SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF OTOLOGY

February 1, 1929.

President—SOMERVILLE HASTINGS, M.S.

Discussion on Vertigo.—Papers read by SYDNEY SCOTT, F.R.C.S., A. LOWNDES YATES, M.D., and ALEXANDER TWEEDIE, F.R.C.S., are printed in *Journal of Laryngology and Otology*, Vol. xliv., July 1929, pp. 429-459.

Drainage of Perilymph for Vertigo—Mr E. A. PETERS.—G. H., aged 74. Exhibited in 1914 at the Section of Otology.

In 1914 suffered with severe giddiness and was often unable to cross a room. The symptoms did not yield to treatment, so the left external semicircular canal was opened and the dura mater in Trautmann's triangle exposed. One end of a fine silkworm gut suture was passed into the canal and the other between the dura mater and cranium. Relief of giddiness followed the operation. When exhibited before, the giddiness had diminished and he had not fallen for two years. *Hearing Tests:* 3 ft. stop-watch, 0; $\frac{26}{30}$ c. on mastoid, $\frac{20}{30}$; loud voice, 12 ft. in the left ear; 11,000 d.v. monochord, 10,000.

Present Condition.—No giddiness, he can climb about on a scaffold. *On examination:* a few granulations at the sight of operation. *Hearing tests:* 3 ft. stop-watch, 0; 28 ft. conversational voice, 3 ft.; $\frac{20}{30}$ c. on mastoid, $\frac{20}{30}$; 11,000 monochord, 11,000.

The drainage has been very effective and the hearing is relatively better.

On rotating in the plane of the horizontal canals there is no nystagmus with the clockwise movement, indicating that the left horizontal canal is out of action. With anti-clock rotation lateral-nystagmus lasts 10 seconds. On injecting tap-water into the right meatus, rotary nystagmus giddiness with nausea is set up in 20 seconds.

When the left meatus is similarly treated, rotary nystagmus occurs in 10 seconds.

The canal system, therefore, is more exposed on the left side and the left external canal is non-effective.

At the same time the symptoms have been relieved.

The PRESIDENT (Mr SOMERVILLE HASTINGS) said it would be well to take Mr Peters's case with this discussion, as it illustrated one method of treatment which had already been referred to in one of the papers. He

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would like to hear, from Mr Peters, what happened to silkworm-gut suture if it was left in.

Mr E. A. PETERS, in answer to the President, said that the case did not present much in the way of evidence of middle-ear trouble, but the deafness on the left side was very definite, and he was so giddy sometimes that he was unable to walk across the room. He believed the ear was inflated without relief. He (the speaker) regarded the disease as a chronic labyrinthitis, of the same type of glaucoma affecting the eye, *i.e.* that it was a question of degeneration, or possibly a want of absorption or an increase of abnormal fluid. At the operation, it is apparent the drum was left intact. The external canal was uncapped. A small, very fine ligature of silkworm gut was inserted into the canal; the bone of Trautmann's triangle was removed and the other end of the ligature was turned in between bone and dura mater. At that time there was escape of perilymph and a graft was applied. Healing was rapid, though some fluid still came away. At present the rotation and caloric tests indicated that the external canal on that side was non-existent, so far as function was concerned, and the other canal of the same side was, he thought, abnormally sensitive. The relief was considerable, for, though now aged 74, the patient could climb up a scaffolding. The blood-pressure is 150 and 80.

Mr E. WATSON-WILLIAMS said that he drew a distinction between true vertigo, the sensation of "things turning round" and vague sensations of dizziness. One who had suffered from the former recalled the sensation vividly, and would nearly always indicate a turning with the finger while describing it. True vertigo indicated that something was wrong with the ear, or with its intracranial connections; the undifferentiated dizziness might be and often was due to ear disease, but it might also be due to other conditions; anæmia for example, or even constipation.

Often when a patient had giddiness and sickness the usual inference was that he was giddy because he was sick—the patient thought so, and his medical man often accepted that view. Practically every case of suppurative labyrinthitis that came for consultation was labelled "biliousness" or "gastric flu." In the nineties of last century Sir William Gowers wrote that he doubted whether there were such a condition as definite vertigo of gastric origin. If only patients with vertigo were sent to an otologist for investigation, much time and discomfort would be saved and the origin of the trouble located in most cases.

