

MEDICINE

Animal Grafts Succeed

BODY ORGANS and tissues have been successfully transplanted from one unrelated animal to another, it has been reported.

Dr. P. S. Russell of the Massachusetts General Hospital, Boston, has grafted hormone-producing glands, skin and other tissues between non-related mice strains and had the grafts persist and function for long periods of time.

This is significant because animals and humans are immune to tissues from an outside source. Except in identical twins, tissue cannot be transplanted from one individual to another. Antibodies form against the transplant and destroy it.

In his American Cancer Society-supported experiments, Dr. Russell employed techniques developed by Dr. P. B. Medawar of the University of London, who had previously found that if he injected a newborn animal with spleen cells from another adult animal, the recipient then on could not form antibodies against any subsequent graft from the donor.

Dr. Russell "primed" mice for future transplants by injecting them within a day after their birth with spleen cells from future donors. The "tolerant" mice had their adrenal glands removed and were

then grafted with the adrenals of the animals that months earlier had supplied the immunity-destroying spleen cells. The new hosts were found to remain in good health. Had the grafts not taken, the animals would have died of shock, fatigue and hunger.

Dr. Russell also grafted skin successfully to tolerant animals and found that he could end an animal's tolerance to grafts by injecting the animals with antibodies against the original spleen cells with which it was injected.

At this time, he said, the findings appear to have only theoretical implications for humans. It is conceivable, for instance, that a newborn baby might be injected with spleen cells from its father or mother. That baby could then be grafted with an organ or tissue from the donor parent.

This could be desirable for children who might someday need a graft because of burns or organ disease. Because of the impossibility of foreseeing at birth the need of transplants later in life, however, it is unlikely that spleen transplants will be given newborn babies in the near future.

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ENGINEERING

Muscle Signals Detected

MUSCLES broadcast not only relatively powerful signals, but also very weak, high-frequency electrical signals, two physicians reported.

The new range of weak signals has been detected with a recently perfected ultra-quiet amplifier. This new technique may eventually explain often questioned natural phenomena such as telepathy and extra-sensory perception, and may even add further knowledge to the well-established phenomenon of hypnosis, they stated.

For now the doctors' findings may aid in diagnosing muscular diseases. The physicians said abnormalities in muscle structure affect the frequency pattern of the voltages generated by the muscle.

The work was reported by Drs. W. K. Volkens of Cohu Electronics and W. Candib of St. Claire Hospital, both of Schenectady, N.Y., to the Institute of Radio Engineers meeting in New York.

The physicians used a new ultra-low-noise transistor amplifier to pick up muscle signals up to 50,000 cycles per second in frequency. They found such ailments as muscle thickening, retention of water and diminished blood supply each had its own frequency pattern.

More powerful muscle signals of a few hundred cycles per second are already commonly used for diagnosis of the heart (with a cardiograph), brain (with an encephalograph) and muscles (with a myograph).

Because of such marriages of electronics

and medicine, Dr. Hans H. Zinsser of the Columbia University College of Physicians and Surgeons told the convention that a new academic degree should be provided for a new profession: medical engineering.

Satellite Computer

MORE EXPERIMENTS may be packed into future American satellites because of bits of materials, called semi-conductors, having an electrical conductivity neither as good as metal nor as bad as an insulator.

Several of these new cousins of transistors were unveiled at a Coliseum exhibit at the meeting. The exhibits showed:

1. For satellites, electronic computers the size of a pack of cigarettes will be produced from a stack of button-sized ceramic circles and metal disks. They may let engineers pack six times more circuitry in a given satellite. Shown by the General Electric Company, the computer circuitry is radiation-resistant.

2. A five-watt electric generator fueled by a pellet of strontium-90 was shown by the Martin Company. By turning heat into electricity, it could power an automatic weather station for two years without recharging.

3. What is claimed to be the world's smallest gearhead was shown by the Bowman Instrument Corp. Half an inch in diameter, it converts guidance signals into small movements to keep a missile on course.

4. A new scanner by the Martin Company sharpens infrared "eyes" for satellites and anti-missile guidance. It "sees" objects in total darkness by detecting heat the objects generate. It will even see another satellite.

Ignore Weather Research

THE UNITED STATES is ignoring weather research because of "apathy," asserts Adm. Luis de Florez, a former assistant chief of Naval Research. He said he thinks weather research is of greater immediate importance than landing a man on the moon.

In a speech prepared for the meeting Adm. de Florez said that "practically no effort is being made to determine whether storms can be diverted or dissipated or whether the energy developed in such atmospheric disturbances can be used as a weapon for us or against us."

America's air defenses depend on the weather, the admiral said, but the importance of weather research is not realized nor is the urgency.

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ELECTRONICS

Stereo Broadcasts in FM Due by Next Christmas

FIVE TECHNICAL ways to broadcast high fidelity music in stereophonic sound using only one FM radio channel have been proposed to the Federal Communications Commission. A final decision is expected by the end of the year.

This means that next Christmas you may be able to buy a new radio fully equipped to receive stereo sound using two loudspeakers on one radio.

If you already have a radio system equipped to take a stereo adapter, the new rulings will mean that manufacturers will soon be putting the long-awaited adapters on the market.

The proposed systems, submitted to the FCC with comments by a National Stereo Committee of the Electronic Industries Association, will follow generally along this line:

The stereo FM station will broadcast over its assigned frequency, but the assigned frequency will carry two superimposed sub-carriers. The standard frequency will be used to transmit one of the stereo sound channels, and one sub-carrier will transmit the second stereo channel. These two channels will be unscrambled electronically by the radio and fed to the proper loudspeakers.

The remaining sub-carrier can be used to help support the station financially through broadcasts to stores, called "storecasting," which can be received only on special radio receivers.

The FCC is now studying the proposals and hopes to issue within a month its proposed rules. This probably will be followed by hearings, and finally a decision around December.

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