



Anatomical Drawing of the Face Musculature Showing How All the Muscles, Including Those of the Ear, Are Controlled by the Same Nerve—the Facial. The Arrangement of the Muscles Makes It Plain, Too, How a Pull Upon Any of Them Results in a Movement of the Ear Muscles Also.

By Professor Fernet
In His Address Before the Paris Academy of Medicine.

I HAVE been engaged for two years in perfecting a method of using the external voluntary muscles of the ear and scalp to combat advancing deafness.

The active and systematic use of these muscles has the effect of massaging the ear drums, bones and nerves, maintaining their blood supply and nutrition and of protecting them against atrophy. The exercises are principally useful in keeping the external and middle ear in good condition. I would not dwell too much on their value in connection with the auditory nerve, but their effect can only be good.

"Making faces," or the active use of the facial muscles, has in many ways a high value in preserving the acuteness of our senses and consequently life. To this fact we must attribute in some degree the long life so commonly enjoyed by ministers of religion. They use the facial muscles constantly and regularly in preaching.

The same conclusion may be drawn from actors, although the fact of their longevity is not so generally recognized. Those actors who devote themselves to the serious side of their calling with success appear to live longer than other men and to retain the acuteness of their senses and faculties to a much greater age than other old men. It is hardly necessary to explain that actors use and train their facial muscles to a greater degree than any other class. Moreover, they derive an additional benefit from the fact that acute hearing is necessary to their work and they never allow it to become dull from insufficient use.

I describe my method of training the ear as "oral gymnastics." It is applicable in all cases where deafness is due not to an irremediable lesion of the acoustic nerve or the auditory centres, but to a change in

Curing Deafness by "Making Faces"

How the Nerves and Blood Supply of the Ears May Be Stimulated and Massaged by Exercising the Same Muscles That Make Queer Grimaces

the apparatus for transmitting the sound waves. This is the commonest of all forms of deafness.

The muscles and bones of the middle ear—stirrup bone, incus bone and hammer bone—have a function of prime importance to our hearing. They are the accommodating agents for that apparatus of perfection, the drum. They are as useful to the sense of hearing as the accommodating muscles of the eye to that of sight. The muscles of the external ear and those of the Eustachian tube have only a secondary role, but nevertheless they give help which is not to be neglected.

Oral gymnastics should exercise all these muscles in order to increase their power. Those of the drum appear to be removed from the action of our will, at least in the majority of persons. But the education of these latter muscles is much easier than most of us would think, and if they do not obey our will more readily it is principally because we have not exercised them.

Take, for instance, the muscles of the scalp and the external ear. I believe that it is quite exceptional to find a man who can contract them voluntarily, yet actually we can find a considerable number of persons who can do so, indicating that the function was originally a normal one. We also know that children in play often make a practise of exercising their cranial muscles and their external ears and seldom have any difficulty in doing it.

Later this faculty is generally lost through lack of exercise, but a little patience and perseverance will suffice to restore it and produce very appreciable contractions.

It is the same with the muscles of the Eustachian tube. Is it not reasonable to expect that the exercises which set in motion the cranial muscles, the external ear and the Eustachian tube must affect the associated muscles of the ear drum? Thus my system of oral gymnastics ends in making the muscles of the delicate ear drum contract with the external muscles.

Observe that all these muscles are supplied by the same nerve, the facial nerve, and that this common innervation explains the close relationship which unites them and associates them in their contractions. In fact,

the isolated contraction of one of these muscles without several of the others is usually difficult or impossible to obtain.

For this reason I consider it useful in oral gymnastics to exercise all the muscles supplied by the facial nerve, no matter how accessory they may be. They all have the power of stimulating activity in the parts depending on the same innervation.

The lesions of the middle ear, which are the commonest causes of deafness, are thickening of the membranes, exudates, adhesions, obstructions and scleroses. These are usually due to eruptions which occur frequently among heavy eaters and rheumatic subjects or to various atrophies of old age. These injuries occur in the outer part of the middle ear. They are all subject to the ameliorating effect of oral gymnastics. Though nutrition may be interfered with, it is not abolished, and the parts affected share in the

benefits are due primarily to the stimulation of the nutritive supply of the various parts. This helps to repair the ravages caused by disease and to keep the organ in an invigorated condition.

