

growth hormone as well as corticotrophin, has also been developed into a neurological test,^{4,5} and Carroll has given preliminary results to an Australian symposium to show that there is likewise an increased degree of insulin resistance (strictly, insensitivity to hypoglycaemia) to be measured during depressive illness.

One of the questions in psychiatry today is how to break down the mass of depressive illnesses into subgroups, each with an effective drug treatment and known prognosis. Functional neurology, using tests like the dexamethasone, may help to establish these useful clinical divisions. But a second function of this work is to focus greater attention on the neural control of the pituitary and its modification by drugs, a field of animal research which the psychopharmacologist may decide requires thorough analysis.

Bacterial Interference in the Nursery

A newborn infant faces an immediate onslaught by many bacteria, including potential pathogens. Much has been done to protect it against one of these, *Staphylococcus pyogenes*, by the use of hexachlorophane (U.S.P., hexachlorophene), an antiseptic with a persistent and cumulative action. There is ample evidence that its use will greatly reduce the frequency of colonization of the nose and umbilical stump by pathogenic staphylococci, with a consequent reduction in the occurrence of septic lesions in the infant and sometimes of breast abscesses in the mothers.

A study¹ of the effects of using this and other antiseptics in the infant nurseries at the Cincinnati General Hospital brings out some new points, particularly with regard to the effect of these measures on other bacteria than staphylococci. These effects were judged solely by examining the flora of the nose and umbilical stump; there is no mention of any septic lesions. Three procedures were successively introduced. The first was simply hexachlorophane hand washing by the staff. During this period the frequency of colonization of nose and umbilicus by pathogenic staphylococci was 54 and 50%. When, secondly, daily bathing of the infants in addition was introduced with a preparation containing hexachlorophane and a detergent (Phisohex) these figures fell to 5.5 and 4%, but there was an increase in the frequency of colonization of the umbilical stump by coliform bacilli from 45 to 78% and a corresponding smaller increase in the nose. Similar observations were recently reported by J. O. Forfar and colleagues.² Finally, apparently in an attempt to counter this change, staff hand washing was followed by the application of an antibacterial foam containing 50% alcohol and 0.25% of each of two quaternary ammonium compounds said to possess "modest activity" against some Gram-negative organisms. This was followed by an equally modest reduction in the occurrence of coliform bacilli in the nose, but none at the umbilical site.

It seems doubtful whether the effect of this last procedure was significant, and the interest of the findings lies rather in the relationship between the two forms of colonization. Of the four varieties of coliform bacillus distinguished, *Escherichia coli*, *Proteus*, and *Klebsiella-Aerobacter* were often found when staphylococci were also present, but *Pseudomonas* (not distinguished as to species), though isolated from 156 out of 4,527 swabs, was accompanied by *Staph. aureus* only once, in an infant with purulent rhinitis. The authors offer no explanation of the mechanism of this apparent antagonism. It is in fact readily explicable if their organisms were *Ps. aeruginosa* (*pyocyanea*). Pyocyanase (should we now call this "aeruginase" ?), a product of this organism, was for many years used as an antiseptic, particularly on the Continent, and staphylococci are among the organisms most susceptible to its action.³

The subtitle of the Cincinnati paper is "Another Example of Bacterial Interference," which is true enough, but not of practical interest, since no one would venture deliberately to plant *Ps. aeruginosa* in an infant for the sake of keeping out staphylococci. But an example of bacterial interference with which the authors compare this has been turned to practical account by themselves and others.⁴⁻⁶ This is the introduction into the nose and umbilical stump shortly after birth of small numbers of a strain of coagulase-positive staphylococcus known as 502A, which appears from its record to be non-pathogenic. Successful colonization usually follows, and occupation of these sites by this organism repels invasion by another virulent strain during an epidemic. The evidence that such protection can be achieved seems conclusive from these papers, for they include large reductions in the incidence of septic lesions as compared with controls. Ethical objections have been raised to this procedure, but it seems no more objectionable from this standpoint than the use of living vaccines. It may indeed be asked whether the colonization of other parts of the infant's body should be left entirely to chance, and there are many precedents for the implantation of supposedly beneficent bacteria in the alimentary tract.

Renal Damage in Chicken-pox

Acute glomerulonephritis is traditionally associated with streptococcal infections, but evidence is accumulating that other organisms may also cause it. With better laboratory techniques viruria has been detected in such diverse infections as mumps,¹ enterovirus,³⁻⁵ rubella,^{6,7} measles,⁸ cytomegalovirus,⁹ adenovirus,^{10,11} and vaccinia,¹⁰ to name but a few. Clinical and histological evidence of renal damage in virus diseases suggests that viruria results from active infection of kidney cells rather than passive filtration of virus from the blood stream.

In recent years acute glomerulonephritis has been reported during the course of mumps,^{2,12} infectious hepatitis,¹³ E.C.H.O.^{14,15} and adenovirus¹⁶ infections, and chicken-pox.¹⁷⁻²² Transient minor disturbance of renal function, as shown by creatinine-clearance tests, is particularly common in mumps² and may occasionally progress to florid nephritis with a fatal issue. In 20 patients suffering from infectious hepatitis M. E. Conrad and others¹³ discovered 10 with transient proteinuria and 8 with haematuria. Renal biopsy

¹ Light, I. J., Sutherland, J. M., Cochran, M. L., and Sutorius, J., *New Engl. J. Med.*, 1968, 278, 1243.

² Forfar, J. O., Gould, J. C., and Maccabe, A. F., *Lancet*, 1968, 2, 177.

³ Hays, E. E., et al., *J. biol. Chem.*, 1945, 159, 725.

⁴ Shinefield, H. R., Ribble, J. C., Eichenwald, H. F., Boris, M., and Sutherland, J. M., *Amer. J. Dis. Child.*, 1963, 105, 683.

⁵ Light, I. J., Sutherland, J. M., and Schott, J. E., *J. Amer. med. Ass.*, 1965, 193, 699.

⁶ Light, I. J., Walton, R. L., Sutherland, J. M., Shinefield, H. R., and Brackvogel, V., *Amer. J. Dis. Child.*, 1967, 113, 291.