the United States Federal Office of Education, the present head of which, Dr. Studebaker, played a principal part in the launching, several years ago, of the pioneer forums in Des Moines. The latest official publication on the subject, a pamphlet entitled "A Step Forward" (Superintendent of Documents, Washington, D.C. 10 cents), includes an account of ten forum demonstration centres in as many different States, managed by local educational authorities. A foreword by the Commissioner strongly emphasizes the principle of local responsibility and control, but the enterprise has been financed largely out of the Federal Emergency Relief Appropriation, and several hundred relief workers have taken part as assistant librarians, research assistants, artists, writers, accountants, typists, etc. The Secretary of the Interior, in commending the Commissioner's scheme, observes that it has brought about an essential and practical contact between "those few of our citizens who are concentrating their time and effort on the pursuit of truth in the field of social problems" and the average citizen who cannot devote much time to a specialized study of these complex questions. The success of the scheme hinges on finding competent leaders for the forums, for they have the difficult task of first presenting a topic in simple language in a way calculated to sustain interest, giving a fairly comprehensive and impartial outline of the problem

and the alternative solutions, and then stimulating, leading and organizing a free discussion for forty or fifty minutes. Most of them have been obtained on leaves of absence from colleges and universities. The improvement of social intelligence for the democratic control of our material resources is, says the Commissioner, the challenge of our day.

Social Services in Great Britain

"PUBLIC SOCIAL SERVICES" (Cmd. 5310. London: H.M. Stationery Office. 4d.) portrays statistically what may, without much exaggeration, be called the social revolution of the twentieth century in Great Britain. It shows that in the first thirty years of the century the cost of the social services referred to increased just thirteen-fold, namely, from thirty-six millions to four hundred and sixty-eight millions sterling. The first decade was marked by a rise in expenditure under Education Acts from 20 to 34 millions and the coming of old age pensions which cost 7 millions in 1910. The next decade saw a leap in education expenditure from 34 to 90 millions and in old age pensions from 7 to 21, the introduction of unemployment insurance (11 millions), national health insurance (30 millions), the mental deficiency acts, and, of course, war pensions. Between 1920 and 1930 the expenditure under unemployment insurance increased to 102 millions and under old age pensions to 37½ millions, and the widows', orphans' and old age contributory pensions acts came into force, involving, in 1930, an expenditure of 34½ millions. During this period, expenditure under the housing acts increased from 4½ to 40 millions.

Natural History Exhibition at Wye

THE Wye College Branch of the University of London Animal Welfare Society (ULAWS) held a Natural History Exhibition at the South-Eastern Agricultural College, Wye, on March 11-13. The greater part of the Exhibition was given up to natural history specimens exemplifying the classification of the animal kingdom. Several dissections caused much interest. A fine collection of beaks and feet of birds made by a member of the Branch was on view. Specimens of bacteria, minerals and other microscopic objects were shown. In addition, there were films of animal life, including the ULAWS film on the care of dogs, which proved to be very popular. At the entrance to the Exhibition were exhibits dealing with the oil menace and the rabbit problem. The former showed how the discharged waste oil from ships and tankers floats on the surface of the sea and covers the feathers of sea-birds. Very little is enough to kill birds, causing them to die of pneumonia due to the water being able to get at the skin. A live guillemot from which the oil had been removed was shown. In all cases so far, however, the solvent used to remove this has also removed the natural grease from the feathers, with the result that the bird gets sodden when placed in water. Further experiments are being carried out by Mr. R. S. Pitcher. A gin trap for catching rabbits was demonstrated and its unsatisfactory character explained. Instead of decreasing the animals, it often leads to an increase,