

# medical sciences

## ELECTRODE

### Fetal brain waves recorded

An electrode system that will free nurses from having to listen every 15 minutes for the fetal heartbeat during labor is being set up at the University of Rochester's Strong Memorial Hospital. It will help physicians learn about causes of brain damage in newborn babies by applying the electrode to the head of the fetus early in labor.

Drs. Mortimer G. Rosen and Joseph J. Scibetta of the university's School of Medicine and Dentistry told the national meeting of the American College of Obstetrics and Gynecology in Bal Harbour, Fla., that the brain-wave-measuring system is the first of its kind.

Beginning July 1 the procedure will be offered as a hospital service, and doctors will be able to request it whenever they anticipate a complicated or difficult delivery, or they suspect the fetus may be in danger.

Scientists have not yet discovered which of the many prenatal influences are critical and how they act on the fetus. More than a quarter of a million newborns a year show brain damage or mental retardation.

## PROSTHESIS

### Ceramic bone substitute

People in the future may have defective teeth and knee joints replaced by substitute bone made of pure aluminum oxide impregnated with epoxy resin, scientists at Ohio State University predict.

No sign of rejection has been seen in the monkeys used in experiments so far, Dr. Edward J. Eyring of the university's orthopedics department says. He is planning to use the material as a space filler in leg operations on humans in June.

Dr. Morgan L. Allison, chairman of oral surgery at the university's College of Dentistry, hopes to begin using the ceramic with human patients within 18 months if no trouble shows up in his experiments before then.

For use in the mouth, the ceramic is expected to replace the roots of human teeth. A small peg on the top would be used to hold a porcelain cap such as is now used to cap natural teeth. Implantation of the ceramic tooth roots in monkey jaws has been accomplished.

The technique was developed by Dr. William B. Campbell, a 33-year-old faculty member in the department of ceramic engineering at the university's College of Engineering.

## EQUIPMENT

### Hover bed with beads

A \$6,500 bed of tiny ceramic beads on which a patient can float is being tested at the Medical College of South Carolina in Charleston.

The patient floats in a fiber-glass tub containing 100 billion tiny glass beads supported by flowing air.

Thomas Hargest, the medical college's director of engineering development, originally conceived of the bed; it was developed by the Milton Roy Co. of St. Petersburg, Fla. In 10 months of use, it has brought healing and comfort to many patients.

Bedsore, also called pressure sores, and decubitus ulcers, heal rapidly; insomniac patients sleep for 20 hours at a stretch without drugs and paraplegics have fewer spasms because of the lessened pressure.

The new system is said to overcome disadvantages of the hover air bed (SN: 12/16/67, p. 599), which totally suspends patients in a medium of forced air. The huge blowers, ducts and air volume, with accompanying noise and instability are absent in the new bed. The beads increase the density of the supporting medium, and only five percent of the hover bed's air volume is needed to keep the Hargest bed in a fluid state. The air flow is scarcely noticeable, and the patient is supported with great stability; even a 250-pound man can be floated.

Ordinary sheets are used to make up the bed after it is filled with beads, covered by a polyester fabric to keep them out of the patient's lungs.

## NUTRITION

### Aerospace diet for bowel patients

Digestive problems of patients at Rhode Island Hospital in Providence are being overcome with an elemental, bulk-free diet which leaves small residue. It was inspired by one developed for the U.S. aerospace program.

Dr. J. D. DiMase told the meeting of the American Gastroenterological Association in Washington, D.C., that the liquid diet is made up of L-amino acids, simple sugars, minerals and vitamins, with 0.5 percent fat.

Four patients with painful inflammatory bowel disease who had been unable to digest ordinary food and who had been underweight, tolerated up to 5,000 calories a day without side effects.

The diet has not been used by astronauts up to now, but is planned for long trips such as to Venus, where waste disposal will be a problem.

Dr. R. V. Stephens, a surgeon at the hospital, says he has used the diet on some 20 different patients, some of whom were too weak to undergo needed operations before they were built up nutritionally.

To prepare the diet, a powdered mix is put into a blender with water in 50 percent concentration, providing 60 calories per ounce.

## TRANSPLANTS

### Eye transplant fails to restore sight

Last month, Dr. Conrad Moore of Methodist Hospital in Houston reported that he transplanted a whole eye in 55-year-old John Madden, a photo store owner whose vision could not be saved by more conventional surgery (SN: 5/3, p. 426). The report brought cries of protest from ophthalmologists who declared there was no reason to believe that the patient's optic nerve could regenerate to give him sight in the transplanted eye. Dr. Moore subsequently retracted earlier statements, and said that only part of an eye had been transplanted.

After a three-week recovery period, sutures in Madden's eye were removed. According to a spokesman for Methodist Hospital, at this time Madden has no vision in the eye, but he does have perfect movement and feeling.

may 31, 1969/vol. 95/science news/529