

EAR.

Alexander, G. (Vienna).—*A Contribution to our Knowledge of Acute Labyrinthitis.* "Arch. f. Ohrenheilk.," Bd. 75, 1908, p. 1.

Four cases of a special type of labyrinthitis are described, to which the author gives the name of "labyrinthitis acuta circumscripta," and which follows the radical mastoid operation, although it is not due to surgical traumatism.

Within the first twenty-four hours after operation symptoms of labyrinthitis appeared. These were marked vertigo, with vomiting and sometimes subjective movement of external objects, spontaneous nystagmus, generally to the sound side, and in one case the typical attitude of labyrinthine disease—the patient lying on the sound side. In one or two of the cases the nystagmus, when it first appeared, was directed to the diseased side, but this quickly passed off and was succeeded by the typical nystagmus to the sound side.

After the rather violent onset, all the symptoms gradually subsided without any further operative interference, and at the end of a week the patients were perfectly well and able to get about. Spontaneous nystagmus of a slight and irregular character (sometimes to one side, sometimes to the other) alone remained as the last trace of the spent storm.

Before the operation there was no sign of labyrinth involvement, save in one case in which there was vertigo and spontaneous nystagmus to the affected side; and in none, save in one case, was there any evidence of active participation in the disease of the outer wall of the labyrinth. In the solitary exception the bony wall of the labyrinth showed signs of osteitis and was invested with granulations, which the operator curetted. In this case vertigo was experienced and nystagmus was observed as soon as the patient had recovered from the anæsthetic. In two of the cases meningeal symptoms accompanied the labyrinthitis, but they disappeared even more rapidly than the labyrinthine phenomena.

In discussing the cause of the disease the author is confident that he can exclude any traumatic breach of the external osseous wall of the labyrinth, and he is forced to the conclusion that we have here to deal with a transient serous labyrinthitis, similar to the mild and evanescent serous meningitis that occasionally follows (as in two of his cases) the performance of the radical mastoid operation.

The recovery of labyrinthine function, as gauged by the audition and vestibular tests, was complete in all four cases.

Dan McKenzie.

Leutert, E. (Giessen).—*Results of the Comparative Bacteriological Blood Examination in Mastoid Inflammation.* "Münch. med. Woch.," November 9, 1909.

The writer maintains that in 1897 he proved that osteo-phlebitic pyæmia, although occasionally seen, was so rare that it could be left out of consideration, and that high temperatures of 102.2° F. and upwards in inflammations of the mastoid, after the subsidence of the acutest stage of inflammation in the tympanum, are always an indication that there is inflammation of the whole thickness of the outer wall of the lateral sinus with intrusion of bacteria into the blood-stream, followed by thrombosis. He further considers it proved that the highest degree of destruction of the mastoid in acute and chronic suppurations, whether with or without

cholesteatoma, is never accompanied by high temperatures unless the sinus wall is inflamed in its whole thickness. He therefore holds that the diagnosis of otitic sinus thrombosis is possible on the ground of the high temperature. In relation to this, he cites two causes of difficulty in practice, although only in a small percentage of cases, namely, when there is some other diseased condition present, such as tonsillitis; and secondly, in cases in which both mastoids are affected and there is no marked difference in the appearance of the two sinuses when they are exposed. In order to clear up the differential diagnosis, he therefore makes comparative examinations of the bacterial contents of the blood from one or both sinuses, and from a vein in the arm. To this he adds, at the time of operation, investigation of the bacteria in the jugular vein. In his first work on the subject he dealt with fourteen cases, chiefly of sinus thrombosis, in which, while the blood from the arm was sterile, that taken from the sinus contained abundance of streptococci. He now adds the result of sixty-seven other examinations made in cases in which sinus thrombosis was absent as well as present, also in cases with only slight elevation of temperature. In his *first group*, the uncomplicated mastoiditides, sinus and arm blood was examined thirteen times, and in seven cases the sinus blood alone. In all of them the arm blood was sterile, and in sixteen the sinus blood as well. In two acute cases a few streptococci were found in the sinus blood, and in one chronic case the *Staphylococcus albus*. In a second chronic case there were some bacilli. In two of these four cases the sinus was exposed at the operation, and its wall found to be markedly diseased. In a third it was much thickened. Only in one of the two acute cases it appeared to the naked eye to be unchanged. These were transition cases between the uncomplicated and the second group, namely, those with high fever. From these observations he concludes that in uncomplicated mastoiditis, that is to say, without marked elevation of temperature, no bacteria get into the bloodstream. The other possibility, that bacteria entering through the small veins into the circulation get destroyed at once in the blood, is improbable, because the cultures, as long as no high temperature was present, always remained sterile independently of whether the case was acute or chronic. It is unlikely that the bactericidal property of the blood during long-standing inflammation of the mastoid can continue undiminished in strength to such an extent as to make the bacterioscopic examination of the blood always negative.

