

Medical Sciences Notes

IMMUNOLOGY

Vaccine Against Strep Tested

A vaccine that would prevent streptococcus infections, which cause both rheumatic fever and the kidney disease, glomerulonephritis, has had initial tests and will be tested further to demonstrate its effectiveness.

Until recently all attempts to prepare such a vaccine have been unsuccessful because the vaccines have either been too weak to provide any lasting immunity, or else they have contained impurities that led to toxic reactions.

Now, medical researchers at the La Rabida-University of Chicago Institute have achieved an apparently successful preparation that has been used on nearly 50 adults and 20 infants following safe and effective tests with mice, rabbits and guinea pigs.

The vaccine is prepared by purifying a protein, called the "M protein," from the cell wall of the streptococci that causes the infections. The body responds by making antibodies against the M protein. When strep invades the body, the antibodies react with the M protein in the cell wall and help the body destroy the invading organisms.

BIOENGINEERING

Human Body Provides Power

The human body itself could be transformed into a battery to power implanted electronic heart pacemakers.

A research group at Royal Prince Alfred Hospital, Sydney, Australia, will conduct experiments on dogs for the next two years to prove their system's feasibility for use in humans.

The aim is to use the body as an in-built chemical battery to aid flagging hearts. Small zinc and silver cathodes will be implanted in living tissue, and, in theory, the natural body fluids will act as a perpetual electrolyte.

As the body fluids are predominantly saline, the researchers believe that a reaction between the electrodes and the electrolyte would be enough to convert the latent chemical energy to electrical energy.

G. G. Wickham, an electronics engineer, is assisting the investigators, who foresee the possibility of implanting a complete pacemaker unit next to the human heart between the surface membrane and the heart muscle.

BIRTH CONTROL

IUD Better Understood

For years doctors have known that the IUD, or intrauterine device, is an effective birth control tool. But they haven't been able to say why. Now electron microscope studies of the womb lining seem to have partly solved the mystery.

Dr. Ralph M. Wynn, Brooklyn obstetrician, reports that since the mucous coat of the uterus, called the endometrium, undergoes changes in thickness and structure during menstruation and ovulation, the premature appearance of ova in the endometrial cavity is a factor that may disturb the precise condition required for implantation of the egg.

Experiments with monkeys, moreover, have shown

that the IUD increased the rapidity of the egg's movement from the fallopian tube in animals that had been treated with a sex-gland substance to increase the speed of ovulation.

Dr. Wynn says the interactions of hormones, nucleic acids and proteins in the uterus are under intensive study. Upon which of the factors the IUD exerts a primary effect is not yet clear, but the premature maturation of the human endometrium "must affect the precise correlation with ovular development," he says.

The IUD costs only a few cents and is considered the most promising form of birth control for countries such as India where there are large numbers of poor people.

Dr. Wynn is on the staff of the State University of New York, Downstate Medical Center, Brooklyn. He used the Lippes Loop in his studies, reported in *SCIENCE* magazine, June 15.

MANPOWER

U.S. Doctors Increase by 3,768

The number of licensed physicians in the United States increased in 1966 by 3,768 to a new total of 243,391.

Actually, 8,596 doctors got their first licenses to practice, but deaths and retirements cut the total figure.

The American Medical Association's annual report on medical licensure found that there were 626 fewer physicians receiving their first license than in 1965, but 686 more than in 1964.

The report points out that the figures should not be interpreted as meaning that only the 243,391 state licensed physicians were qualified to take care of patients. Thousands of doctors work under various medical, educational and military-service permits.

New York state again had the greatest number of new physicians receiving their first license (1,045), and California was second (855). However, California's total was down 190 from 1965, and New York's was down 147, due mainly to a decrease in the number of foreign-trained physicians receiving their first U.S. license.

DENTISTRY

New Paste Helps Gums, Stops Decay

A toothpaste that promises to be the most effective fluoride treatment for teeth and gums yet found is reported in Sweden by a dentist who is making his discovery the basis of a doctoral thesis.

Goran Koch told a conference of children's dentists at Ronneby, Sweden, that although the paste is still in an experimental stage, it has produced a 75 percent reduction in the incidence of inflammation of the gums and has reduced the normal occurrence of decay as much as 50 percent.

What Koch has done is to incorporate plastic particles into the sodium fluoride instead of such normal abrasives as chalk, which will not combine with sodium fluoride. In an investigation involving 2,000 school children in Malmo, Sweden, groups of children have used either the new paste or a rinse containing sodium fluoride. The paste was much more effective than the rinse.