

SURGERY

Wisdom Tooth Transplants

► **TRANSPLANTS** are the big news in dentistry—as in other forms of surgery.

One of the latest reports comes from the University of Michigan where Dr. James Hayward, an oral surgeon, has transplanted “wisdom” teeth, or third molars, to the first molar position in the same young adults.

Some of these transplanted wisdom teeth have continued to live and function normally for more than ten years.

In about 90% of the population, third molars do not reach a position of useful function and become locked, or impacted, in the jaw, Dr. Hayward said. Wisdom teeth from young adults in which the roots have not fully developed are easiest to transplant to the first position, he added.

A prime goal of dental researchers is to determine precisely how the tooth itself reacts to the manipulation required for re-plantation. When a tooth is removed, its blood vessels and vital nerves are severed. If a transplant is to be successful, these vessels and nerves must be able to re-establish themselves.

Dr. Hayward's accomplishment is one of several steps which someday may make tooth-banking possible.

Grandparents of the future may go to the tooth bank for young teeth donated by growing boys and girls who for some reason, perhaps accidental or in the straightening process, have had them removed.

Dr. Ralph R. Mezrow of Philadelphia's Albert Einstein Medical Center has done human transplants of teeth under a grant from the National Institute of Dental Research. Some 65 of Dr. Mezrow's experi-

mental transplants have taken root and remained solid up to five years. One patient received six tooth transplants.

Dr. Miklos Cserepfalvi of Washington, D. C., reports he performed 86 successful tooth transplants on Hungarian patients before he left the country in 1957. Since coming to the United States he has done about an equal number of transplants. Fifty transplants reported in the *Journal of the American Dental Association* last July included 17 teeth in patients over 45 years old.

Dr. Cserepfalvi used teeth from children seven to nine years old who were receiving orthodontic treatment that necessitated tooth removal. Thus the roots were not fully developed, but the crown was fully formed and the tooth buds were kept intact. Surgery was done to adjust fitting to adults.

Dr. Robert D. Gerstner, associate professor of anatomy, New York University Medical College, told *SCIENCE SERVICE* that his work under a dental institute grant was concerned with preventing the immune reaction by using fetal animals for salivary gland transplants as well as living tooth transplants.

“We take fetal tissue in its earliest stages,” he explained, “because we fear the possible maturing of the immune mechanism at a later age. We grow the fetal tissue outside the body in organ culture, then freeze and store it in a living state. It is later re-implanted in glass vessels to start up its growth again before implanting it into the tissue of animals.”

Dr. Gerstner's work could have application to other organ immunity problems.

• *Science News Letter*, 85:182 March 21, 1964

SURGERY

Transplant Era Held Back By Lack of Spare Parts

► **LACK OF IDEAL** donors to furnish spare body parts such as a lung, heart, liver, kidney or limbs is slowing up what could be the organ transplant era of medicine.

Using monkey parts, when human organs are not available, may be “making monkeys” out of the surgeons who use them in desperation, a New York plastic surgeon has warned.

Dr. Blair O. Rogers of New York University said recent animal-to-man transplants, called heterografts, may have been done too soon because immunological problems involved are less understood than those related to human organ transplants.

The key to the future of tissue and organ transplants lies in matching donor and recipient compatibility before surgery—not using whatever spare parts may come to hand haphazardly, authorities say.

Surgical deep freezes of the future could be the answer, along with use of carefully selected drugs to overcome the immunity problem.

The next step in transplants is not held back by questions of surgical technique. Operations are a growing success but the patients continue to die.

Moreover, healthy donors are going to die, too, if they continue to give organs that they themselves may one day need.

Frozen cadaver organs that can be typed and stored are believed by some to offer the most promising “spare parts” bank of the future.

Blood, bone, cornea and arteries can now be replaced from storage banks, and scientists are working toward the day when such banks can be enlarged.

To protect organs from destructive ice-crystal formation and water loss in cells during freezing and thawing, solutions of the drug dimethylsulfoxide or low molecular weight dextran (LMD) have been used in animal experiments.

Organs can be quickly frozen after removal, kept at 110 degrees below zero Fahrenheit as long as two weeks, then thawed rapidly by microwave diathermy before transplant.

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TECHNOLOGY

Automation Speeds Up Blood Test Analyses

► **TWO MONTHS' WORK** on blood tests, required by technicians using cumbersome methods, is done in a single working day by a new automated system.

Operating at the standard rate of 40 tests an hour, one technician can produce 320 complete analyses, or 2,560 individual tests in eight hours. The chemical analysis includes sodium, potassium, glucose, urea nitrogen, chloride, carbon dioxide, total protein and albumin.

The new system, known as the Technicon Multi-8, is produced by Technicon Instruments Corp., Chauncey, N. Y.

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BIOLOGY

Rhythm Method Doomed

► **THE RHYTHM METHOD** of birth control, advocated by the Catholic Church, is doomed to ultimate failure, a University of California, Santa Barbara, professor of biology predicted.

Natural selection will prevent its success, Dr. Garrett Hardin said in *Science*, 143:995, 1964.

At least three possible reasons for failure, said Dr. Hardin, are: 1. There may be inheritable factors for irregularity in the menstrual cycle. 2. Some women, like rabbits, may ovulate “on demand,” which means after sex relations. 3. There may be inheritable differences in sex drive.

In an imaginary population that would employ only the rhythm method for birth control, the biologist says, “an evolutionary system” would be set up in which natural selection favors those for whom the method fails.

“Women for whom the method fails would contribute more children to the next generation than would women for whom the method works,” Dr. Hardin contends. “Consequently the frequency of whatever

genes favor failure would rise continuously, until ultimately the theory of the rhythm method would be only a historic curiosity.”

Dr. Hardin took as a springboard for his ideas a previous article in *Science* (see *SNL*, 85:21, Jan. 11, 1964) in which Dr. A. J. de Bethune, Boston College chemistry professor, analyzed child spacing according to mathematical probabilities.

Dr. de Bethune's conclusions, pessimistic as they are, err on the optimistic side, Dr. Hardin believes. These conclusions assume a “constant human physiology,” but with human physiology subject to evolution by natural selection, it becomes almost certain that the rhythm method cannot possibly work in the long run.

If for political reasons large sums of money should be spent on research aimed at perfecting the rhythm method, Dr. Hardin concludes, something worth knowing would no doubt be learned, but we should not “fool ourselves.” No matter how perfected, the “natural” method will be frustrated by natural selection, he is confident.

• *Science News Letter*, 85:182 March 21, 1964