

# Medical Sciences Notes

## PACEMAKER

### **Energy from the bloodstream**

University of Maryland scientists have successfully produced electrical power from the bloodstream of a living animal. Preliminary experiments show that enough energy was liberated to power a heart pacemaker in a human although this will require further research.

A permanent power supply would eliminate the periodic replacements of the small batteries now used to operate pacemakers. The need for such a power system has sparked a nationwide search. The present report comes near the end of a three-year study grant from the National Institutes of Health.

Dr. R. Adam Cowley of the university's School of Medicine and Dr. Mostafa E. Talaat of the Mechanical Engineering Department, the principal investigators, said results were achieved by placing an electrode in the bloodstream of the heart and another outside the heart.

Their tests produced power outputs from 49 to 114 microwatts, which are two to four times the amount needed to power a heart pacemaker or any similar electronic device.

## SURGICAL MESH

### **Substitute for tissue successful**

A plastic mesh implant can help restore the fractured base of the eye socket, a Kentucky surgeon reports in the November issue of the *JOURNAL OF ORAL SURGERY*.

The mesh has been tested in patients who have suffered from injuries to the bottom of the eye socket, called the orbital floor, an extremely thin layer of bone.

Although many surgeons prefer to graft the patient's own bone, this is often not practical because the regular donor sites such as the ribs or the hip bone have also been injured.

Dr. John A. Capodanno of the University of Kentucky Medical Center, says the mesh can be kept in place with layers of gauze rather than stitched. The pack is left in place 10 days, during which time the patient receives antibiotics.

The material consists of an ethylene polymer that is rigid enough to support the eye socket, but is porous enough to permit growth of fibrous connective tissues through the graft.

Severe fracture of the orbital floor can result in the collapse of the entire bony socket into the upper jaw area.

## ALLERGY

### **House-dust mite causes asthma**

Studies in the Netherlands attribute house-dust allergy to a house-dust mite, scientifically named *Acarus*. Bronchial asthma and hayfever are often caused by house dust as well as by pollens.

Praising the research, an editorial in the October issue of the *ANNALS OF ALLERGY* suggests repeating the work in the United States and other countries with a view to producing a new extract for desensitization of victims.

The specific mite responsible for house-dust allergy is named *Dermatophagoides pteronyssinus*. A review of the Dutch research is given in a 65-page book called *The House-Dust Mite* by one of the researchers, Dr. F. Th. M. Spijksma. It is published in Leiden, Netherlands, Druk: N.V. Drukkerij v/h Bateljee & Terpstra, 1967.

## PLASTICS

### **Tin in tubing could be dangerous**

A compound called dibutyl tin, used in some medical grades of polyvinyl chloride tubing as a stabilizer, has washed out of the plastic and circulated with liquid pumped through experimental animal hearts.

While the use of tin compounds of this type in plastics for medical applications or food packaging may be a potential health hazard, Dr. Leo M. Hall of the University of Alabama told the regional American Chemical Society meeting in Atlanta that this conclusion is not justified on the basis of the experiments carried out so far. The U.S. Food and Drug Administration has taken the matter under review.

Dr. Hall is a professor of biochemistry and a principal investigator with the U.S. Public Health Service. He has been studying the utilization of carbohydrates, fatty acids and other nutrients by heart muscle, conducting his tests on an isolated but still beating rat heart in a blood-like fluid.

Various materials are used to make up the synthetic blood to determine what substances the heart uses as fuel. He hopes to get information on body chemical abnormalities that may be related to heart disease. By accident he noticed that some of the plastic tubing used in the pumping system caused a different metabolic response in the heart and changed the heart beat.

## CHEMOTHERAPY

### **New treatment for Wilms' tumor**

A childhood cancer of the kidney called Wilms' tumor has been treated in four children who had inoperable growths, using the drug vincristine sulfate.

Surgeons often are unable to operate in such cases because the tumor's growth is so rapid that it may nearly equal the child's normal weight. In these cases, treated in Houston, Tex., the tumors were so reduced in size that a diseased kidney could be removed from each child. All four lived, with no evidence of malignant disease from five to 21 months later.

In recent years there has been limited success with treatment by radiation and the drug dactinomycin. In the present cases the vincristine sulfate made it unnecessary to use radiation until after the operation.

Writing in the Oct. 30 issue of the *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, the Houston team said that surgical procedures, irradiation, and the two drugs in combination might render most primary Wilms' tumors curable. The combination treatment also might prolong or save the lives of children with inoperable tumors on both kidneys.

Drs. Margaret Sullivan, Wataru W. Sutow, Ayten Cangir and Grant Taylor, all of the University of Texas and M. D. Anderson Hospital and Tumor Institute, report the findings.