Research Laboratories; Mr. C. C. Paterson, of the General Electric Co., Ltd.; Prof. R. Whiddington, of the University of Leeds; Dr. R. H. Pickard, of the British Cotton Industry Research Association; and Prof. J. A. Crowther, of the University of Reading. After the tea interval, the meeting was opened for general discussion. The important suggestions and comments made at the meeting and in writing are receiving the most careful consideration of the Board of the Institute, which it is anticipated will issue a memorandum on the subject in due course.

Salmon and Freshwater Fisheries

INFORMATION given in the Report for the Year 1934 of the Ministry of Agriculture and Fisheries Salmon and Freshwater Fisheries (H.M. Stationery Office, 1*s*. net) shows that, on the whole, despite the prolonged period of drought during the summer months of that year, no disasters of a widespread character took place. The droughty conditions have, however, inevitably affected the catch of fish to a certain extent and led to incidents of mortality from pollution of one kind or another. Although the mortality of fish attributable to furunculosis was comparatively slight, the Report wisely stresses the necessity for no relaxation of vigilance over the dangers of this disease and states that "it is regrettable that the Diseases of Fish Bill, after passing through the House of Lords, failed, owing to congestion of business in the House of Commons, to become law". There is evidence in the Report that increasing attention is being paid to problems of pollution which affect not only the fisheries, but also the use of rivers for water supply and as amenities for the general public. The appointment of an Inland Water Survey Committee will, it is hoped, produce additional information of value for the study of fishery problems by the gauging of streams and correlation of their flow with rainfall. It is satisfactory to note that the large amounts spent on sewage disposal during the last few years appear to be benefiting many rivers. There is, however, still much work to be done in this direction, and it is pointed out that sewage was probably the cause of more cases of fish destruction than resulted from industrial effluents.

Research in the Electrical Industry

THE main object of the British Electrical and Allied Industries Research Association, 15 Savoy Street, W.C.2 (the E.R.A.), is the co-operation of all sections of the electrical industry and of all those associated with it, in the general interests, of the industry and in the national interest. The sections include manufacturers of electric plant, those who supply electricity, those who make extensive use of it and scientific and technical investigators. The desired results, namely, industrial expansion and public benefit, can only be attained by team work of the highest order. The Association is well supported by the industries affected. During the last five years, the income has increased from £31,600 to £65,840. The main work done is to increase the efficiency and trustworthiness of electrical apparatus and of electrical supply. A reduction of cost is for the public benefit, and this can be achieved by expanding the field of utility and increasing the use and demand. Among other researches carried out was one on the thermal stability and ignitability of dielectrics. A range of standard heat sources was devised to simulate the conditions which occur in practice. The method of applying those heat sources when testing insulating materials for resistance to applied heat and the grading of them is described in a new report (Ref. *L*/64) issued during the year. A novel feature of interest is the standard flame, produced by a spirit burner of the Barthel type, which is reproducible to a degree of accuracy not possible with the Méker gas burner which it replaces. An extension of this work is in progress on the behaviour of ignitable materials under different ambient conditions, such as draught, with the object of devising means whereby self-extinguishing materials may be graded to better advantage.

Sixth International Congress for Scientific Management

THE Proceedings of the Sixth International Congress for Scientific Management, which have now been published (London: P. S. King and Son, Ltd.), completes the series of seven volumes containing the papers and speeches at the Congress. The six volumes issued prior to the Congress contained the papers to be presented at the various sectional meetings. The final volume includes reports on the actual discussions, and the excellent summaries of the rapporteurs give epitomes of the matter contained in the previous volumes. Full reports are given of the speeches at the first plenary sessions when "Management Problems arising from Government Intervention" were discussed. In the Educational and Training Section, the scientific worker will find much that is of interest in the discussions on sources of recruitment and methods of selection, which ranged over a wide field of personnel problems, and on objects and methods of training and further education, or on the avoidance of excess and waste of personnel selected and trained for high administrative positions. The wider use in administrative work of technical and scientific workers possessing administrative ability, while an urgent need in industry as in Government to-day, is only part of the general question of encouraging the development and securing the best selection of those possessing real administrative powers. The second plenary session, on the simplification of data, the place of statistics and the standardisation of terms, as well as various discussions in the manufacturing and agricultural sections, are also of considerable interest; for example, those on scientific methods applied to works management and on production control. For a volume designed as a permanent record, it is a pity that the subject index is so meagre.

