this last case it usually happens that the lung expands and impales itself on the end of the tube. The correct treatment may be either to remove the tube altogether or, if a cavity is still present, to put a longer one in past the site of ulceration. A lung will never ulcerate through contact with the smooth curved side of a tube, but only with the end of a simple tube or the relatively sharp projecting rim of a self-retaining tube. Other causes of temperature may be disease in the lungs or, very rarely, the development of another empyema, or some cause remote from the chest such as a sore throat. Fortunately rare complications are meningitis, encephalitis, and brain abscess, but these things should be kept in mind during the investigation of a case.

Physiotherapy

Next in importance to the maintenance of adequate drainage through the whole course of treatment is the prevention of chest and spinal deformities with their resulting bad posture and impaired respiratory function. The picture of a deformed and rigid chest, with shortness of breath on exertion, dizziness, lassitude, lack of appetite, and even clubbing of the fingers, may closely simulate a chronic empyema and yet the lung may be uniformly adherent to the chest wall. I have seen all these signs and symptoms, including the finger-clubbing, disappear after a month's spinal and breathing exercises. Physical training, starting in a small way, should begin the day after operation. Special exercises have now attained a high degree of perfection. Those who have no highly trained personnel available to carry out this work should remember that any exercise which works the skeleton on the affected side is good. The lung should be forgotten and attention focused on the pectorales major and minor, the latissimus dorsi, the serratus magnus, intercostal, diaphragm, and abdominal muscles. Voluntary deep breathing is only followed by apnoea, but the deep breathing of healthy exercise is good, and for this reason the open drain is better than the closed, for it allows of long walks and hard work.

Placing of the Drainage Tube

When an acute empyema is ready to be drained by open operation the limits of the cavity should be ascertained as accurately as possible by aspiration of pus and the introduction of a little air. In this way a fluid level is formed, and radiological examination will show the exact position of the cavity. The tube should be placed so that it is approximately half-way between the anterior and posterior margins of the cavity, and in the case of the more common basal empyema about level with the dome of the diaphragm. Though this position may be a little above the lowest point at which pus can be aspirated, it avoids placing a tube in the narrow costo-phrenic sinus, where it rapidly becomes occluded. The main exception to this rule is the one already mentioned in which the diaphragm is extensively involved in the empyema. Apical and axillary empyemas should be drained 1 in. above their lowest points. A chronic empyema should always be drained at its most dependent part.

Infected Haemothorax

A small infected haemothorax differs very little from the post-pneumonic empyema, but under war conditions it is not unusual to find the whole pleural cavity involved. The very large infected haemothorax is generally the result of improper treatment of the original condition. Blood and bloody fluid in the chest which result from trauma should be aspirated without air replacement. They should be aspirated repeatedly and frequently, so that if infection occurs it involves only a small area of pleura. The introduction of air serves no useful purpose and only increases the size of the pleural cavity which subsequently needs drainage. When a lung has collapsed beneath a large infected haemothorax it may take as long as two years to expand. It must be remembered that where clotting takes place in a haemothorax loculi of fluid may form, and some of these may be infected and some sterile, so that aspiration in numerous places may be necessary. When infection is once established the chest should be opened, all clot evacuated, and adequate drainage established. The subsequent management is the same as for a post-pneumonic empyema, but healing may be delayed by scarring of the underlying lung from trauma at the time of the injury.

EAR, NOSE, AND THROAT CASUALTIES IN A GENERAL HOSPITAL IN THE MIDDLE EAST

BY

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Every medical officer has two main duties. The first is to use every means in his power to practise prophylaxis; the second is to ensure that when disease does arise the maximum number of his patients return to a state of health which will fit them for all forms of active service in the shortest possible time. Such a policy applies equally to the specialist as to the unit medical officer, and it was felt that a detailed analysis of the casualties attending the ear, nose, and throat department of a general hospital in the Middle East might form the basis for some constructive suggestions as to how the incidence of the more prevalent conditions might be diminished, the period of admission to hospital decreased, and more adequate treatment in general instituted.

