

SURGERY

New Surgery Restores Hearing

Thousands are able to hear through new surgical procedures developed with modern high-powered binocular microscopes, Faye Marley reports.

► NEW SURGERY is successful in restoring many persons hard of hearing to a world of almost normal sound.

Ear doctors, called otologists, are quick to say that all operations are not successful and that "perceptive" or nerve deafness cannot be helped at all. But even the hearing aid salesmen are sending some types of patients to be examined for possible surgery.

Hearing loss caused by otosclerosis (immobilization of the middle ear bone) is believed by some to be one of the most common causes of hearing loss in adults. But this condition can often be remedied by the new microsurgery that allows surgeons to see the tiny stapes bone, as small as a grain of rice.

The binocular operating microscope has been in use in this country only within the past few years. It magnifies the parts of the middle ear 40 times, so the ear surgeon can see what he is doing.

Performed Throughout U.S.

Dr. David Myers of Temple University Medical Center, Philadelphia, told SCIENCE SERVICE that the stapedectomy is being performed throughout the United States and also in many parts of the world.

His rough guess is that a possible 2,000,000 to 3,000,000 persons in the world suffer from otosclerotic deafness, and that only an estimated 200,000 have had microsurgery for this disease. This is because few people know about this new technique.

Also binocular operating microscopes are in limited use and many people who have otosclerotic deafness are content to wear hearing aids.

Eminent otologists who are members of the Pennsylvania Academy of Ophthalmology and Otolaryngology report that the percentage of successful results has been uniformly high. A review of more than 1,000 operated patients at Temple showed approximately 77% have gained hearing within normal limits and that more than 90% are given socially useful hearing following stapedectomy.

These results are confirmed by Dr. Fred Harbert of Jefferson Medical College Hospital, Philadelphia, and by Dr. Raymond Jordan at the Pittsburgh Eye and Ear Hospital, both of whom report similar success with the stapedectomy.

Dr. John J. Shea Jr., an ear, nose and throat specialist in Memphis, Tenn., perfected the stapedectomy five years ago and devised many of the instruments necessary to perform it.

This is the way the operation is performed: With the aid of the operating

microscope, the surgeon makes an incision along the ear canal adjacent to the middle ear where the diseased stapes is located near two other tiny bones. Because the stapes has become immobilized, or fixed, the waves that conduct sound are blocked before they reach the inner ear. The surgeon lifts the ear drum like a curtain and folds it over during the stapedectomy.

In the operation the diseased stapes bone is removed and a tiny length of polyethylene plastic tubing is used to re-establish the continuity of the middle ear sound-transmitting mechanism. Dr. Harbert and others are using vein grafts, vein or fat plugs, and stainless steel wire to construct an artificial stapes.

Most patients can carry on their usual activities two weeks following the operation.

Dr. Harold F. Schuknecht of Henry Ford Hospital, Detroit, and numerous other ear doctors agree that a partial or complete stapedectomy is the preferred surgical procedure to correct otosclerotic deafness.

Microsurgery is also being used to correct and improve other middle ear diseases. The perforated eardrum and chronic ear infections are among conditions that can be helped. Serious otitis media in children is also corrected by microsurgery.

The surgeon uses what are called "tympanoplasty" procedures to remove every bit of diseased tissue from the middle ear. Then, using the remaining healthy bones and tissues, he rebuilds a new middle ear mechanism that can again function to conduct sound to the hearing nerve.

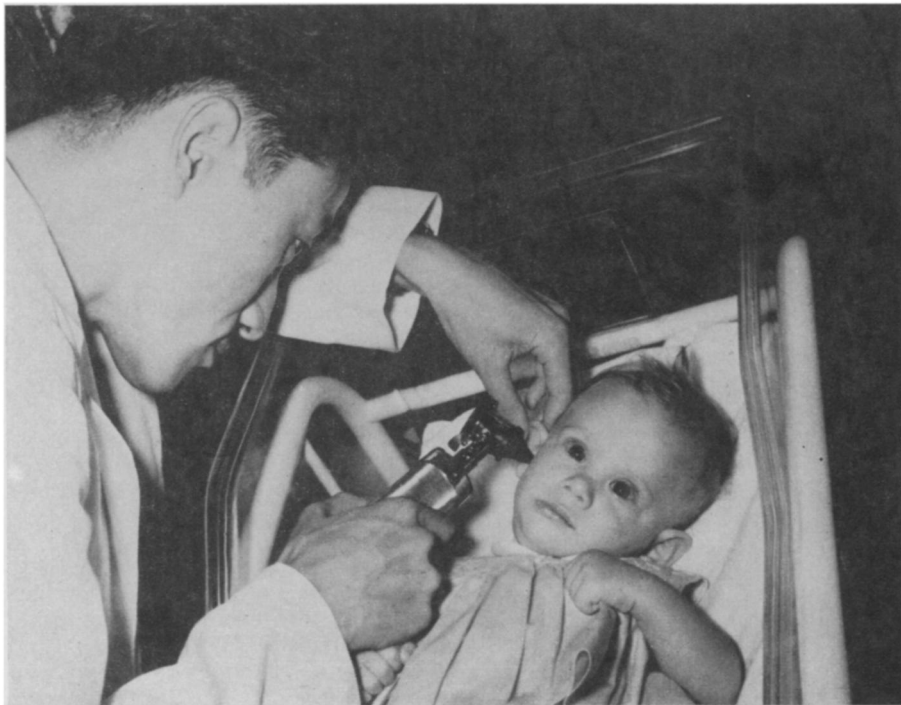
Dr. Woodrow Schlosser, also of Temple University, says that if the disease in the middle ear is not too extensive, tympanoplasty can restore socially practical hearing to 60% of the patients who undergo the operation. The same patients are given a "dry ear," in place of the intermittent drainage that is often caused by chronic infection.