He quite agreed with Mr Sydney Scott on the importance of middle-ear disease as a cause of vertigo. In a paper which he (the speaker) had read at Bristol in 1927,* he said that "by far the most frequent cause of vertigo is catarrhal otitis." Even a little wax could cause intense vertigo. Until a year ago he had been able to say that he had cured the last three cases of cerebral tumour sent him by removing wax. Four months ago he had had a case admitted to hospital as one of meningitis; there was nerve deafness, facial paralysis, a labyrinth insensitive to caloric stimulation, and vertigo so intense that the patient could not stand at all. Removal of about half an ounce of wax from an immense cavity (expanded external meatus) brought relief.

* *Bristol Med. Chir. Journ.*, 1927, p. 119.

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Of lasting vertigo, the most severe cases were those of middle-ear disease, especially non-suppurative. The worst case the speaker had ever seen was that of a man who could not, in the attacks, even lie on the floor without something to hold on to—otherwise he rolled across the floor. This patient had ankylosis of malleus and incus. Although as a rule he avoided ossiculectomy, this operation here brought relief to a very sick patient.

The vertiginous cases that had particularly attracted his attention recently were those which subsequently proved to be encephalitis lethargica. He had been several times completely misled by this condition, when other evidence was not obvious. Nystagmus was frequently present in encephalitis, and might be thought due to an ear condition; especially since the cochlear nuclei seemed sometimes affected in that disease. The patient's mental condition might seem unusual, but continuing vertigo often brought psychic disturbances in its train. It did seem that encephalitis lethargica had at times a special selective affinity for the vestibular nuclei. It had even been suggested* that the epidemic paroxysmal vertigo described by Gerlier in 1886 and subsequently was an encephalitic condition, though the apparently complete recovery of all the patients would seem to negative this. He wished he could hear of some method of differentiating a lesion of the labyrinth from one of the vestibular nucleus; a method that could be carried out at the bedside without elaborate apparatus. He had tried the galvanic test, but could not say he had been thereby helped to diagnosis.

Mr G. J. JENKINS said he regarded the communications of Mr Scott, Dr Yates and Mr Tweedie as some of the most important of recent times, and that Mr Scott particularly was to be congratulated on having established what he had been teaching the specialty for some years.

In supporting Mr Scott's contention with regard to middle-ear effects, he would mention cases in children which he had under care some time ago. A child, aged 4, was playing in the drawing-room with his mother, the lights being on, when suddenly he cried out that the lights were jumping about, and then fell on to the floor. Removal of tonsils and adenoids cured him.

He had seen two other cases in children, of much the same kind, lasting some weeks or months, and it struck him that giddiness caused by tonsils and adenoids explained why some children refused to walk.

He asked that Dr Yates would give a demonstration of this method of taking a record. He believed Dr Gordon Holmes had another method of taking records of past-pointing.

Mr MICHAEL VLASTO said that the cases referred to by Mr Scott appeared to be instances of vertigo induced by a diminution of labyrinthine pressure. He would quote a case where the vertigo was caused by an increase in labyrinthine pressure.

The patient was a man, aged 48, who was almost completely deaf as the result of advanced otosclerosis. Gelle's test had been established as negative by many observers. His complaint before examination was

* R. I. Poston, "Vestibular or Labyrinthine Epidemic Encephalitis," *Brain*, 1926, p. 482.

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that of discomfort in the left ear and increased deafness following a severe cold. The left tympanic membrane appeared bulged, and the drum characteristics were unrecognisable. There were no constitutional signs. On the examination chair he suddenly had an attack of vertigo, which became so violent—with vomiting—that he had to lie down. There was intense nystagmus towards the right. An attempt to relieve the pressure on the left Eustachian tube by the passage of a catheter aggravated the vertigo. He was consequently taken home, put to bed and given menthol inhalations. Before a paracentesis could be performed next day the tympanic membrane burst with the outpouring of a slight serous discharge In two days his condition had reverted to normal.

He (Mr Vlasto) interpreted this case as a case of mild inflammatory exudate into the middle-ear tract with pressure on the labyrinth.

