

BACTERIOLOGY

Chairman: S. E. HARTSELL, Purdue University

Mr. M. S. A. Campbell, Indiana State Board of Health, was elected chairman of the section for 1948.

ABSTRACTS

Corn steep liquor in microbiology. H. KOFFER and R. WINSTON LIGGETT, Purdue University and A. E. Staley Manufacturing Co., Decatur, Illinois.—A review was given on the manufacture of corn-steep liquor, its chemical composition, and its significance in microbiology especially in the production of penicillin.

Antibiotic behavior patterns of living cultures of *Pseudomonas*. R. L. KENT, Indiana Central College.—Curves of inhibition were plotted for three cultures of *Pseudomonas* over a period of ten weeks with *Staphylococcus aureus* as test organism. This technique differs from other antibiotic testing in that the *Pseudomonas* cultures are not destroyed, each culture being tested weekly for the ten week period. Incidence of parallel and non-parallel between pigment production and antibiotic activity was also noted.

The world influenza center in London. H. M. POWELL, Lilly Research Laboratories.—During the latter part of July this year (1947) the writer attended the Fourth International Congress for Microbiology in Copenhagen. At these meetings a group of some two dozen persons interested in the subject, met one afternoon to discuss what might be done on influenza virus study in anticipation of influenza which might become pandemic. It is apparent that the present specified types A and B influenza virus vaccine would be either (1) effective, or (2) scarcely at all effective, and this might depend largely on the relationship of any new pandemic strains of virus to strains of virus in the vaccine. In event the latter alternative should prove to be the case, it seemed wise to plan a definite sort of world wide action which could be done well in advance of epidemic influenza but which could not be done at the eleventh hour with influenza in full swing. It was decided to request through one of the members of this informal meeting, namely Dr. R. Gautier, of the Geneva Office of the United Nations World Health Organization, that United Nations sponsor a World Influenza Center. The two purposes would be (1) to gather and distribute without delay information about fresh outbreaks of influenza and (2) to act as a depository and exchange of influenza virus strains which might be studied antigenically, etc. if possible.

The writer has received on September 19, 1947, a communication from Dr. R. Gautier of date of September 15 from Geneva, Switzerland, to the effect that the interim commission of the World Health Organiza-

tion has decided to allocate \$3,000 for financing a beginning World Influenza Center in London. An accompanying note by Dr. C. H. Andrewes of the National Institute of Medical Research, Hampstead, London, and who will organize the Center, sets forth the lines of activity which the Center will pursue. Some of the difficulties are cited, however Dr. Andrewes states the difficulties should not be insuperable.

Prospective work on the Influence Center was described, and possibilities and also limitations of influenza virus vaccine improvement were discussed.

The use of self attenuated influenza virus vaccine intranasally on Swiss mice. H. M. POWELL and W. A. JAMIESON, Lilly Research Laboratories, Indianapolis.—Commercial influenza virus vaccine (Proc. Ind. Acad. of Science. 1945, 54, 66 also Jour. Ind. State Med. Assn. 1946, 39, 68) is usually prepared by injecting seed virus in small doses, such as 10^{-3} to 10^{-5} cc into embryonated eggs, and incubating about 48 hours, then treating the virus so obtained with formalin. Recently we have prepared "self-attenuated" influenza vaccine by injecting eggs with large doses of seed virus, namely 10^{-1} cc, and incubating 96 hours. Resulting preparations described previously in part as "interfering factors", etc., (Jour Exp. Med. 1944, 79, 361 and 379 also Amer. Jour. Med. Sci. 1944, 207, 705 and 717), have lower hemagglutinating power than active virus, and virulence for mice is practically nil. Self attenuated vaccine given intranasally to Swiss mice in doses of 0.05 cc of 2×10^{-2} dilution produces strong type specific immunity up to eight weeks in duration, and equal to that produced by commercial vaccine when given intraperitoneally. Commercial vaccine, however, is entirely ineffective when used intranasally. Furthermore, the present attenuated vaccine is ineffective when used intraperitoneally, and also ineffective intranasally after being subjected to formalin treatment.

Type specificity and duration of immunity produced by self attenuated vaccine make this agent appear different from interfering or blocking factor. We have observed microscopic, but usually not gross lesions in a fair proportion of mice treated intranasally with self attenuated vaccine. Such mice seem quite normal physically in contrast to mice treated with weak dilutions of active virus.

Examination of food and drugs in the laboratories of the Indiana State Board of Health. GLEN C. WEBER, Indiana State Board of Health.—The Food and Drug Laboratory furnishes technical evidence necessary for the enforcement of the National and State Food, Drug and Cosmetic Acts in Indiana, and has a public health function as a part of the system for prevention of food borne epidemics and infections.

The chemical part of the program is devoted to analyzing pharmaceutical products qualitatively and quantitatively for presence and amount of dangerous drugs; analyzing foods for harmful or illegal adulterants; and to determining amounts of principle ingredients in foods and drugs when such are suspected of being sub-standard.

The biological part of the program includes the examination of foods and drugs for insect or rodent infestation; determination of mold

in tomato products; examination of processed foods, meats, fish, and poultry for spoilage; and the bacteriological and chemical analysis of foods implicated in food poisoning epidemics.

Observations on the chemical nature of the hemolytic and lethal factors of *Clostridium hemolyticum* toxin. R. C. BARD and L. S. MCCLUNG, Indiana University.—Chemical study of the toxin of *Clostridium hemolyticum* revealed that in addition to the existence of a lecithinase (named correctly as lecithinase D, the enzyme responsible for the LV reaction) another hemolytic factor was involved. Lecithinase D activity was measured satisfactorily by the manometric technic of Zamecnik, Brewster and Lipmann substituting a special egg yolk-saline suspension for purified lecithin; the manometric technic was found to be less sensitive than the familiar tube LV reaction. The additional hemolytic factor was shown to resemble lysolecithin. This conclusion was based on the specific hydrolytic action of lecithinase B, the enzyme catalyzing lysolecithin breakdown and destroying the hemolytic capacity of the additional toxic factor. Lecithinase B was isolated from old rice bran according to the method of Contardi and Ercoli. Since lysolecithin has been shown by Belfanti to induce severe pathology in experimental animals, the role of the lysolecithin-hemolysin described above was investigated further with regard to its lethal action. *C. hemolyticum* toxin treated with lecithinase B for 21-24 hours lacked not only the hemolytic potency due to lysolecithin but also any lethal factor for white mice. This latter finding suggests that lysolecithin functions in the lethal mechanism associated with *C. hemolyticum* toxin. The lysolecithin-hemolysin complex found in this toxin and in the toxin of *Clostridium novyi*, type B, as reported previously, is possibly the common antigen noted in serological studies of these toxins.