

## News and Views

### The University of Sheffield

THE University of Sheffield, although only a little more than thirty years old, has taken an established place among the universities of Great Britain, and is attracting an increasing number of students. Recent years have witnessed some important developments and additions to the buildings, including a new department of mining, a school of dentistry, hostels for men and women and a new students' union. These additions have been largely due to specific gifts to the University. But in nearly all departments the present buildings are overcrowded. Teaching and research are carried on under conditions discouraging and hampering to both students and staff. Moreover, the limited resources of the University, imperilled by recent falls in rates of interest, limit the possibilities in securing the best men to fill vacancies on the staff and keep salaries below the usual level of other universities. To meet the urgent requirements for buildings, equipment and endowment, the University has issued an appeal for £250,000. Not less than £450,000 is required for complete fulfilment of requirements, but the lesser sum represents the minimum for outlay that is long overdue.

The departments suffering most are medicine, geography, architecture, engineering and metallurgy. It is proposed to begin with the building of a new wing as part of a more comprehensive scheme. This wing will accommodate botany, zoology and geography, thus liberating other rooms occupied by these subjects. Engineering and metallurgy will find further accommodation by the acquisition of new and adjoining the applied science department of the University. The completion of these buildings would for a few years relieve a congestion that has become intolerable. But equally urgent is the provision of further space for the growing library. The present library, with space for only one year's normal addition of books and periodicals, and reading space for only a small number of students, must be extended. The proposal is to add to the library the present assembly hall, known as the Firth Hall, which is much too small for its present purpose and has very bad acoustic properties. This will entail the building of a new assembly hall of adequate size. For the main extensions the University already has the land but the houses that occupy it will have to be demolished. Some of them at present accommodate in small and unsuitable rooms departments in the faculties of arts and law. Further land, however, is urgently required for the extension of playing fields for the growing number of students. Plans for the completed university have been prepared by Mr. T. Lodge and are published in the pamphlet which the University has issued. The gift of large sums to the universities of other large industrial towns has set an example which it is hoped may be

followed in Sheffield now that the economic depression seems to be passing. Contributions to the extent of £54,000 have already been promised, including a sum of £10,000 from Sir Robert Hadfield, to whom the University is already indebted for generous gifts in the past.

### New Laboratory for Research in Aeroplane Materials

ON October 3, Mr. D. R. Pye, deputy director of technical development at the Air Ministry, formally declared open the laboratories of Aero Research Ltd., Duxford, Cambridgeshire, by setting in motion a press of 1,300 tons capacity. The ceremony was to have been performed by Mr. H. T. Tizard, chairman of the Aeronautical Research Committee, but he was unfortunately prevented at the last moment from doing so by illness. Aero Research Ltd. is a private research organization working in co-operation with Messrs. the de Havilland Aircraft Co. Ltd. and with the Department of Scientific and Industrial Research, chiefly on synthetic resin materials. A number of demonstrations was given of the properties of the materials developed, and it was shown that the apparent brittleness in static fracture is counterbalanced by a high energy absorption which results in a remarkable freedom from 'notch sensitivity'; at the same time the amorphous structure of the material gives exceptionally good fatigue properties. Controllable pitch airscrew blades were shown, designed and manufactured by the de Havilland Aircraft Co. Ltd. from material supplied by Messrs. Bakelite Ltd., which had withstood successfully severe tests in addition to sixteen and three quarter hours actual test flying (involving continual changes of pitch) and fifty engine backfires. Other demonstrations were given of X-ray apparatus, photo-elastic apparatus, special testing machines and of the utility of mass balancing in preventing wing flutter.

### Records of Bird-Song

ON October 6 a private hearing was given by Messrs. H. F. and G. Witherby of some wonderfully successful gramophone records of British birds singing in their natural haunts. These are to be issued next week with a book on "Songs of Wild Birds" by Mr. E. M. Nicholson, said to be the first work to be published in Great Britain with auditory as well as visual illustrations. The records themselves were made by Mr. Ludwig Koch, with the assistance of Mr. C. Horton-Smith and the technical co-operation of the Parlophone Company. The material given on two double-sided disks, running for twelve minutes in all, has been selected from a large number of recordings. The practical difficulties to be overcome were obviously great, but the results obtained are well worth much labour. The songs of such musicians as the nightingale and blackbird are beautifully



reproduced; the characteristic strains of lesser songsters like the chaffinch and willow-wren are faithfully recorded; and the calls of cuckoo and dove—even the non-vocal drumming of the spotted woodpecker—lend pleasing variety. The quality is incomparably superior to that of previous records obtained from captive birds of a few species. These records will certainly give much pleasure and useful instruction: they may also provide valuable opportunities for analytical study of bird music. No doubt more will be made, for different kinds of birds, now that the example has been set. It is clear, too, that there are other subjects to which this interesting innovation of the 'sound book' may in future be applied.

