

Antiseptic at Turn of a Switch

Medicine

Powerful Solution Made From Salt

ANTISEPTIC solution made to order at the turn of a switch is now a possibility. A new machine takes common salt and ordinary lighting current and automatically produces a powerful antiseptic in just the right concentration. The antiseptic, known to physicians as Dakin's solution and to chemists as sodium hypochlorite, is formed in a specially designed miniature electrolytic cell which was developed in the chemical engineering laboratories at Iowa State College.

Carbon electrodes were adopted for use in this cell after trying out electrodes of platinum, tantalum, nichrome, and carbon. The upper electrode, or cathode, is hollow and slips over the lower electrode, or anode, from which it is insulated by an insulating cement. The electrodes are contained in a cylindrical glass bulb, the bottom of which is drawn out to a small tube. The salt solution enters at the bottom and as it flows between the electrodes it is decomposed, forming sodium hypochlorite solution. This passes out through a glass tube on the side of the cell. The rate of flow is regulated by a glass stopcock.

The current is supplied from the alternating current light line through a battery charger and is regulated by a rheostat. The flow of the solution through the cell is controlled by an automatic valve which remains open while the current is flowing. After the current and solution flow have been regulated, sodium hypochlorite of the proper concentration and alkalinity is produced at the turn of the switch.

The whole apparatus except the salt container and battery charger can be placed in a box six by twelve by seven inches, which is large enough for a physician's office. A portable set operating from the storage battery of a car, or a larger set for hospital use can be made.

Dakin's solution, which this apparatus produces, was selected from over two hundred antiseptics as the best antiseptic and irrigating agent for war wounds. Its use has been limited because of its poor keeping qualities and the technical skill necessary for its preparation in proper concentration. The new apparatus

is simple in construction and provides freshly prepared solution as wanted at low cost.

Over-Optimistic

"Too much faith has been placed in our falling death rate from tuberculosis as evidence that this disease is under our control," Dr. William Charles White of the U. S. Hygienic Laboratory told members of the American Association for the Advancement of Science.

Complete conquest of this grave disease has not yet been made in spite of splendid advances. Over-confidence at this stage is to be avoided, especially because of the harm it may do by turning the public mind from this great task that still confronts the nation.

There are still probably over 160,000 deaths annually from tuberculosis in the United States. Statistical figures of death rates give but one small phase of the picture. The rise of incidence of tuberculosis in young girls, studies of incidence of the disease in school children, such as those made by the Phipps Institute in Philadelphia, the appalling death rate from this cause among Negroes and Indians, and the rise in the death rate in some cities in spite of valiant efforts being made, all point to a task scarcely yet begun, Dr. White said.

He also described the scientific investigations being sponsored by the National Tuberculosis Association, which it is hoped will lead to complete understanding of the tubercle bacillus, its life history and chemical methods, and finally to its complete conquest.

IT takes about half a second for the eyes to change from looking at a near object to a more distant one, Herbert H. Jasper, of the University of Iowa's Psychopathic Hospital, reported to the American Association for the Advancement of Science.

By testing the time it took the eyes to change from converging on one of three lights 17, 30 and 70 inches away in an otherwise dark room to one of the others, Mr. Jasper found that the average time on

first trials varied from 557.1 thousandths of a second for the two nearest lights to 626.2 thousandths for a change from the nearest to farthest. A second set of measures showed improvement.

Investigations of how the world looks to rats were reported by Prof. Paul E. Fields of Ohio State University. The rat is supposed to have eyes which are not capable of discriminating forms, such as the triangle, Prof. Fields explained. But in his experiments twenty-five white rats learned to discriminate between a triangle when the apex was pointing up and when the apex pointed down.

INTELLIGENCE tests given to mentally ill patients from time to time are a useful barometer to measure their progress toward normality, or their sinking back into more serious abnormality, Dr. Emmett L. Schott, of the Henry Ford Hospital at Detroit, told doctors attending the sessions of the American Association for the Advancement of Science.

Normal persons do not vary much in intelligence from year to year. Patients suffering from mental and nervous maladies, however, frequently lose many points in their ability to meet the requirements of intelligence tests, Dr. Schott's records show. Gains in ability to pass the tests are useful indicators of mental improvement in such patients, he has found.

Describing particularly a number of cases of general paresis, Dr. Schott said that one woman had a mental age of almost fifteen years when first tested. After a year during which she had no treatment for her disease she dropped to a mental age of less than thirteen years. Deterioration in such cases is expected, but the tests gave an actual measure of the rapid change. Other cases which went without treatment showed similar rapid mental decline. On the other hand patients who received the malaria treatment or other special attention for paresis, did not lose ground mentally, and some improved in their mental abilities, the tests showed.

Science News-Letter, January 11, 1930