

very prevalent in Britain; it constituted about one third of the cases of so-called foul brood sent in for examination. It is liable to be mistaken for foul brood, but is really due to a defective condition in the queen, and once it is recognized can readily be cured by requeening. The work in the next three years will be concentrated on tests of control measures for both European and American foul brood and further work on the organisms causing European foul brood. It is to be hoped that further support will be forthcoming to supply the small amount still required for this year's work, and that as many contributors as possible will continue to subscribe for the three years.

#### Regional Planning in the United States

A broadsheet issued by PEP (Political and Economic Planning) describes some developments in regional planning in the six New England States of the U.S.A. which are of some interest in relation to the Special Areas Bill in Great Britain. The broadsheet is based on a report prepared by the Commission on Regional Planning for New England, issued last year by the National Resources Committee, a progress report, "State Planning, Vermont", issued by the State Planning Board of Vermont, and on general reports on "State Planning (Review of Activities and Progress)" and "Regional Factors in National Planning", both issued by the National Resources Board. While the population of the United States as a whole increased by more than 140 per cent between 1880 and 1930, that of New England increased by little more than 100 per cent and that of the State of Vermont by less than 10 per cent. Seventy-seven per cent of the New England population is now urban, and only 6 per cent remains on farms. Simultaneously, the occupied population has declined to 42 per cent (as against 47.2 per cent in England and Wales), the long established shrinkage of employment in agriculture, forestry and mining being accentuated by contraction of employment in manufacturing and mechanical industries. These contractions are balanced by expansion of employment in trade, transport, professional, public, clerical, domestic and personal services.

A SIGNIFICANT feature is the large increase in part-time farmers, and about one third of the area is still in farms. Attempts are being made to classify farms in relation to their suitability for profitable agriculture. It is anticipated that expansion of milk production on the better farms, for example, would more than make good any loss through winding up uneconomic holdings. The problem of the hill districts is also being tackled by a programme of woodland development and especially in planning for recreation. In building up a recreation industry, whether in relation to preservation of scenery and amenities, alliance between recreation and forestry, sports, improved communications, New England developments have perhaps most to teach Great Britain, and especially in regard to planned instead of piecemeal development. The Planning Boards in the

six States only date from 1935 and the six chairmen with an independent chairman and two co-opted citizens, make up the New England Planning Commission, which is assisted by consultants, a small staff of technical assistants, and an advisory committee of 546 members distributed throughout New England and representing all types of activities—housing, transport, town planning, industry, etc. This Committee does not meet as a whole.

#### Future of Air-Conditioning

IN the July number of *Water Works and Sewerage* the editor makes some timely comments on the future of air-conditioning. Apparently water supply managers have little definite information as to the probable demands on local water supply facilities that will be made in the near future. Another important problem that has to be considered is the question of sewerage facilities capable of handling the increased loading to be imposed in the form of spent water discharged from the cooling equipment into sewers that have not been designed for this load. At the recent convention of the American Water Works Association some interesting data were given. During the year 1935-36, the air-conditioning capacity installed had increased 35½ per cent in Chicago. During the same period, the water sold to air-conditioned premises had increased 38 per cent. The figures also show that the peak demand for a district which is now only 16 per cent air-conditioned is 130 per cent above the daily average demand. In July and August also, the demands per 24 hours in the districts most densely air-conditioned reached 170 per cent of the annual average. The average over non-conditioned districts during the same two months was only 10 per cent. In a block of buildings containing theatres, hotels and restaurants all using air-conditioning the maximum per cent of the daily average was 250. Chicago is in the happy position that its major mains and pumping capacity seem sufficient for ten years more at this rate of growth. On the other hand, deficiencies of sewers will have to be made good, unless wasteful evaporative type cooling devices are installed in air-conditioning plant.

#### Earthing the Metal Sheathing of Electric Cables

A DIFFICULTY in connexion with electric supply when metal sheathing of electric wiring and apparatus is employed is how to connect this sheathing to earth in such a way that, in the event of it becoming electrified owing to a fault developing between the sheathing and a main, the faulty circuit may be disconnected at once and consequently the pressure between the sheathing and the earth cease to be dangerous. To secure this it is necessary that the sheathing be a continuous conductor of small resistance and that it is maintained in good electrical connexion with the earth. The Wiring Regulations of the Institution of Electrical Engineers stipulate that the electrical resistance of the metal sheathing or tubing must not exceed one ohm between any two points of its length. In practice this can easily be measured by testing. The connexion of this metal

sheathing to earth is more difficult to specify but in general it is stipulated that its resistance must not exceed one ohm. When it has this low resistance, the cut-out of the faulty main will act and so the sheathing and the metal in contact with it ceases to be dangerous. Where it is economically impracticable to obtain an earth having a resistance of not more than one ohm, earthing must be supplemented by an earth leakage 'trip-coil' so adjusted that it will operate at not more than 30 milliamperes. The resistance of an earth electrode depends very largely on the humidity and the character of the soil in which it is buried.