Very often deafness is due to functional inertia and to the atrophy which follows the condition. These cases have a progressive character, which is a necessary consequence of the functional inertia. If only one ear is affected the subject instinctively uses only his good ear and the other ear atrophies from lack of use. If the two ears are equally affected, the inertia is less, but none the less it exists because the sufferer tends to isolate himself from the world, thus increasing his infirmity. Oral gymnastics would correct both these classes of cases.

I will now give a detailed description of the exercises. They are divided into three series, exercising successively the muscles of the skull,



Photograph Showing a Contraction of the Brows That Gives a Healthful "Pull" to the Muscles of the Ear. In Diagrammatic Form Are Shown—(A) The Eustachian Tube, (B) the Hammer and Stirrup, the Muscles of All of Which Are Stimulated by Facial Grimaces. The Filaments—(C) Are Threads From the Facial Nerve.



GRIMACE NO. 1—Contraction of the Brows and Nose, Which Moves the Scalp and Pulls the Face Muscles in Directions Indicated by the Arrows. Dotted Line Shows Normal Place of Ears, Which Are Moved Backward by This "Face."



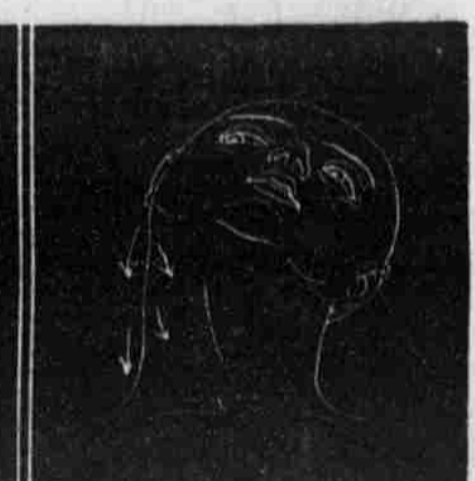
GRIMACE NO. 2—Raising of the Muscles of the Forehead, Which Lifts the Ear Muscles. When This Movement Is Made Properly It Can Be Felt at the Ear Tips—Indicated by Arrow.



GRIMACE NO. 3—Third Contraction of Forehead in the Direction Indicated by Arrows. These Three Grimaces, with No. 4, Are the Most Important for Stimulating Ear Drum and Its Bones.



GRIMACE NO. 4—Mouth and Forehead Contraction, Which Is Performed Simultaneously with Any of the Preceding Three Exercises as the Subject Becomes More Expert.



EXERCISE NO. 5—Exercise for Opening Up and Stimulating the Muscles of the Eustachian Tube. In This Position, with the Neck Muscles Pulled Downward, the Subject Swallows Vigorously Several Times. Repeat with Other Side of Neck.

of the external ear and of the Eustachian tube. They thus proceed from the muscles most remote to those nearest to the ear drum, which is the principal object to be reached. In the first exercise, which may be

described as making faces, you contract successively the different muscles of the lips, the wings of the nostrils and the eyelids. The contraction of each group of muscles should be repeated a certain number

of times deliberately and without violent effort. The patient should endeavor to make them stronger as he proceeds and should bear in mind that he must try to make them reach the ear. When he has become thoroughly trained he will feel the contractions most distinctly in the ear.

The second series which is even more important, consists in exercising the muscles of the skull and the external ear. By a reasonable amount of perseverance any man can succeed in producing contractions of these muscles which will be evident to the eye. If the scalp muscles at first seem immovable and as if soldered to the scalp, make it more supple by massaging it at the beginning of each exercise. Contract the forehead muscle, then the occipital muscle (that of the top of the scalp) separately, and then both together, so as to produce a flowing backward and forward motion of all the muscles of the upper part of the skull.