Had Mr Tweedie, in his case of hysterical vertigo, tested for deviation of the eyes under anæsthesia?

Dr STACEY WILSON, speaking from the point of view of the general physician, said it was now nearly forty years since he began to pass Eustachian bougies for the relief of vertigo, as he had to treat most cases himself, because aural surgeons did not realise that a moderate amount of Eustachian narrowing caused vertigo.

He recalled a case in which a lady had to go round her drawing-room on her knees when dusting furniture because she was too giddy to stand up, but was cured as soon as the Eustachian tubes were permanently dilated.

A useful guide to the degree the labyrinth was affected consisted in the presence or absence of a sensation, when lying down, that the bed was not level. In a severe attack a patient might speak of "having to hold on" for fear of falling out of bed.

He would refer to one such case in which the patient used to have attacks of vertigo with sickness and faintness of great severity; this suggested Ménière's disease, and lasted for an hour or two in the middle of the night. The exciting cause of the attacks, however, was "tonic hardening of the colon," and the relief of this condition (by means of an intestinal antiseptic and tincture of hyoscyamus) was followed by such complete subsidence of the patient's vertigo that she had no need to consult an aural surgeon.

Sir JAMES DUNDAS-GRANT exhibited on the screen a table of the temperatures which could be produced by the cold-air apparatus. In cases in which there had been labyrinthine effusion doses of quinine were efficacious. He had tried to ascertain the reason of this—whether quinine acted as an anodyne on the affected ear, or not. He applied hot-air caloric tests to the good ear, and noted the length of time required to bring the nystagmus to that side, and then administered quinine for a week, after which he found it took a longer application of cold or heat than before to produce the nystagmus. By the lowering of the sensitiveness of the healthy side, and thus diminishing the unequal action of the two, the vertigo was relieved.

He agreed with Mr Sidney Scott that disease of the middle ear could produce most violent vertigo. One patient of his experienced the most violent vertigo and dropped down whenever he pressed his own tragus.

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There was inflammatory fixation of the major ossicles. He (the speaker) removed the ossicles, and at once the symptoms disappeared. He believed that in this case the stapes was fixed by the other ossicles, and that the pressure produced an action on the fenestra rotunda, the safety-valve action of the ligament of the fenestra ovalis being abrogated. He also thought that part of the effect in Mr Scott's case was due to action on the fenestra rotunda. The safety-valve action of the fenestra ovalis and of the fenestra rotunda had much to do with the fact that equilibrium was not disturbed by alteration of blood-pressure in the labyrinth. In otosclerosis vertigo sometimes occurred on account of the loss of that safety-valve action. The diagnosis from epilepsy was sometimes a difficulty, but relief afforded by quinine pointed to aural vertigo. M'Bride and he were convinced that "laryngeal vertigo" was not a vertigo, but a syncope.

Mr MUSGRAVE WOODMAN asked what Mr Scott did when he could not get the Eustachian tube open in a case in which he could not inflate the ear. In a case of his own in which the tube could not be opened the patient complained of giddiness. There was a tight stricture at the isthmus. A month ago he (the speaker) performed a Portmann's operation, raising the dura mater over the ductus endolymphaticus, and since then the patient had not experienced any giddiness. He suggested that all members should try out this operation and report the results to the Section. He fully agreed with Mr Scott that, however much one might like to operate on the labyrinth, one could not ignore the grave element of danger in doing so—the danger of subsequent meningitis. But Portmann's operation was relatively free from danger; and if it failed it did not rule out the use of other methods.

What did Mr Scott mean by fenestration of the middle ear? Probably all knew in theory what was implied, but how did Mr Scott carry it out?

Mr E. A. PETERS asked what was the effect of blood-pressure? In many cases there was a vestibular autonomic reflex, but there were cases in which low blood-pressure was a factor in influencing vertigo. A girl whose ears were apparently sound could not stand. Her blood-pressure was 90 mm. She was very neurasthenic. Her general health improved, the blood-pressure rose to 110, and then she became free from vertigo.