Among the complicated cases, the *second group*, he found three classes. The first contained four acute cases in which the high temperature was reduced three days after the mastoid operation. In these, blood from the sinus and the arm was sterile. The second contained eleven in which slight elevation of temperature remained after the third day. Only in three of these, which could be characterised as mild, the blood from both places was sterile. In three there were a few streptococci in the blood from the sinus, but none in that from the arm. In the seventh case the sinus blood was sterile, while that from the arm vein gave three and five streptococcal colonies. In the eighth case there were a few streptococci in the sinus; the arm could not be investigated. In the ninth and tenth streptococci were found in both bloods. In the eleventh case, which was one of bilateral post-scarlatinal mastoiditis with slight persistent elevation of temperature, the blood of the right sinus gave on three plates streptococci with marked haemolysis, but the blood in the left sinus remained sterile. In this case it was not considered necessary to examine the arm-blood, as the result of the investigation of

the healthy sinus was equivalent to it in value. The third class embraced five cases which formed a transition towards the third group, as there was evidently a slight thrombosis formation. In the first case this was deduced from the persistence of the temperature, which only fell on the fourth day after the exposure of the sinus. It rose again from the ninth to the twelfth and continued high. Streptococci and a few staphylococci were found both in the sinus and in the arm blood, especially in the former. In the second case the temperature rose on the tenth day after the exposure of the sinus, there having been an interval of pyrexia for seven days, accompanied, further, by a high pulse. The high temperature fell, however, on the same evening, and was normal again in four days. The third case had for a long time after the exposure of the sinus slight evening rises, and on the thirty-first day after the operation inflammatory changes were found in the eyeball of the same side, namely, irido-choroiditis of metastatic nature, which went on to pan-ophthalmia and led to atrophy of the eye. The two last cases, one apparently acute and one chronic, were complicated by myocarditis; the temperature in the first one, after coming down on the ninth and twelfth days following the exposure of the sinus, went up again for several days. In the first case there was abundance of *Staphylococcus pyogenes aureus* in the sinus blood, and only a few in the blood from the arm. A positive result in the arm blood is considered, therefore, to indicate a severe infection. The writer considers it quite exceptional to find even comparatively small metastases in sinus phlebitis without thrombosis, and then only in the first stages of thrombosis, and metastases in the lungs or embolism of the pulmonary artery only if portions of thrombosis become loose exceptionally early. In all his acute cases, apart from the rare ocular metastases which came on very late, metastases was absent. Even in rapidly fatal cases of sinus thrombosis metastases as a rule did not occur. He therefore concludes that the occurrence of high fever in mastoid inflammations points to the reaction of the body against the invasion of bacteria, which in these cases are generally streptococci.

While in the second group the severity of the case could be decided by high temperature, this was not possible in the *third group*, namely, those of sinus thrombosis, in which the severity was measured not alone by the height and duration of temperature but also more particularly by the presence and nature of the metastases, as also the degree of strength of the heart. In twenty-three cases the sinus blood was examined, and in ten of these at least 1000 or more streptococci occurred on one plate, while in the second group only twice were there more than 100. Of these ten cases three recovered, two died of sinus thrombosis, one of sinus thrombosis after meningitis, and one apparently of a tumour of the base of the skull after the healing of the thrombosis. In four other cases the streptococci did not number over 100 or from that to 500, and they all got well. In other five the number was under 100 and of these three recovered. One died from a recurrence of pneumonia, another from embolism of the right pulmonary artery; in other four cases the cultures from the sinus blood remained sterile with the exception of a few pseudo-diphtheria bacilli on one plate in one case. Their course was mild, but one died as the result of acute cerebellar abscess. A very advanced chronic case which was ushered in with pulmonary disease and pleurisy died, and in the sinus blood were found only three or five colonies of staphylococci. In the remaining five cases the sinus blood could not be examined as the channel contained no blood, being blocked up by thrombus. Of these five cases two died and three recovered.

He thinks as a result of a comparison between the third group and the second that we are justified in saying that the discovery of streptococci in quantity in the sinus blood is a symptom of existing sinus thrombosis, and therefore of great diagnostic importance. A small quantity of bacteria indicates a less degree of severity in the case, but the writer does not consider that the smallness of the quantity justifies the omission to tie the jugular vein and to open up the sinus, more especially if bacteria are found in the blood from the veins of the arm or foot. In long-standing sinus thrombosis the bacterial contents of the blood may diminish, as they do also when the patients sink under metastatic pulmonary abscesses. In otitic blood infection the protective power of the organism works long and energetically, so that a multiplication of streptococci in the blood itself or of the blood-forming organs does not take place.

