

dealt with in recent monographs, range from the performance of optical lenses in the cameras, the general testing of cameras, and the processing of films, to the equipment of television studios and a new survey of experimental colour transmissions.

Progress common to both sound and vision broadcasting is reported in such subjects as the design of transmitting aerial systems and the general study of radio wave propagation. This work is essential in assessing the coverage likely to be attained from new transmitting stations, and particularly from those which will be required for extended services

in the future. Some of the research work is carried out with mobile laboratories, while the operational engineers use mobile studios and control rooms for their outside sound and television services. The latest types of these mobile units are described in separate monographs.

Altogether these publications show that the B.B.C. is well aware of its responsibility to keep the technical side of its services up to date, and to take full advantage of progress and developments, whether these arise from within its own organization or from elsewhere in the fields of radio research and application.

THE LISTER INSTITUTE OF PREVENTIVE MEDICINE

THE report of the Governing Body of the Lister Institute of Preventive Medicine for 1961* again contains a detailed record of the numerous investigations carried out in the various departments.

In the Department of Microbiology, for example, the Guinness-Lister Unit continued its exploration of bacterial genetics, mainly of the *Salmonella* bacilli. The problems investigated include conjugation and gene-transfer initiated by the colchicine type of fertility factor and by a mutant of the classical fertility factor, *F* of Hayes; the effect of a colchicine factor on the resistance to ultra-violet irradiation; the genetics of resistance of *E. coli* to colchicines; the genetic control of flagellation in a number of *Salmonella* mutants and of the production of different varieties of flagellar protein; and the chemistry of flagellar proteins and of the cell-wall polysaccharides.

The rates of bacterial multiplication in the infected mouse were studied with pathogenic *Salmonella* marked either with a non-replicating prophage or with an abortively transduced gene from another strain of *Salmonella*. The other purely microbiological investigation concerns the antigenic analysis of certain free-living protozoa.

In researches concerned with the immunology and pathology of infective diseases, the Institute's work includes infections by viruses, pleuropneumonia-like organisms, bacteria and protozoa.

The Trachoma Research Unit continued its epidemiological field study in The Gambia of trachoma in terms of virus and of bacilli of the *Haemophilus* group. Laboratory work at the Institute includes growth of trachoma and inclusion conjunctivitis virus in tissue culture, serological classification of the viruses, the vaccination of baboons against inclusion conjunctivitis and the serology of Gambian *Haemophilus* strains. In the smallpox-vaccine department, there is continued progress towards making vaccine from virus grown in tissue culture. The properties of measles virus were also studied.

As an indirect means of determining the significance of antibody to pleuropneumonia-like organisms in human subjects with abacterial urethritis and other kinds of genital infection, the study of the relation of pleuropneumonia-like antibody to the infecting agent and stage of infection in rats and mice was continued.

The immunological study of bacterial infections includes an analysis of the action of two types of protective antibody in mice infected with the whoop-

ing-cough bacillus; the biological activity of the *C* polysaccharide of *Streptomyces pyogenes*; and the process of refinement of antitoxin by proteolysis.

Further investigation has been made of the immunology of experimental trypanosomiasis in terms of soluble and bound immunizing antigen as well as of methods of bulk growth of the trypanosomes for antigenic analysis.

The refined serological methods devised to identify the animal source of food for blood-sucking insects provides valuable facts about the feeding-habits of tsetse flies in regions where these insects are vectors or possible vectors of disease.

In the Department of Biochemistry, the researches concerned were again with three kinds of substances, namely, the blood group substances, the cellular phospholipids and starches.

The investigations of the substances of the *ABO* blood-group system include analysis by improved methods of partial hydrolysis, determination of the amino-acid moiety of the substances and its relation to serological specificity, transformation of blood-group specificity by the action of selected enzymes and measurement of the molecular properties of the substances.

Work on the structure of phospholipids, their distribution in the tissues, cells and cellular particles, and their possible function in the cell includes analysis of the phospholipids of *Micrococcus lysodeikticus* of the pig kidney, lung and spleen and of mammalian plasmalogens.

The enzymes of plants, animals and bacteria synthesizing and degrading starch and glycogen were studied with regard to their specific effects on natural carbohydrates and on modified carbohydrates produced by chemical methods, including starches and various glucose phosphates. A disaccharide other than isomaltose was obtained from a dextran, and a new trisaccharide. Carbohydrates were synthesized for use as haptens in the immunochemical analysis of dextrans.

With human and animal plasma proteins, the Institute's work is concerned with the isolation, refinement, characterization, assay and, in some cases, clinical trial of the various biologically active proteins of human plasma.

A reliable assay of human antihæmophilic globulins was devised and improvements made in separation of stable preparations of the globulins from plasma.

Work on the isolation and characterization of biologically active proteins include those of plasmin, plasminogen, albumin, caeruloplasmin and Christmas factor.

* Lister Institute of Preventive Medicine. Report of the Governing Body, 1961. Pp. 29. (London: Lister Institute of Preventive Medicine, 1961.)