#### Advances in Radium Therapy Technique

TELERADIUM therapy progresses in Great Britain, and more than one big unit is now established, for, apart from those centralized under the control of the Radium Beam Therapy Research, there is a 4 gm. unit at Westminster Hospital's Radium Annexe, where physicists and engineers have combined in devising an efficient form of distant electrical control. The radium container is suspended from a rotating beam bolted to a steel girder. This container weighs about 70 lb., and the transfer of the radium in it after application to the patients, to a massive safe for purposes of custody, is carried out electrically. There is no actual handling of the radium by any of the staff, the operator being 14 ft. from the patient's couch. Another interesting feature of the container used is that it carries a collar of platinum in order to reduce scattering of emergent rays to a minimum. These technical developments in the construction of big units of radium are very welcome, because the ordinary methods of protection for the personnel which are quite efficacious in the case of X-rays are inapplicable with penetrating gamma radiation.

#### The New Fulham Electrical Power Station

THE new power station at Fulham on the banks of the Thames was opened formally on September 26. It occupies an area of 15 acres and has a river frontage of 1,300 feet. It is an extension of the existing plant of the Metropolitan Borough of Fulham, but the disparity between its size and the demand required for the borough shows that the new station is an undertaking to serve the Grid. Two sets of 60,000 kilowatts each were installed this year and a third set is now being added. The boiler house is at right angles to the river and the turbine room is parallel to the river. Two white reinforced concrete chimneys three hundred feet high are already built, and when the station is completed there will be four of them. Three colliers have been ordered, each of them capable of carrying 2,300 tons of coal, and the jetty has three travelling cranes each capable of handling 175 tons an hour. The cranes pass the coal to weighing machines, whence it is fed to the furnaces on two belt conveyors which run at 300 feet per minute. Using only two cranes enables a collier to be unloaded in 6½ hours. When complete and working at approximately half its maximum power, the station will consume roughly 2,000 tons of coal per day.

The final fleet of colliers will consist of six boats capable of sea voyages and of passing under the seventeen bridges up the River Thames to Fulham. The new station has a dignified appearance and in conjunction with the Battersea power station on the opposite bank of the Thames will enable the Central Electricity Board to balance the London load.

THERE has been considerable opposition to the location of 'super' stations in urban areas, mainly on the ground that their chimneys emit grit and noxious vapours. But the gas washing plants at Fulham are so efficient that this objection has little weight. Each boiler is provided with sulphur extraction plant in the form of two separate units each provided with a separate induced draught fan. The sulphur extraction plant employs grid packing irrigated by a liquor containing suitable alkali so as to maintain intimate contact between the boiler gas and the washing liquor. The liquor system is known as the Howden non-effluent system. The washing medium is constantly recirculated and purged in order to keep the concentration of solid at the best value. The solids extracted are dealt with by a separate and external settlement plant. The amount of liquor recirculated through a complete washer for one boiler unit is 13,000 gallons per minute. Each complete plant is capable of handling 105,000 cubic feet of gas per minute, and the extraction efficiency for sulphur and grit is 98 per cent if the coal have a maximum sulphur content of 1.7 per cent.

#### The Electricity Grid

MR. H. HOBSON, in a paper read to the recent World Power Conference at Washington, pointed out some of the advantages that have accrued to Great Britain from the electricity grid. The present trend of the national output of electric supply makes it clear that, before the end of the first ten years of its operation, the system will have effected great economies without cost to the country. In the last three years alone, fuel costs per unit have been reduced 15 per cent and thermal efficiencies have risen more than 12 per cent. In 1925 the reserve generating plant was about 2 million kilowatts, against an aggregate maximum demand of less than 3 million. Last year the reserve showed no increase although the aggregate maximum demand was greater than 6 million. There is one point that is being seriously considered by the Air Raid Precautions Department of the Home Office. There is no doubt that the grid with all its associated superstations will be much more vulnerable to aircraft action in war than the old regime with its independent power stations and few overhead lines. Anti-aircraft forces would doubtless be a help, but permanent protection by camouflage or otherwise would be very difficult. Unless a super-power station were taken absolutely by surprise, palliative measures could be devised to prevent damage to the stations linked with it.

#### Estimates of Future U.S. Power Supplies

SOME conclusions from the reports given at the third World Power Conference as to how long