Mr F. HOLT DIGGLE said that one still had difficulty in deciding the exact site of the lesion. In some patients there was Eustachian obstruction, but there was a type of case in which one tested the labyrinth and almost despaired of being able to say what was the cause of the trouble. Some had a hyper-, others a hypo-sensitive labyrinth, and it was difficult to know whether that was due to peripheral conditions in the labyrinth, or to some constitutional state. Was there any method of deciding that? He had tried fenestration of the tympanic membrane with the electric cautery, but his difficulty was to prevent the perforation healing. He would have liked to have heard what were Mr Scott's indications for destroying the labyrinth.

Mr SYDNEY SCOTT (replying on the discussion) said he was interested in what Mr Jenkins said confirming the late Dr Leonard Guthrie's experience that giddiness in children was frequently associated with "tonsils and adenoids."

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Mr Vlasto, in mentioning the case of otosclerosis, raised an interesting point. He (the speaker) was not too sure that we could always correctly diagnose fixation of the stapes. He had seen patients with classical clinical tests pointing to presumed fixation of the stapes, and subsequently had removed the ossicles and found the stapes perfectly mobile.

Another point related to a case in which Sir Victor Horsley sent the patient to him to have the eighth nerve destroyed because of attacks of vertigo. Here also there was no fixation of the stapes, though the classical tests pointed to fixation. It was therefore possible that in Mr Vlasto's case, with serous exudation into the middle ear, there was not got fixation of the stapes. One patient under observation had what was thought to be otosclerosis, but there was a post-inflammatory fixation of the ossicles, with giddiness. One ear only was affected. He (the speaker) fenestrated the drum membrane. That fenestration was done in the following way. He touched the drum membrane with a minute quantity of pure carbolic acid on the end of a Hunter Tod probe ; the patient did not feel it, and an area of 2 mm. was rendered quite insensitive. Then two V-shaped punctures were made and a flap turned out. That method was adopted for the patient and he did not flinch. When one put a small hook through the fenestra and removed the malleus and pushed it out or in, it caused no vertigo, but when one passed a probe through the fenestra towards the stapes vertigo was caused, and yet the patient had symptoms of unilateral otosclerosis, according to the tests. The patient was under his observation five years, and he (the speaker) found that it was the state of the other ear which was responsible for the spontaneous giddy attacks. Mr Vlasto's case was of the type about which one could not be certain.

He regarded Dr Stacey Wilson's contribution as most valuable, teaching specialists not to look at matters from too narrow an angle. It did otologists good to hear a general physician say he had been doing these things for forty years in his practice, particularly in cases of neurasthenia, because many cases of vertigo were treated as neurasthenia.

Mr Woodman's remarks raised the question of fenestration. There were cases in which one would be justified in doing Küster's operation if fenestration was not effective. [Mr Woodman : Can you keep it open ?] In one of his (the speaker's) cases closure occurred after remaining open for three years. He would like to know whether Mr Woodman operated in the same way as Professor Portmann did. [Mr Woodman : Without going through the antrum and not entering the air cells at all.]

In answer to Mr Peters, many of his (the speaker's) cases had been examined, and in some there was low, in others high blood-pressure ; in some there was normal blood-pressure. He did not think blood-pressure was usually connected with the condition under discussion. Sir Thomas Horder sent him a patient with aortic regurgitation who had attacks of vertigo ; after leaning down to lace up his boots he nearly fell when resuming the erect posture. He also had Eustachian block on one side. After that blockage had been relieved the patient could not only stoop down, but could almost put his nose on to the floor and then stand erect without arousing vertigo. [Dr Stacey Wilson : One can sometimes recognise severe Ménière's disease by the absence of oscillation of the blood-pressure needle.]

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He had only been emphasising what he felt was one of the most overlooked causes of vertigo clinically. He had omitted reference to the true acute labyrinthitis met with from time to time. He warned his hearers against overlooking the type of vertigo due to those cases of middle-ear disease in which the obvious signs of suppuration were absent. The possibility of infection of the middle ear and its extension to the labyrinth without obvious sign of middle-ear disease must be borne in mind.

The value of the caloric test—its negative reaction on the deaf side, and positive reaction on the normal side—was of the greatest importance in determining the diagnosis and treatment.