The period chosen was from Sept. 20, 1940, to Feb. 20, 1941 (approximately five months), and, though it is admitted that a longer period would have been preferable, further experience showed that, with the exception of war injuries, no appreciable variation occurred over two years. During the months under review war injuries affecting the ear, nose, or throat were few in number, and the type of disease encountered bore a close resemblance to that found in the ear, nose, and throat department of any hospital in the British Isles. There was, however, a definite alteration in incidence. Statistics make dry reading, and for the purpose of this article it is proposed to abstract the more prevalent diseases only from the detailed analysis that was made of all the cases.

Out-patients

The number of out-patients who attended for the first time was 517. As the numbers in the area were constantly changing no useful information is obtainable from a comparison of attendances in the different months. The more prevalent diseases were:

(a) Aural Diseases

Disease	% Aural Cases	% Total Out-patients
Otitis externa, acute	20.70	10.25
chronic	11.72	5.80
" media, acute	7.03	3.48
" chronic	27.73	13.73
(Ruptured tympanic membrane ..)	2.73	1.55
	34.4	16.05
	34.76	17.21

It will be noted that the gross percentages of otitis externa and otitis media are approximately equal.

(b) Nasal Diseases

Disease	% Nasal Cases	% Total Out-patients
Deflected septum	12.65	4.06
Sinus infection	66.87	20.31

Of the sinus cases 74% yielded to treatment by conservative measures, which included short-wave diathermy and repeated proof-puncture.

(c) Throat Diseases

Disease	% Throat Cases	% Total Out-patients
Tonsillitis, acute and subacute ..	54.65	10.25
chronic	36.91	6.91
	91.56	

A large number of the subacute cases were patients sent down from the medical wards for an opinion on the advisability of operation. In a further 18% of out-patients who came up for different complaints some degree of chronic tonsillitis was noted, but not sufficient to warrant operation.

In-patients

It was found that the total number of in-patients admitted for ear, nose, and throat diseases was 11.35% of the total admissions to the hospital, and comparison with figures obtained from a military

hospital in peacetime showed that there was no relative increase as might have been expected during a war. The only comment that might be made is that the cases admitted were more of an emergency character. The admissions were analysed as follows: Total number of in-patients with ear, nose, and throat diseases, 537; admitted to medical wards, 350 (65%). Practically all of these were cases of acute tonsillitis. Admitted to ear, nose, and throat ward, 187 (35%). The cases comprised: otitis externa (acute and chronic), 19%; otitis media (acute), 16%; otitis media (chronic), 24%; sinusitis (acute), 11%; sinusitis (chronic), 6%; miscellaneous, 24%. Only three cases of ruptured tympanic membranes were admitted to the ear, nose, and throat ward, but many others were seen in the general surgical wards. Of these there is unfortunately no record available.

Operations.—The total number of operations performed was 171. Of these, 77 were for dissection of tonsils, 7 for cortical mastoid, and 6 for a radical or modified radical mastoid (3 had a fistula of the external semicircular canal). In addition intranasal drainage of the sinuses was performed on 18 patients, and 1 patient had a radical antrum operation (Caldwell-Luc).

It is proposed to discuss these various conditions in greater detail. Some of the suggestions made are already in force in the Middle East; others are purely personal, and have resulted from discussion of the problems with other otologists. These might be modified with further experience and information, but for the sake of obtaining a complete picture all have been included.

Otitis Externa

There is no doubt that the frequency of this disease is increased by service in the Middle East. As has already been shown, the cases of otitis externa and of otitis media are approximately equal in number. It is in its acute form that the disease interferes with the efficiency of the soldier, but there is no sharp line of demarcation between the acute and the chronic phase. With the least provocation the latter is liable to flare up and become acute. Especially is this the case when an associated chronic suppurative otitis media is also present and when the soldier is posted for service in the Western Desert. The aetiology of the disease still remains obscure. Dust, heat with its concomitant sweating, bathing, and, in the Western Desert, lack of water for personal ablution have all been mentioned as factors in its causation. Other possible causes are the high salt concentration of the water and an allergic origin due to focal sepsis. These aspects have been well reviewed by Daggett in an excellent article on cases which occurred at Malta. It seems possible that not one factor alone, but several, may be responsible, and that anything which favours the growth of organisms and the maceration of the skin may play a part. In a series of aural swabs examined the organisms found were diphtheroids, *B. proteus*, and *B. pyocyaneus*. The last-named was very difficult to eradicate. *Staph. aureus* was present in a greater proportion than was noticed in the Malta series, and the streptococcus was infrequent.

