

## PHYSIOLOGY

# Emotions Affect Hearing

EMOTIONAL factors affect hearing loss, three scientists reported to the Acoustical Society of America meeting in Cleveland, Ohio.

They have classified the psychic causes of hearing loss into three groups:

1. Availability, the existence in a person's life history of a "model" for deafness. This may be a period of temporary, partial deafness or close association with a deaf person.

2. Necessity, the discomfort, fear or frustration resulting from a person's attempts to adjust to the world in which he lives and for which he can find no solution except to shut out part of that world.

3. Maintenance, the advantages or gains given to the person because of his symptom, such as care and attention from others around him, exemption from certain efforts or difficulties on account of his "handicap," a sense of being "special."

Drs. Jane Farley, A. J. Derbyshire and Richard L. Carter of the Parmlly Foundation for Auditory Research, Illinois Institute of Technology, Chicago, found these characteristics in a preliminary study aimed at discovering the emotional and social factors that may cause or contribute to loss of hearing.

Emotionally based hearing losses, they believe, are so common that their explanations apply to the life of virtually every person.

Human beings, they reported, are "organically deaf" to such high pitched sounds as made by a dog whistle. Every person is also to some extent "physically deaf," they noted.

The child who hears "ice cream" more easily than the similar sounding "wipe clean," and the mother who sleeps through the alarm clock but wakes instantly at the first whimper of her sleeping infant are two commonplace examples of selective perception.

The scientists attempted to explain how emotional factors operate to select what is heard and not heard, and also what particular psychic factors may do the selecting.

They found their subjects have certain common needs, attitudes and biographical facts that can be used to distinguish "deafness prone" individuals. In the group they studied, each person showed a need to avoid, rather than meet and solve, unpleasant or highly charged situations. The persons were also strikingly willing or anxious to sacrifice, or otherwise debase or injure themselves "for others."

Most characteristic, they found, was the ability of their experimental subjects to create and maintain a kind of "fantasy world"—not the hallucinations of a psychotic patient, but the wishful and sometimes fearful daydreams of love and glory that all persons have, made more substantial, more continuous and more resistant to the distractions of the workaday world.

Science News Letter, November 7, 1959

was a dramatic and sustained pain relief, improvement in health, and early return to gainful employment after the operation, the surgeon reported. Dr. Day stressed that only patients whose heart pain is due to narrowed coronary arteries, as established by careful examination and X-ray studies, were candidates for operation.

Science News Letter, November 7, 1959

## ASTRONOMY

## Sun's Magnetic Field Reverses Its Direction

THE SUN has reversed the polarity of its magnetic field, Dr. Harold D. Babcock of Mount Wilson and Palomar Observatories, Pasadena, Calif., reports.

Although the sun's magnetic field is very weak, comparable to that of the earth, it can be measured by an instrument known as a solar magnetograph.

Dr. Babcock found the polarity of the sun's magnetic field was opposite to that of the earth's from 1953 to 1957. About the middle of 1957, the polarity of the magnetic field near the sun's south pole reversed. Reversal of the field near the sun's north pole was not observed until November, 1958.

Thus, for more than a year, the sun had two poles of the same sign.

At present, Dr. Babcock reports in the *Astrophysical Journal* (Sept.), "the sun's polar field is parallel to that of the earth." Astronomers do not yet understand what great forces within the sun caused the reversal.

Mount Wilson and Palomar Observatories are operated jointly by the California Institute of Technology and the Carnegie Institution of Washington.

The magnetic fields of other stars have been observed to reverse their polarity, sometimes within a period of days, but their fields are much stronger than that of the sun.

Science News Letter, November 7, 1959

## MEDICINE

# "Blue Baby" Aids Adults

THE HEART condition that causes "blue babies" is being duplicated in adults to relieve heart pain.

The new operation is based on the observation that "blue babies" have a very rich coronary blood supply, Dr. Stacey B. Day, University of Minnesota, explained to the American Heart Association meeting in Philadelphia. Now, Dr. Day and his co-workers have attempted to duplicate this condition in adult hearts, although not to the extent that the patient will be harmed or turn bluish.

Blue babies are born with a combination of heart and circulatory defects that prevents their blood from receiving enough oxygen. Such blood tends to be bluish and gives a blue cast to the skin. Apparently the highly developed coronary blood supply seen in these children is utilized by the body to keep the heart working efficiently despite its inborn defects.

The severe pain that occurs in coronary artery disease, however, does not mean that the blood lacks oxygen as such, but rather, that not enough oxygen-carrying blood reaches the heart muscle because of a nar-

rowing or shut-down of part of its blood vessel system. Dr. Day and his associates decided to try to exploit the body's compensatory mechanisms, as reflected in the blue babies' hearts, by bringing some "blue," venous, blood almost directly into the heart muscle.

They tapped the pulmonary artery, through which de-oxygenated or venous blood returns from the right side of the heart to the lungs for fresh oxygen. Openings in this artery and in the left side of the heart were joined to provide a route for a small amount of venous blood.

The researchers believe this oxygen-poor blood, by raising the carbon dioxide content of the blood in the coronary arteries, should stimulate the non-diseased branches of the coronary network to enlarge. It should also spur the growth of new "collateral" blood vessels within the heart. The result, they hope, will be that both the amount and distribution of the total blood flow through the ailing muscle will improve.

The operation has been performed on three adults so far. Each patient had suffered severe heart pain. In each case, there

## Questions

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**METEOROLOGY**—How soon do meteorologists expect to make 30-day predictions as accurate as the five-day predictions are now? p. 306.

**PHYSICS-CHEMISTRY**—For what research did two physicists receive the Nobel Prize? p. 303.

**PHYSIOLOGY**—What are some examples of "selective perception"? p. 302.

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