

Sainsbury (Graylingwell Hospital, Sussex) showed a 0.9 correlation between the suicide rates of foreign born immigrants to the United States and their countries of origin—one of the most important of recent observations. This disproves the idea that national differences in rates (for these countries) can be explained by differing procedures of ascertainment.

AEROBIOLOGY

Microbes in the Air

from a Correspondent

DENTISTS are at greater risk from aerobiological hazards than the crews of Polaris submarines, as delegates learnt at the international symposium on aerobiology held at the University of Sussex from September 15–19.

H. Watkins (US Naval Biological Laboratory, California) reported that there is no special aerobiological hazard to Polaris submarine patrols, but W. J. Hansler (University of Iowa) described the perils besetting the modern dentist using a high speed air drill which aerosolizes the microflora of the patient's mouth. Space flight, too, poses special aerobiological problems, for in those conditions infective particles are not removed from the air by gravity. The absence of sedimentation, however, reduces the retention of small particles in the lung, as V. Knight (Baylor College of Medicine, Houston) said.

In hospitals, apparently, aerosol infection usually plays a minor part and little would be gained from expensive installations to reduce it, unless autoinfection could be eliminated and much higher standards of hygiene imposed on medical and nursing staff. The cost is justified in special cases such as a burns unit, according to J. F. Burke (Massachusetts General Hospital). It would also be justified when operations are carried out to implant artificial hip joints, as J. Charnley (Centre for Hip Surgery, Wigan) pointed out, or where immunosuppressive drugs are used.

W. S. Miller (Lunar Receiving Laboratory, Houston) reported the surprising discovery that bacterial spores can be killed at pressures of 10^{-5} torr at 120° C. This information arose from the need to sterilize vacuum tanks for handling moon rock without chemicals or excessive heat. S. Gard (Karolinska Institute, Stockholm), reviewing mechanisms of immunity in virus infection, referred particularly to the greater protection conferred against measles by γ globulin than by an inactivated vaccine, and speculated on the nature of the additional factor.

Discussing infections by respiratory syncytial virus in children, R. Charnock (National Institutes of Health, Bethesda) concluded that severe cases occur in the absence of secreted IgA in the respiratory tract, but in the presence of circulating IgG, and that they are a consequence of antigen-antibody reactions of unspecified type. P. Gardner (Royal Victoria Infirmary, Newcastle upon Tyne) suggested that bronchiolitis and "cot death" result from second infections producing hypersensitivity reactions.

The problem of compounding a suitable vaccine for influenza was discussed by D. Tyrrell (Common Cold Research Unit, Salisbury). Monovalent vaccines of the epidemic type are 60–70 per cent effective, but the appearance of different serotypes continues to hamper progress. Inhaled live vaccines require small amounts to

protect and stimulate local immunity in addition to circulating antibody, but there were doubts as to whether such a vaccine could be prepared and tested in time for an impending epidemic. R. Waldman (University of Florida) has found intranasal administration of rubella as effective as the subcutaneous method for stimulating circulating antibody, and twice as effective in producing antibody in nasal secretion. The report that oncogenic viruses of animals can be transmitted by the aerosol route, from A. Hellman (National Institutes of Health, Bethesda) and E. Larson (Fort Detrick), and the fact that they are not species specific should sound a loud note of caution in laboratories handling this material.

Tackling the question of rapid diagnosis, P. Chadwick (Queens University, Ontario) described how micro-colonies of bacteria can be used after four hours of development to determine antibiotic resistance. They can also be used to detect—by means of fluorescent antibody, for example—enteropathogenic *E. coli* in stool specimens in concentrations of one for every 10^5 other organisms. J. F. Hers advocated the use of a mobile laboratory to go to the scene of an epidemic and collect the right specimens at the right time. S. Metzger (Fort Detrick) discussed the possibility that in the early stages of an infection changes in the content of zinc, copper and iron in the blood might be group specific and could be utilized, for example, to distinguish between bacterial and viral meningitis.

R. Rylander (Karolinska Institute, Stockholm) has found that SO₂ acting with cigarette smoke or coal gas inhibits the mechanisms that remove organisms from the lung. He said that he has sometimes observed small droplets rolling down the trachea against the mucous stream during animal experiments, and this might be the mechanism by which nasal bacteria are transferred to the lung.

NEUROBIOLOGY

Mechanisms of Excitation

from a Correspondent

THE unification of neurobiology out of a diversity of studies which are only just beginning to link up will have been encouraged by the international meeting of neurobiologists held at Sandfjord, Norway, from September 15 to 17. The meeting brought together workers in ultrastructural research, biochemistry, electrophysiology and information transfer to talk about excitatory synaptic mechanisms.

The meeting saw a setback for the vesicle hypothesis. Acetylcholine is released in packets or quanta from presynaptic terminals, and it has been suggested that the structural basis for this is the storage and release of transmitter by the vesicles seen in electron micrographs of nerve terminals. V. P. Whittaker (University of Cambridge) described biochemical evidence that isolated synaptic vesicles contain acetylcholine in about the right quantities. But he has also found that detached presynaptic nerve terminals contain a second pool of acetylcholine, and that acetylcholine released on stimulation is probably derived from both compartments. B. L. Ginsborg (University of Edinburgh) showed that quantal release could be accounted for by a process in the presynaptic membrane which would not necessitate the prepackaging