When we compare the observations on the three great groups we find the following as the bacteriological picture during the development of a sinus thrombosis: In the mastoiditis not complicated with sinus disease and which always runs its course without high temperature, there were no bacteria in the blood. The supervention of high fever showed the passage of bacteria through the sinus wall into the blood, at first without thrombus formation, which, however, soon does occur if the diseased bone through which the inflammation reaches the sinus wall is not removed. The first bacteria which get into the blood-stream are, however, not to be demonstrated in cultures, as they are overcome at once by the bactericidal properties of the blood; only after a certain time—occasionally a short one—they grow in cultures, and in the first instance in those taken from the sinus. With increasing severity of the condition the bacteria reach the peripheral veins, though so far as the material before us permits of our deciding, generally in very small number.

Conclusions.—(1) The occurrence of streptococci in quantity in the sinus blood establishes the diagnosis of sinus thrombosis, even when, as an exception, the temperature does not rise beyond the typical 102.2° F., if, of course, there is no other pyrexial disease present at the same time.

(2) The distinct preponderance of streptococci in the sinus blood over that in the peripheral vein enables us to distinguish in doubtful cases whether the high fever depends upon the ear disease or upon some other disease, the differential diagnosis then being in favour of sinus thrombosis.

(3) If the number of streptococci in the sinus is small and they occur simultaneously in the peripheral vein, if also there is no other pyrexial disease present, the high temperature strongly suggests sinus thrombosis.

(4) A negative result in the sinus blood as well as in that of a peripheral vein does not necessarily exclude sinus thrombosis, as in isolated thrombus of the jugular bulb a culture may give a negative result if we do not puncture very low down, even though thrombosis may be present. In such cases we are dependent upon the temperature alone; nevertheless we may wait one or two days longer than has hitherto been customary before performing the sinus jugular operation. If we are in doubt as to whether the high temperature is to be attributed to the ear we can repeat the exploratory puncture at a different and lower spot, though only in quite recent cases. In older cases the bacterial contents may diminish very considerably as the result of the breaking-down and the annihilation of the thrombus, but then the clinical nature of the disease is indicated by a metastasis.

(5) If there is a possibility of disease of both sinuses we should take

first the one in which alone streptococci are found, or at least in which they are found in the larger number.

(6) If the number of streptococci in both sinuses is not very different and that in the peripheral vein extremely small, we have probably to deal with bilateral sinus thrombosis.

(7) The presence of metastases points, as a rule, to sinus thrombosis of some duration.

Dundas Grant.

REVIEWS.

Accidental Injuries to Workmen, with Reference to Workmen's Compensation Act, 1906, by H. NORMAN BARNETT, F.R.C.S.; with article on *Injuries to the Organs of Special Sense*, by CECIL E. SHAW, M.A., M.Ch., M.D.; and *Legal Introduction*, by THOMAS J. CAMPBELL, M.A., LL.B. London: Rebman, Ltd., 1909.

Mr. Norman Barnett's book on accidental injuries to workmen, with reference to the Workmen's Compensation Act of 1906 is invaluable to every general practitioner, as there are few who have not at some time or other to give evidence and opinions in regard to these circumstances. They are dealt with both from the legal and the medical points of view, and are illustrated by numerous cases taken from actual reports of the legal proceedings. Most of the disturbing conditions are dealt with, such as the modifying effects of disease, while the making of reports and the giving of evidence will certainly be facilitated by the study of Chapter IV. In Chapter V, in which are considered industrial diseases as accidents, there is a short and pithy account of the more important dangerous trades. The injuries to different parts of the body are taken in sequence, such as bones, joints, muscles, tendons and bursae, blood-vessels, internal organs, the nervous system, and, in Chapter X, the organs of special sense. This chapter is written by Dr. Cecil Shaw, lecturer on ophthalmology and otology at Queen's University, Belfast, who is therefore well able to deal with the subjects. The section on injuries to the ear is of special interest to us, and, although short, it indicates the main points and the main lines of investigation. It would, however, be improved by amplification, but the specialist will find it a good guide and will probably have no difficulty in supplying for himself the amplification which we have desiderated. The paragraph on simulated deafness is ingenious, and contains a test which might well be added to those in the usual text-books on diseases of the ear. Some of our readers may be acquainted with the very extensive monograph on injuries of the organ of hearing by Professor Passow, and also a work entitled "Aerztliche Obergutachten aus der Praxis eines Ohren-, Nasen und Halsarztes," by Dr. R. Dahmer, of Posen. The latter contains a number of cases selected from those which the author has had to prepare in reference to such matters as public life insurance, workmen's insurance, trades unions and accidents. They illustrate very strikingly the class of circumstances in which the specialist in diseases of the throat, nose and ear, may be called upon to give opinions of the utmost importance, and a perusal of the cases which the author here narrates cannot fail to be both interesting and instructive to his colleagues. Among them we naturally find cases in which the patient professes to have lost his hearing as the result of some slight injury. It need hardly be said that the methods of circumventing