Compressed Gas as a Fuel for Motor Transport

ON December 13, Mr. Robert Cook read a paper on "Compressed Gas as a Fuel for Motor Transport" before the East Midland Section of the Institute of Fuel and the Society of Chemical Industry at

Nottingham. This comprised a brief history of the utilisation of gas as a fuel for internal combustion engines, together with an assessment of its economic possibilities in competition with petrol and heavy oils. Comparisons of the usefulness of gas and petrol for internal combustion engines are not unfavourable to the former. A higher thermal efficiency is obtained with gas than with petrol; the carbon monoxide content of exhaust gases is very much lower than with petrol; starting is as good; flexibility and acceleration are superior to petrol when the engine is cold; and it is quite as safe in use as petrol. The chief drawback to gas as compared with petrol is, of course, the difficulty of carrying a sufficient quantity for any considerable mileage. Latterly, however, various firms have been experimenting in the production of light high-pressure cylinders. The real competitor of gas for road transport services is heavy oil, and at present virtually no comparison can be made between these two fuels, since in every case the greater the annual mileage, the greater the economic superiority of heavy oil. The balance in favour of heavy oil might be substantially reduced by a rise in its price; an allowance in respect of the weight of vehicle cylinders when assessing licence duties; development of a special engine for gas propulsion; or by the enrichment of coal or coke-oven gas. Without such adjustments, gas cannot enter into successful competition with heavy oil for road transport service.

Fireproofing of 'Fireproof' Buildings

AT the discussion of the American Steel Institute at White Sulphur Springs, Va., on October 17 on 'fireproof' structures, Dr. Ingberg, of the National Bureau of Standards, stated that in steel-framed buildings it is necessary to protect the steel by a concrete covering. In a report of the discussion issued by Science Service, Washington, D.C., it is pointed out that steel supports at high temperature sag under the terrific weight of the superimposed structure. The problem before those responsible for the fire-prevention code is to ensure that sufficient covering is given to the steel members of a building to prevent the temperature giving rise to dangerous conditions. According to Dr. Ingberg, tests have shown that for moderate rises in temperature—300°–600° F.—the strength of steel girders increases as much as 25 per cent. Above 600° a decrease occurs, and hence safety considerations make it imperative that protection in the form of a complete concrete covering must be provided. Apart from the question of safety and avoiding risk of collapse of the roof and other parts of the building owing to excessive temperature rises during a fire, it is necessary to prevent excessive relative expansion between the various parts of the structure.

Oil-Finding Methods and Oil-Made Chemicals

THE National Research Council recently organised a five-day, 2,000-mile tour of industrial research laboratories for fifty-two leading business men. Science Service, of Washington, D.C., gives an account of their visit to the laboratories of the Gulf Refining Company and the Mellon Institute for Industrial Research. Dr. Paul Foote, director of the former concern, described how explosions of dynamite are used to send sound waves to a depth of 10,000 ft. into the earth where they encounter rock structures and are reflected; by their speed, reflecting and refracting behaviour they indicate the nature of the underlying deposits. He was also able to show the visitors a collection of new chemicals derived from oil products, some of which have powerful destructive qualities. Dr. E. R. Weidlein, director of the Mellon Institute, pointed out that employment had been provided there for 97 trained scientific workers and 48 assistants during the last year. Their work concerned chiefly industrial problems of manufacture, but had included specifically research into the use of carbon black as a colouring material for concrete highways to minimise the glare of lights, the use of chemical metaphosphate in laundering and the bonding of tile products to steel for exterior construction use.

Animal Road Fatalities

SCIENCE SERVICE, of Washington, D.C., gives an interesting but somewhat alarming summary of Dr. Dreyer's statistical report of animal road deaths, made during a journey of 2,550 miles. Dr. Dreyer counted sixty-one dead animals on the road. This included cats, dogs, birds, snakes and turtles. Contrary to expectations, more turtles than chickens met their death in this unhappy way, there being counted eighteen of the former and only three of the latter among the total. Of the other animals listed, after turtles, which headed the list, skunks were the most unfortunate. Dr. Dreyer's census is of particular value in that little attention has hitherto been paid to animal road fatalities in the campaign against loss of life by the motor-car.

The Population Problem in Bengal

THE population of Bengal, 50·1 millions with a mean density of 646 per square mile, would seem already to have passed the stage when its needs can be met by the area it occupies. In seeking a remedy, one school supposes that if we "look after the death-rates, the birth-rates will look after themselves", and another suggests that "if we keep down the births, the deaths will keep down themselves". Cedric Dover, in a critical survey of the situation, concludes that control of the birth-rates is likely to furnish a more useful contribution than exclusive attention to death-rates (*Population*, 2, No. 1, November 1935, p. 90). A maximal population cannot be maintained above the bare subsistence level, even with radical progress in economic prosperity. The population of Bengal has already outgrown its resources, and the time seems to have come when eugenic control of population growth should be introduced.

The Nucleus of the Atom

WE have received a symposium entitled "The Nucleus of the Atom and its Structure" from the Ohio State Chapter of the Sigma Xi Society which contains a quantity of information not easily accessible