Mr ALEX. R. TWEEDIE (in reply) said he was very glad Mr Watson-Williams had raised the question of the differentiation between subjective and objective conditions. He (the speaker) suggested that otologists should restrict the term "dizziness" to subjective conditions, and "giddiness" to objective conditions, viz., those cases in which there was definite evidence that actual falling had occurred.

It had been asked what means were available for differentiation between intracranial and labyrinthine lesions. Neumann had pointed out in his writings on the subject over twenty years ago, that—in addition, of course, to the inference to be deduced from the responses to the caloric and galvanic tests—variation in the falling reaction with the alteration of the position of the head (when such examination was possible) indicated a labyrinthine focus of disease, whilst no variation under these circumstances was suggestive of a cerebellar lesion.

The case of hysteria was not tested under an anæsthetic, nor was all the examination otherwise completed, as the patient did not return.

It was most interesting, however, to observe her successful control even with a current of 30 milliamperes; the diagnosis had been confirmed later during an accidental meeting with the house-surgeon in the street, when she conversed freely until he congratulated her on the return of her hearing, and upon that her "deafness" at once recurred.

As to the question of an obstructive tube unrelieved by catheter, he (the speaker) had been much indebted to the advice of the late Dr Urban Pritchard, who had recommended one-grain doses of pot. iod. three times a day for ten days, after which the tube was often permeable.

In answer to Mr Peters, he agreed that some alteration of the normal blood-pressure, for the particular patient under consideration, was a potential factor in these cases of "spontaneous" vertigo, but probably less often than generally supposed. In his view there was always a local lesion, a factor of "age," and some other general condition which precipitated the attack. In his experience, fortunately, the tendency appeared to be towards gradual recovery.

Pedunculated Exostosis of the External Auditory Canal—MICHAEL VLASTO, F.R.C.S.—A woman, aged 20, was sent up to hospital for the removal of a "polypus" from the right ear. Her statement was that she had perfect hearing until three weeks previously, when she suddenly became quite deaf on the right side. There was no history of aural discharge or of bleeding from the ear.

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Examination revealed that, filling up the meatal canal, there was a smooth, pink, firm and insensitive body. A probe could be passed between the body and the meatal wall, and within its confined space it was slightly movable.

To one who had not met with the condition before, a diagnosis of foreign body suggested itself. But the body appeared to be "growing," yet the patient's statement negatived such a possibility. The absence of any aural discharge, the firmness and the avascularity of the body negatived the diagnosis of a polypus.

A cerumen hook was then introduced between the meatal wall and the body. It was rotated and hooked into the depth of the swelling. Slight traction with rotation removed the body. The removal was attended with very little pain or bleeding. The patient could once more hear perfectly.

The case is shown with a section of the growth, because the condition is believed to be uncommon and because it demonstrates how very small the space need be to allow the passage of the waves of sound.

In reply to the President, Mr Vlasto said that microscopically it was an exostosis.

A Case of Localised Purulent Meningitis with Purulent Cerebrospinal Fluid in the Course of Acute Mastoiditis Occurring in a Highly Cellular Bone and Complicated by Paralysis of the Sixth and Seventh Cranial Nerves on the Affected Side — ARCHER RYLAND, F.R.C.S. Ed., and W. N. M. GIRLING, M.B.—W. M., Male, aged 23. This case is shown on account of the rather remarkable recovery made from a very serious condition and further complicated by an operative mishap, exposure of the lumen of the external semi-circular canal.

S. U. P. 36 was administered intravenously on three occasions in the course of the post-operative treatment, and the exhibitors believe that the drug was of material assistance in this case.

History.—Discharge from left ear four weeks.

On admission to Central London Throat, Nose, and Ear Hospital, acute left mastoiditis; left facial paresis, left external rectus paralysis; some slight cervical rigidity; no other signs of meningitis; no spontaneous nystagmus.

Cortical Operation (Archer Ryland).—Process very large and highly cellular in structure; mastoid cells in every direction involved in suppuration.

Following operation, no moderation of symptoms. Headache, discharge, cervical stiffness and sixth nerve paralysis all persisted. Paresis of the seventh nerve showed definite signs of improvement.

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Radical Mastoid Operation (A. R.)—Search for extradural abscess met with negative result. Accidental trauma of the external canal, lumen of which was laid open (fortunately unattended afterwards by any evil results).

