

**THE EXTRACTION OF THE STAPES.**

BY PROFESSOR ADAM POLITZER (Vienna).

Professor Politzer said he had had the intention of going critically and at length into the subject of the extraction of the stapes, with demonstrations of histological preparations; but the number of the communications to be read being considerable, he confined himself to a summary of his paper.

The simple *mobilization* of the stapes, he said, had only a temporary effect on the hearing. Where the improvement was more lasting, it was due to a tearing of the adhesions. Better results were obtained by dividing the adhesions formed between the branches of the stapes and the walls of the niche of the fenestra ovalis. The operation of the extraction of the stapes was founded on experiments with animals. It had been found that in birds and rabbits, after the extraction of the stapes, a new membrane was formed, closing again the fenestra ovalis, and that after this the deaf animals show again some faculty of hearing. His own experiments on rabbits confirmed this fact, and in addition he found, by microscopical examination, that no pathological changes were produced in the labyrinth. Usually there remains after the extraction the border of the stapes, from which the regeneration of the plate of the stapes may start.

The operative extraction of the stapes in cases of the so-called *sclerosis of the middle ear* was, according to the experience of Blake, Politzer, and Knapp, of no use; because, as Politzer's investigations had shown, the cause of the fixation of the stapes is a proliferation of bony tissue of the labyrinthine capsule, which, even after removal of the stapes, effectually closed up the fenestra ovalis.

The results of the extraction of the stapes in cases of *non-suppurative middle-ear catarrh* with formation of adhesions were still too few for them to form a definite opinion of its value.

In cases of *chronic middle-ear suppuration* they had at hand a good number of observations.

Dr. Jack (Boston) has performed many extractions of the stapes in chronic middle-ear suppurations, and is of the opinion that the extraction of the stapes in these cases might be performed without danger to the hearing. But, according to his publications, against the number of cases where the hearing was improved must be placed a series of cases in which it was evidently impaired.

Where the stapes had been removed either intentionally or

accidentally during the performance of the radical operation, even when the immediate results had been favourable, still, little was known about the ultimate results.

As an illustration of the operation in question, Professor Politzer proceeded to give a description of a case under his own observation, concerning a girl two and a half years old, where, on account of caries of the temporal bone, the radical operation was performed, and in which the stapes was accidentally extracted. The phthisical child died from marasmus several weeks after the operation, which afforded Professor Politzer an opportunity of examining anatomically the organ of hearing post-mortem.

The histological examination of microscopical sections showed the following: In sections which passed through the niche of the fenestra ovalis and vestibulum one saw the inner wall of the tympanic cavity covered by a granulated mucous membrane composed of round cells. This same granulation mass filled the niche of the fenestra ovalis, and, passing forward from there through the labyrinth window into the vestibulum, filled out the whole cisterna perilymphatica. This granulation tissue was firmly fixed with the utriculus, and surrounded it on all sides. The wall of the utriculus itself showed inflammatory thickening. In the horizontal semicircular canal the connective-tissue network between the osseous and membranous canal was in a state of inflammatory infiltration, invaded by round cells and intersected by dilated vessels.

More conspicuous changes were found in the cochlea. Here the inflammatory proliferation had entered both cochlea turns, reaching as far as the top, principally, however, in the scala tympani. It started mostly from the inversive of the cochlear canal and from the lamina spiralis, and showed the same structure as the connective-tissue proliferation in the vestibulum.

This case, the first in which the labyrinth was histologically examined after the extraction of the stapes, is very important in securing the indication for the operative removal of the stapes during the course of suppurative otitis media, because it shows the possibility of a spreading of the inflammation into the labyrinth, and might possibly give us the explanation why, in a number of cases, the hearing is impaired after the extraction of the stapes. Professor Politzer, therefore, expressed himself against the performing of this operation during the course of chronic suppuration of the middle ear.

On the other hand, when the suppuration has ceased, and there are adhesions between the branches of the stapes and the niche of the fenestra ovalis, there is, he considered, a distinct future for the

operative extraction of the stapes with a view to improving the hearing. This opinion was based upon observations made by himself and others, and also upon a case which he had under his notice.

**ON THE POSSIBILITY OF RE-OPENING THE FENESTRA OVALIS  
IN CASES OF OSSEOUS ANCHYLOSIS OF THE STAPEDO-  
VESTIBULAR ARTICULATION (TYRIDIANOIXI OVALIS).**

BY PROFESSOR G. FARACI (University of Palermo).

In 1895 I wished to study experimentally the effects on animals of fracture of the stapes and laying open the fenestra ovalis, in order to see what truth there was in the statements of Schwartz and Politzer, who maintained, and perhaps still maintain, that the entrance of small osseous fragments into the vestibule determined a purulent labyrinthitis, with the possible sequence of meningitis.

I do not discuss here the operative technique necessary in various animals, nor do I desire to set out in all their details the individual operations which have been minutely described in my book,\* but confine myself to a statement of the conclusions at which I have arrived :

1. Opening the fenestra ovalis with fracture of the base of the stapes is not a dangerous operation, and if no infection accompanies the procedure, there is never purulent labyrinthitis nor any functional disorder.
2. The osseous fragments which fall into the vestibule provoke only a slight inflammatory reaction, with formation of connective tissue, which encapsules the fragments without compromising the structure or functions of the soft parts in the vestibule.
3. Notwithstanding the greater gravity of the surgical trauma compared with that in stapedectomy, one may observe, as a sequel to the operation, the formation of a delicate membrane which replaces the stapes and has sufficient acoustic power.
4. The resulting auditory power does not differ from that observed in animals after total ablation of the stapes.
5. This operation may be recommended in man when marked deafness is accompanied by serious noises.

From these conclusions I determined to perform the operation on the human subject as soon as the opportunity should present itself.

\* "Chirurgia dell' orecchio medio ed esame critico delle conseguenze dei vari atti operativi relativamente alla facoltà uditiva" ("Studio Clinico Sperimentale." Roma, 1895).