

growths, he declares, are probably amenable to the beneficial influence of lead if only enough of the metal can reach them.

He does not hesitate to employ auxiliary measures of surgery, X-rays, or radium when circumstances seem to warrant but recommends that when the growth has been partly or apparently entirely removed, "intravenous injections of lead should be employed within a few days of the operation when possible."

In conclusion he states that "the method of treatment is difficult, and to some extent dangerous and can only be safely employed by those who are thoroughly experienced in the work, and have laboratory facilities at their disposal."

DEAF LEARN MOVEMENT OF SPEECH BY TOUCH

A way to show totally deaf persons that spoken language has rhythm is being tested by Dr. Robert H. Gault, professor of psychology in Northwestern University, who, under the auspices of the National Research Council, is conducting experiments upon students of Gallaudet College for the Deaf. The method has grown out of Dr. Gault's experiments in relation to sensation of touch. If it is put into use in schools for the deaf, it will help the child who has never heard the sound of spoken words to talk much more normally.

"The deaf person has great difficulty in grasping the idea of the swing of human speech," says Dr. Gault. "That is why his sentences often sound stiff-jointed and queerly accented. By means of apparatus which conveys the vibrations of a speaker's voice to the finger tip of the deaf person, he is able to catch the swing of the sentences and the grouping of words and phrases, and fine distinctions among words."

The apparatus used for these experiments is the same that Dr. Gault has used for some time in testing the practicability of enabling the deaf to understand speech by the way it feels upon their finger tips. The speaker talks into a transmitter, and the vibrations of his voice are amplified 175 times. The deaf listener, who may be in a different part of the building, holds in his hand a receiving device that looks like a radio earphone, and presses one finger against the disc to catch the vibrations. Different vowels and consonants have different vibrations, and one by one, the student learns to identify the sounds that make up the language.

Some of the deaf subjects who have spent no more than 120 hours in the laboratory have learned to recognize several hundred words with their fingers. One succeeded in identifying 120 sentences without error, after having been over them but eight times, and others have done almost as well.

These subjects, Dr. Gault says, have now acquired a familiarity with the swing or movement of speech which they never had before. This is giving them a thrill of speech that they never experienced. They enjoy the movement of verse, some verses more than others. They can take a list of unfamiliar sentences and mark them to indicate how a good reader might read them. Subjects of corresponding age and school experience who have not taken part in any of Dr. Gault's experiments

are approximately 28 per cent. inferior in this respect to the practiced subjects.

used

Dr. Gault also has his method in connection with lip reading, and he has demonstrated that the feel of speech is of practical use here.

"There are many different groups of words, each member of which looks like every other word in the group to the individual who is reading the lips of a speaker," he explains. "For instance, the words 'aim' and 'ape' look exactly alike as the lips form them. These syllables, however, are very different when they are felt by aid of the instrument in the laboratory."

The psychologist has selected 103 such groups at random for experimental purposes to discover how far the sense of touch can go in making distinctions among them. In only seven groups out of the 103 did he fail to find definite differences in feel--different enough to enable the subjects to make identifications.

Because of the large number of words that are difficult to distinguish in unaided lip reading, he believes that learning would be easier for the deaf child if he could watch the teacher's lips and at the same time feel the words in his fingers.

"When the deaf in school can both see a speaker's face and feel his words and the movement of his speech, instruction can be very greatly speeded up without separating the pupil from the language of normally hearing people," says Dr. Gault.

RUSSIAN EXPERIMENTS CONFIRM MILLIKAN'S SUPER-X-RAY FIND

The discovery of super-x-rays, consisting of extremely short-wave radiations coming to the earth from outer space, possessed of tremendously high penetrating power, has been confirmed by two Russian scientists, Dr. L. Myssowsky and Dr. L. Tuwim, who have repeated parts of the experiments performed by Dr. R. A. Millikan in the United States and Dr. Kolhorster, the German pioneer in super-x-ray research.

The Russian scientists made tests of the penetrating power of the rays by sinking specially arranged electroscopes beneath the waters of Lake Onega in Western Russia, and found that the rays were quenched at a depth of 19 meters, or about 60 feet. This was the depth determined by Dr. Millikan in California mountain lakes, and by Dr. Kolhorster in the Bosphorus during the World War. Waves able to pass through this depth of water, plus the thickness of the earth's atmosphere through which they come on their way from outer space, have a penetrating power, according to the physicists' calculations, that would carry them through six feet of lead.

A color wheel which can be used to detect color blindness has been invented.