In acute otitis externa the soldier experiences very severe pain in the ear, there is scanty aural discharge, and the meatus is greatly narrowed and often pin-hole. It was noticed that there is often a deficiency of true waxy secretion, and the return of normal soft wax was regarded as one of the signs of cure, but whether this is of any practical significance is undetermined. Frequently there is an associated adenitis with considerable constitutional disturbance. In its chronic stage the disease is very resistant to treatment and apt to recur.

Treatment.—Many acute cases could be prevented or aborted if the soldier reported to the medical officer at the first sign of any aural discharge. The following suggestions are offered as prophylactic measures with some reserve, owing to our present lack of knowledge. It did, however, appear that some protection was afforded by the use of vaselined cotton-wool plugs inserted in the ears while bathing. Another important point is that great care should be taken in drying out the ears with any rough towel after bathing, and, if possible, it is better to use a pencil of cotton-wool. Bathing in swimming-baths appeared to be more harmful than bathing in the sea. Where there is an associated seborrhoeic dermatitis of the scalp it must be treated, but this was infrequent in the patients seen. It is not the purpose of this article to discuss local treatment in detail, but thorough cleansing of the external auditory meatus, and especially the recess near the antero-inferior part of the tympanic membrane, is an essential for success. Two applica-

tions that proved of value in the acute form were 10% ichthyol in glycerin, and 8% solution of aluminium acetate (Burow's). The latter was, however, practically unobtainable, and good results were reported from the use of 5% lead acetate. Medication is applied by means of a gauze wick. In the more chronic form a hydrarg. oxi-flav. paste was used with benefit. Ointments are contraindicated in a hot climate. A 4% solution of sulphanimide in sodium bicarbonate met with some success, though this would not be expected with the type of organism present. It is possible that when penicillin is available on a commercial scale we shall have a useful addition to our medication. When the disease frequently recurs or where there are gross hypertrophic changes in the meatus it is better for the otologist to board the patient for base or home service, as desert warfare is definitely contraindicated.

Otitis Media

Acute otitis media did not form a large proportion of the cases during the period under review, but there was a definite increase during the summer months—probably attributable to the greater use of the swimming-baths. The prophylactic measures include the avoidance of diving and of swimming under water when the soldier has a cold. The use of dirty handkerchiefs and incorrect blowing of the nose are other obvious causes; but perhaps the average "Tommy" is less liable to err than the officer, as he usually adopts the more physiological method of clearing his nose by sniffing rather than blowing. Treatment was greatly influenced by the oral administration of sulphonamides, and it was necessary to submit only 6 patients out of a total of 47 cases of acute otitis media to a cortical mastoid operation. This was undertaken more because of the continuation of the discharge than because of the acuteness of the symptoms. Chronic suppurative otitis media proved a more difficult problem. Whereas, in civil life, the soldier could carry out his work easily without paying much attention to aural discharge, on active service in the Middle East other factors proved important. His efficiency may be impaired by (a) deafness, which may be progressive in character, leading to the misinterpretation of orders; (b) the association of chronic suppurative otitis media with acute otitis externa; and (c) the occurrence of intracranial complications. Furthermore, a certain number of patients with chronic otitis media experience considerable pain or tinnitus on exposure to continuous rifle-fire, gun-fire, or explosions; but this is not a constant feature, and there appears to be an individual sensitivity. It would be more satisfactory if patients suffering from this disease were excluded from service in the Middle East, but as for various reasons this has proved impossible some scheme must be devised for their treatment. The following contains many suggestions that were already in force in the Middle East.

Scheme for the Treatment of Chronic Suppurative Otitis Media

1. **Role of the Otologist.**—(a) All patients with chronic suppurative otitis media should be seen at least once by an otologist, who would decide which patients needed recategorization, admission to hospital, "self-treatment" under the supervision of the unit medical officer, or treatment at an aural treatment centre.