IN many cases when the supply is taken from overhead mains and there is no water supply, compliance with the I.E.E. regulations is very difficult and practically impossible. In this case the neutral main of a four-wire system of supply gives an easy method of getting an approximate earth potential over the whole of the supply area. Where there are no parasitic currents from tramways, this system has many advantages. This system is used in some parts of Australia and New Zealand. The Electricity Commissioners and the Postmaster-General have given their special consent to its use in certain districts in Great Britain. When this system is adopted, no fuse must be inserted in any conductor connected with the neutral main. This leads to a simplification and consequent cheapening of electrical installation work. In Australia, the State Electricity Commission of Victoria has recently altered its wiring regulations. The provision of an automatic circuit breaker is made compulsory in all new installations. In addition, breakers have to be installed in all existing installations at the expense of the supply authority. It will be interesting to see how this works in practice.

#### The Enforcement of the Rules of the Road

SUGGESTIONS made by Dr. H. C. Dickinson, the chairman of the Highway Research Board of the U.S.A., are the subject of a recent report issued by Science Service. Traffic experts to-day are aiming at simplifying the traffic rules and reducing their number so far as possible. Dr. Dickinson has reduced them to four. The first is to keep to your own lane of traffic with only two thoughts in mind, namely, to watch the car ahead and to warn the car behind you whenever you do anything which changes your movement in your own traffic lane. Secondly, to realize that you have no right to cross or turn into another traffic lane. Thirdly, to give a clear signal, or indicate by the motion of your car, whenever you change from your own traffic lane. Finally, never exceed a speed at which the car cannot be stopped without interfering with other traffic in the lane. When an accident causes personal injury or damage to a car—other than fenders or bumpers—it should be obligatory for both parties to attend the action in court. In personal injury cases, the permits of all the drivers involved should be suspended pending the hearing, and the permit of innocent drivers, if any, could

then be restored. Dr. Dickinson makes the novel suggestion that when an accident has nearly occurred and has only been prevented by the quick-wittedness of one of the actors, regulations should be used which would enable 'enforcing' officers to issue 'tickets' to drivers endangering other drivers or pedestrians. The charge he suggests is that of 'creating a public danger', and the penalty a small fine or dismissal on probation. Repeated offences could be dealt with more severely. The object of the proposal is to make it very unpleasant for anyone who puts another person in jeopardy even although no harm results.

#### Zoological Types in India

THE series of "Indian Zoological Memoirs" has been enriched by an excellent monograph, illustrated by 65 text figures, on "Palæmon, the Indian River Prawn", by Dr. S. S. Patwardhan (Pp. xi+100. (Lucknow: Lucknow Publishing House, 1937.) 2 rupees). These monographs are intended to assist in the teaching of zoology in India by the selection of a number of readily obtainable types, which can be worked out fully by students in their own time and perhaps at their homes. A single animal studied closely in respect to its anatomy with the consequent consideration of the function of all its parts is bound to be of great help. To this is added, in the judicious selection of types here, the possibility for the student to study his forms in Nature. The illustrations are good black and white drawings in close proximity to the descriptions of the parts, and there are directions for the necessary dissections. If we are to make any suggestions, we would plead for a greater consideration of function, and references might be inserted freely, so that interested students may be induced to examine their types in a more intelligent manner. For example, in this prawn a consideration of the mode of action of the mouth appendages may be deemed essential to the study of their anatomy—and we find no references to the considerable bulk of recent work on this matter. Form and function are inseparable, and both are essential to the study of the living animal. For a young student, the author assumes a little too much, the monograph being more useful to his teacher.

#### Institution of Professional Civil Servants

THE eighteenth annual report of the Council of the Institution of Professional Civil Servants covers the year 1936 and refers to a large increase in membership, which was 50 per cent greater than in 1935, when the figure of 10,000 was reached for the first time. One of the outstanding achievements of the year was the successful prosecution of salary claims on behalf of architectural and civil engineering and mechanical and electrical drawing office staffs. The satisfactory settlements which were reached are attributed largely to the extensive research of the Committee, which proved that such staffs were underpaid in comparison with similar employees outside. The report again emphasizes the importance of the National Whitley Council to members of the Institution. The