"Window" Operation Used

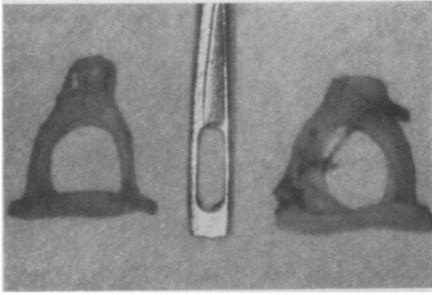
Before Dr. Shea perfected the stapedectomy, some success had been reported with the fenestration (window) operation in which a new opening was produced in the inner ear, permitting sound waves to bypass the diseased bone. Many thousands have had excellent results from this operation.

It was Dr. Samuel Rosen, however, at Mt. Sinai Hospital, New York, who in 1952 ushered in a new era in the treatment of deafness. He called his operation stapes mobilization, and when successful, the operation gave a higher level of hearing than the fenestration procedure.

In spite of the success of stapes mobilization, some patients pass through a period of improved hearing and then suffer a re-



CAN HE HEAR?—A Johns Hopkins Medical Center ear doctor (otologist) examines a young child.



STIRRUP-LIKE BONE—The stapes in the middle ear can become fixed or hardened (right) and cause hearing loss. Normal stapes (left) is shown with enlarged needle to indicate size.

turn of deafness. The stapedectomy in many instances can correct this failure.

A new Public Affairs Pamphlet, "You and Your Hearing" by Dr. Norton Canfield of Yale University School of Medicine, explains the various types of hearing loss—conductive, perceptive, and mixed deafness, as well as psychological.

"Some people do not wish to hear," Dr. Canfield says. "Some have their mind so occupied that perception centers do not react normally. A few people feign deafness."

Tests have shown that about three percent of the young people in the United States under 20 years of age have abnormal hearing. Dr. Canfield says that about two-thirds of this group are affected seriously enough to require medical aid.

"More than half of the children who have some hearing loss can have normal hearing after proper treatment," the Yale otologist says.

It is well known that many infectious diseases such as scarlet fever, measles,

mumps, pertussis, influenza, pneumonia, typhoid fever, diphtheria, a common cold or any disease causing high fever can produce hearing difficulties. The new antibiotics have done much to alleviate the effects of these diseases.

But for many old people and those with nerve deafness that medicine and surgery cannot help, the hearing aid remains the principal avenue to auditory contact with the outer world of sound. Speech or lip reading, along with speech training, may be advised.

Dr. Canfield, who is on the advisory board of the American Hearing Society, advises no one to wear a hearing aid until his doctor has examined him.

Dr. Canfield especially warns against itinerant hearing aid salesmen, adding that there is "no more gullible group than those who do not hear well." Peddlers and unauthorized companies should be avoided, and all hearing aid recommendations should be checked with the ear doctor.

In a sense, Dr. Canfield points out, everyone uses hearing aids. Telephones, radios, television sets, sound movies, tape recorders, public address systems, hi-fi machines, walkie-talkies and electric baby sitters are all real aids to hearing that we do not hesitate to use.

"Yet in the use of a personal hearing aid there may be reluctance so strong that many people wait too long for their best interest," he says. "The modern hearing aid is truly one of the electronic marvels of the age."

Dr. Canfield's pamphlet, which was prepared in cooperation with the American Hearing Society and the Royal Neighbors of America, can be obtained by writing to Public Affairs Pamphlets, 22 East 38th Street, New York 16, N. Y. The price is 25¢ each.

• Science News Letter, 80:194 September 16, 1961

PUBLIC HEALTH

Alcohol Link Not Proved

➤ THE IDEA that dependent persons tend to become alcoholics "is still premature," according to a University of Cincinnati psychology professor and two research associates.

Experiments conducted by Dr. Alfred Kristofferson, Willard Bailey and Frank Hustmyer at Longview State Hospital, Cincinnati, Ohio, show that organic brain damage without accompanying alcoholism causes a larger degree of dependence than that evidenced by brain-damaged alcoholics.

Tests in "perceptual dependence" suggest that alcoholism and dependence are associated because dependence results from an organic impairment produced by drinking, rather than being present before the person turns alcoholic, they conclude.

Such tests require the subject to keep an item separate from the visual field surrounding it—in this case, a luminous rod surrounded by a luminous frame.

Two rod-and-frame tests are described in

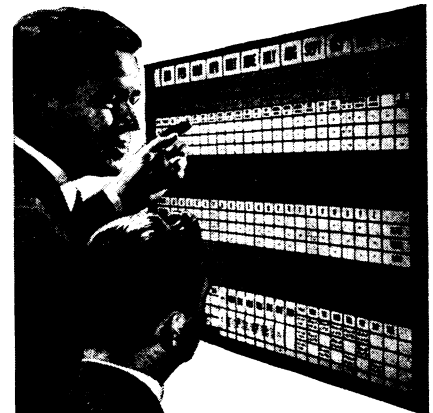
the current Quarterly Journal of Studies on Alcohol, 22:387, 1961. In the first, the researchers used a group of brain-damaged alcoholics, a group of "dry" alcoholics who had not had a drink for a year or more, and two control groups with no history of alcoholism. Both the brain-damaged and the "dry" alcoholics showed a much higher level of dependency than the control groups.

In the second tests, the three groups consisted of brain-damaged non-alcoholics, "disturbed" alcoholics with little or no brain damage, and hospitalized schizophrenics with no history of alcoholism.

The schizophrenic group scored about the same as the "normal" control groups in the first test. The sociopathic alcoholics "performed very nearly the same" as the "dry" alcoholics. The brain-damaged non-alcoholics "showed by far the largest degree of dependence."

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