(b) With regard to recategorization, considerable latitude was allowed the otologists in the Middle East, and it was possible to "board" a soldier for a period of three months for base duties only without resorting to a medical board. The actual fighting in the Western Desert was very mobile, and it must be recognized that in the middle of a battle the unit medical officer is not able to attend to the cleaning out of a patient's ears. Often his ambulance car or truck is never properly set up, and there is no established M.I. room. Consequently, more patients were graded for base duties than would have been the case in static warfare. This does not necessarily imply that every case of chronic suppurative otitis media should be graded for base service only, as the question of man-power must receive careful consideration. Some of the patients can clean out their ears quite well themselves if they have had a proper training. It is the duty of the otologist to decide which of these cases are suitable for this front-line method of "self-treatment."

2. **Role of the Unit Medical Officer.**—For some reason medical officers seem very much afraid of ear diseases, and it is a frequent occurrence for patients to be sent to the otologist without any attempt at a diagnosis. Perhaps this may in part be due to lack of equipment, but a certain amount is due to lack of knowledge and interest. Yet the ultimate responsibility for the condition of fitness of these patients rests with the medical officer. It is suggested:

(a) That a circular should be sent round to all unit medical officers containing an outline of the more common ear, nose, and throat diseases and established methods of treatment. This was done in the Middle East.

(b) That a short clinical course should be held at the ear, nose, and throat departments of the larger hospitals in the area. Not more than three officers should be attached to one hospital at a time, otherwise difficulty would be experienced in providing proper tuition.

(c) That it is the duty of the medical officer personally to instruct his patients in the proper method of "self-treatment." The procedure to be carried out would be included in the circular. In addition, it is suggested that the unit medical officer should be provided with "self-treatment" sets for distribution to his patients. These would contain 1/4 lb. cotton-wool (fine fibre), 2 dozen wood-wool applicators, and a 2-oz. bottle of boric acid in spirit drops with pipette, in a cardboard box. Instructions for use would be printed on the lids.

3. *Role of the Hospital.*—It is maintained that chronic suppurative otitis media is an "out-patient" disease and that any extensive "in-patient" treatment at hospital has a bad psychological effect, besides leading to a great wastage of valuable man-hours. Admittance to hospital should be reserved for those cases in which the otologist considers the aural condition endangers the patient's life; others with obvious nasopharyngeal sepsis, the removal of which will give a reasonable chance of a dry ear; and a much smaller group of patients which the otologist desires to keep under observation for the treatment of aural granulations or polyps.

4. *Role of the Aural Treatment Centre.*—It has been shown that in 40 to 50% of chronic suppurative otitis media the aural discharge will clear up if adequate conservative measures are taken. At a meeting of otologists in the Middle East it was suggested that aural treatment centres should be established at the larger base camps. The centres would be staffed by a medical orderly who had received six months' training by the otologist at the ear, nose, and throat department of a general hospital and who was capable of using a forehead mirror. This may appear to be a counsel of perfection, but personal experience has shown that, provided a keen and intelligent orderly is chosen at the start, complete reliance can be placed on him to carry out the treatment properly. His capabilities will depend on how much trouble the otologist takes to train him. The centres would be under the supervision of the Ear, Nose, and Throat Adviser to the area, who would visit them at stated intervals, and adequate equipment would be provided. So far as was possible, units would be treated by appointment. The establishment of these centres would have the advantage of avoiding waste of man-hours and would counteract the difficulties of supplying the necessary equipment to every unit medical officer. In addition treatment should be more thorough, as all too often treatment is delegated by the medical officer to an untrained orderly who has neither the knowledge nor the equipment to carry it out efficiently. Many patients who have attended such a centre should in time be fit to be graded A, and others be able to carry out "self-treatment" once the ear has reached a more healthy condition.

5. *Forward Otolological Service.*—This was established in the Middle East, and that it was necessary is shown by the fact that over 200 cases of chronic suppurative otitis media were seen at Tobruk every quarter. Some of these patients had escaped the net at the base, while others had been sent up on draft from the infantry base depot although graded B. There is a considerable amount of ear, nose, and throat work to be done in a forward area, and if the otologist possesses some knowledge of general surgery he can make himself useful when the battle starts.