After this the patient combines the contractions of the occipital and the frontal muscles with those of the posterior, superior and anterior attachment muscles of the ear, which should be quite easy to do because of the connection between the latter and those of the skull. During these contractions we can see a movement not very extensive but evident, of the whole external ear. During this exercise the patient must endeavor to extend the movement as far as possible into the external ear opening, aiming to reach the bottom of this opening. This is how functional activity is imparted to the little bones in the ear and to the drum itself.

The Only Way.

Sandy and Donald were discussing the domestic infelicities of a mutual friend.

"Ay, ay," said Sandy. "Jamie Thompson has a fair time w' that wife of his. They say they're aw' quarrelling."

"What else can ye expect?" was Donald's scornful retort. "The pulchritudinous creature marries after courtin' for only seven year. Man, he had a chance to ken the woman in such a short time. When I was courtin', I courted for twenty years."

This little dialogue took place on a railway journey; and in the further corner of the compartment sat an Englishman, listening and much amused.

"And may I ask," he inquired, "if connoisseurs follow this long courtin'?"

Donald looked at him reproachfully.

"I tell ye I courted for twenty year," he said, "and in that time I kent what woman was, and so I didna marry."

Hated Waste.

Snow was falling heavily outside the schoolhouse, and the young teacher improved the time by warning her class of the dangers of catching cold.

"Yes," she remarked, "you must be very careful indeed, now that the real cold weather has come. Last Winter my little brother went out with his sledge and caught such a bad cold that he has never got properly well again."

"He has to live in the South of France, and must never come back to England again in the Winter! Isn't that a terrible thing to happen?"

The pupils looked duly sympathetic—all save one, who eagerly demanded:

"Please, teacher, where's his sled?"

Eccentric Judges.

Mr. Cro has had some eccentric predecessors on the Scottish Bench. The most eccentric of all was Lord Eskgrove. Condemning a tailor to death for murdering a soldier, Lord Eskgrove remarked:

"Not only did you murder him, whereby he lost his life; but you did thrust, or push, or pierce, or project, or propel the lethal weapon through his regimental clothes, which were His Majesty's."

Scotching two criminals for house-breaking with violence, after detailing the way they attacked the persons of the house, Eskgrove went on:

"All this you did, God preserve us! just as they were sitting down to

A Grand Opera Prima Donna—From Oshkosh



Miss Esther Peterson, the Oshkosh Prima-Donna, as "La Tosca."

WHENEVER a vaudeville comedian wants to be really sure of getting a laugh he will hazard the guess that some one or other comes from Oshkosh. Oshkosh is a perfectly good little Wisconsin city, and why people laugh whenever it is mentioned is hard to explain. They do laugh, however, a little more than they do at the mention of that other mirth-provoking name, Kalamazoo.

But here is an Oshkosh girl who has just attained the greatest kind of success as a prima donna in Paris. Esther Peterson is her name.

Little Miss Peterson is the daughter of a wandering Methodist minister—an Evangelist. When she was only nine she walked clear across the United States with her father. She sang hymns while he played an old-fashioned barrel organ.

The child's rare voice attracted the attention of a rich Chicago man, a patron of the arts and a famous teacher of the voice.

The musician followed them, and the very next week the little girl had been freed from the barrel organ and was studying under her benefactor.

When she was in her early teens she went to Paris. There she supported herself, in a fashion, by teaching and by occasional newspaper writing. She was able each week to put aside the few dollars that gave her the privilege of attending the classes of Jean De Reszke and his brother Edouard, the most famous teachers in Paris outside of the late Mme. Marchesi.

And then only a few days ago she sang as "Lakme" at the Galette Lyrique. Seldom was there such instantaneous, glorious success. Impresarios clamored for her. During the Winter she will sing at Cannes, at Mentone and other Winter resorts. She has been engaged for the "Grande Semaine" at Deauville—in itself a triumph.

And all this, to the confusion of the humorists, has come to a girl from Oshkosh!



Miss Peterson as She Appeared in Her Triumph as "Aida."