Lumbar Puncture.—Fluid under marked pressure, and increased in quantity. Naked-eye turbidity. Pathological report (Dr G. Scott Williamson): "A purulent fluid containing cocci and bacilli." A second lumbar puncture two days later revealed a fluid under normal pressure and slightly opaque to the naked eye.

The patient afterwards made a slow but sure recovery, but the abducens paralysis did not clear up for nearly four weeks.

It is regretted that the investigation of the chemical and cultural characters of the cerebrospinal fluid in this case is not complete.

Glioma of Corpus Callosum simulating Otogenic Brain Abscess. Operation on Ear. Death. Specimen.—E. WATSON-WILLIAMS, M.C., F.R.C.S. Ed.—A. W., male, aged 56. Old-standing suppurative otitis media (right ear). On December 17, 1926, patient became unconscious suddenly without warning. In two or three hours he recovered; no paralysis, but friends noticed that he was slow in conversation. Just before this attack he had had pain in the right ear with cessation of discharge.

On examination (a few days later) some pus at the bottom of meatus, not oozing up; on wiping it away an attic perforation is discovered. There is constant right occipital headache.

No paralysis, but left side of face is rather weak in repose. Left arm tired before right; no true dysdiadochokinesia. Left finger is rather uncertainly placed on the nose.

Knee-jerks: weak, equal. *Plantar responses*: flexor (right and left). Pupils react; left not quite circular.

Optic discs: Right, typical "choked disc" and hæmorrhage in upper temporal quadrant. Left, early papillœdema.

Wassermann reaction, negative (blood and cerebro-spinal fluid). *Lumbar puncture*, fluid normal. *Urine* normal; incontinence several days. *Skiagram*: Left mastoid, normal. Right mastoid, cell outlines are hazy, no other appearances of value.

Two days later spontaneous mixed nystagmus to right. Patient more drowsy. No vomiting. Caloric test of right labyrinth: cold water abolished the spontaneous nystagmus to the right, but did not produce deviation to right or nystagmus to left.

Right Radical Mastoid Operation.—Middle ear full of granulations, cholesteatoma and pus; antrum appears normal. Tegmen eroded but dura not perforated. Exploration of brain quite negative (cerebrum and cerebellum).

Immediately after the operation patient appeared to be much

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better, but on the second day he became more deeply comatose. Facial weakness as before operation. On the third day he died.

Autopsy.—A glioma at the genu of the corpus callosum. No intracranial complications of ear disease.

Case of ? Early Otosclerosis.—SOMERVILLE HASTINGS, M.S.—Miss B., aged 20, consulted me in May, 1928, for slight deafness on the left of eighteen months' duration, and noises pulsating in character, on both sides, but especially on the left. I found both ear-drums slightly retracted with a curious pink patch in the centre of the posterior half of each. The hearing for a watch normally heard at 4 ft., was 3 ft. on the right and 15 in. on the left. The deafness on the left was entirely of the middle-ear type with slight limitation of tone-range above and below. She could not inflate her own tubes, and the passage of a catheter on the left did not improve the hearing. The nose appeared healthy but there was a large mass of adenoids and some granulations in the pharynx. On pressing the left carotid artery the noise in the left ear became less, but that on the right increased. On 21st July, I removed the adenoids and subsequently the hearing in the left ear has improved considerably, but the noises in the ears have not changed and the pink area visible on each side is still present. Catheterisation is now being tried, but without benefit to the noises.

Is this an early case of otosclerosis?

DEMONSTRATION.

An Operating Auroscope. — E. WATSON-WILLIAMS, M.C., F.R.C.S.Ed.—This slight modification of a well-known auroscope has been made for me for operative purposes. Its special features are the good illumination secured by the two focused lamps; the high magnification of the drum afforded by the + 12 central lens; and the wide space for introduction of instruments. It is especially convenient for such operations as paracentesis; and can of course be used for examination at the bedside or in difficult conditions.

The PRESIDENT said this seemed to be a very useful instrument; the illumination was very good indeed. Some members considered that the handle was somewhat small.

Mr E. WATSON-WILLIAMS replied that the makers could supply a screw handle, but he liked it better without, as it could then be held conveniently in the hand.

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