Treatment.—It is necessary to emphasize that prophylaxis consists in the proper and adequate treatment of every case of acute otitis media. In local treatment it matters little whether the "wet" or the "dry" method is used so long as the ear is cleaned out thoroughly before any drops are instilled. The otologist should bear in mind that radical mastoid cavities are slow to heal in the Middle East and are difficult to keep clean. The modified radical mastoid operation is, where possible, the method of choice, but in all treatment as conservative a policy as possible should be pursued.

Finally, it is emphasized that the success of any scheme will depend on the full co-operation of the units concerned.

Acute Tonsillitis

Prophylaxis consists essentially in isolation. It is suggested that, in spite of the difficulties, every effort should be made to carry this out near the front line, and that only cases of frequently recurrent attacks of tonsillitis should be sent back to base. At a base hospital a special ward should be available for cases of tonsillitis only, even at the cost of empty beds. This ward should be in the charge of a medical officer who

is under the direct supervision of the ear, nose, and throat specialist—not, as at present, under the control of the medical side. Many patients are already referred to the specialist for the advisability of operation, and also, in a considerable number of cases, there is an associated "missed" sinusitis which leads to frequent recurrent attacks of tonsillitis, with readmission to hospital. It is suggested that there should be a small dark room attached to the tonsillitis ward with simple examination equipment available. It would be the duty of the ear, nose, and throat specialist to instruct the officer in charge of the ward in the methods of sinus investigation. Every case of acute tonsillitis should have the ears and sinuses thoroughly examined before discharge, and "missed" complications should not occur.

Treatment.—The infecting organism in the majority of cases in this area was *Str. viridans*; but in spite of this fact the administration of sulphanilamide definitely decreased the length of stay in hospital. Local treatment followed the usual lines. Operation by dissection of tonsils was undertaken in 17% of cases. Care was exercised in reaching a decision, and only those patients who had suffered from three or four severe attacks were regarded as suitable candidates. Because of the difficulty in regaining contact with a patient once he has been discharged, operation was undertaken early (i.e., a fortnight to three weeks after the start of the attack). Experience showed that, while the incidence of secondary or reactionary haemorrhage was slightly increased, this was never sufficient to endanger life, and in only one case during the five months was it necessary to give a second anaesthetic to control the haemorrhage. It is maintained that the benefit derived from this extra week in hospital more than compensated for the time lost through frequent recurrences, and, in addition, a long waiting list was abolished. There is no doubt of the benefit in health received by the soldier in the removal of a toxic focus.

Sinusitis

The figures for this disease strongly suggest that there is a high incidence of sinus infection in the Middle East. Part of this must be attributed to the infected dust-laden atmosphere, as there was a noticeable increase during a dust storm. Bathing in the swimming-baths appeared to have a deleterious effect, as even if the bacillary content was low the heavy chlorination practised had a harmful effect on ciliary activity in the nose. The prophylactic measures to be followed are outlined under the section on acute otitis media. Some doubt has been expressed as to whether Sluder's "vacuum" sinus headache is a real clinical entity. It can only be stated that this type of case was met with again and again in the Western Desert, where there were no clinical signs beyond a reddening of the mucosa of the middle turbinate and some tenderness on pressure over the sinus. The headache was definitely referable to one or other of the sinuses, and, even after exclusion of ocular, general, and psychological causes, a considerable number of patients remained. Clinically it did not resemble "vasomotor rhinitis," but an allergic factor may have been present.

Treatment.—A strong plea is put forward for conservative methods, such as inhalations with the use of ephedrine in saline sprays, headlight baths, short-wave diathermy, and repeated proof-puncture. It was found that 74% were cured by these means, and later experience in the desert confirmed the fact that operated cases did badly. It is probable that fewer cases still would have been submitted to operation had this experience been available at the start. Many in-patients with so-called "vacuum" sinus disease were improved by rest in bed and the ordinary conservative treatment of acute sinusitis, but the condition remained a definite problem.

Addenda

The following notes on some conditions are of interest:

1. *War Injuries.*—The number of war injuries seen during this period was small. It was noted, however, that there was a considerable proportion of war injuries to the ear among the general surgical cases, and an investigation was undertaken. The results, however, are not yet available.

2. *Deviated Septum.*—The opinion is held that during war the septum operation should be regarded as a "luxury"

measure except in the case of gross nasal obstruction or where it forms a contributory factor in the causation of catarrhal deafness or sinusitis.

3. *Diphtheria*.—This was treated at one central hospital where there were special nursing facilities. The cases seen here, though few in number, were of marked virulence, and although antidiphtheritic serum was given early in adequate doses it did not appear to have the usual effect. Peripheral neuritis seemed much more common and severe.

Summary

An analysis is made of ear, nose, and throat casualties occurring in a general hospital in the Middle East.

The commonest diseases were acute tonsillitis, otitis media, otitis externa, and sinusitis.

Suggestions are made by which (a) the incidence of these diseases may be lowered; (b) the period of admission to hospital decreased; (c) more adequate treatment in general instituted.

Miscellaneous notes connected with ear, nose, and throat work are included.

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REFERENCE

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LOW SPINAL ANAESTHESIA DURING LABOUR IN CASES OF CARDIAC FAILURE

BY

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Most authorities are now of the opinion that it is not justifiable to perform a Caesarean section on a cardiac case merely for the sake of sterilizing the patient at the same time. If, therefore, normal labour is to be allowed in these cases, it is the aim of this paper to show that by far the safest method for it to take place is under low spinal anaesthesia.

It is generally accepted that the dangerous stage of labour in a cardiac case is the second. During this stage, with its attendant bearing-down and straining on the part of the patient, the heart is put to its severest trial, as can readily be observed in the labour ward. The patient is seen to become cyanosed and her pulse to falter during these bearing-down efforts. The method of anaesthesia here described depends essentially upon cutting down these bearing-down efforts while otherwise allowing labour to proceed normally. The essential stimulus to bearing-down is the pressure of the presenting part on the pelvic floor and perineum. The low spinal method anaesthetizes just these parts, and these only, and thus breaks the bearing-down reflex on the afferent side of the reflex arc.

The usual objection to the use of spinal anaesthesia for cardiac and other patients is that it causes the blood pressure to fall. This is true of routine spinal anaesthesia, but not of low spinal anaesthesia. A glance at the anatomy and physiology of the sympathetic system will explain this. The sympathetic outflow from the cord, which is chiefly responsible for the tone of the smaller vessels and therefore the blood pressure, comes from all the thoracic and the upper two lumbar segments. Any spinal anaesthetic, therefore, which acts below the second lumbar segment has no effect on the blood pressure. This was confirmed in all cases by taking routine blood-pressure readings at half-hourly intervals before and after the spinal injection. The use and technique of low spinal anaesthesia depend upon this fact.

The Method

The technique is simple. Heavy percaine is used because it has been found that its effect is more lasting than that of other heavy spinal anaesthetics. The dose is 0.6 c.cm. The patient's back is prepared in the usual manner, and she is then sat up on the bed. The anaesthetic is given in the

ordinary way between the third and fourth lumbar vertebrae, and the patient is kept sitting up for at least ten minutes to enable the anaesthetic to fix. The anaesthetic drops down to the bottom of the spinal theca. The sacral nerves only are anaesthetized, and a saddleback area of anaesthesia is produced over the perineum.

The anaesthetic is given just before full dilatation of the os, so that when the presenting part is pressing on the perineum bearing-down will be obviated. It is noteworthy that the ordinary labour pains in the abdomen and back can still be felt by the patient. These pains, however, do not cause her to strain: they merely cause discomfort. If the dosage has been correct neither the abdominal walls nor the thighs will be affected.

In order to develop the technique fully, about a hundred normal cases were delivered by means of low spinal anaesthesia. About half of them delivered themselves spontaneously and almost painlessly, and the rest were delivered by a low forceps extraction without further anaesthetic up to as long as six hours after the low spinal anaesthetic had been given.

Even for a normal patient and labour this method has advantages—i.e., by allowing normal labour to proceed without any feeling of perineal distension. Women thus anaesthetized, if told to do so, can bear down by reason of their abdominal musculature being left intact. If a perineal repair or a forceps delivery is subsequently necessary it can be performed without any further anaesthetic within six hours. My aim, however, is not to discuss this mode of anaesthesia with reference to normal labour, because here, although rendering the labour easy and painless, it is open to the objection that it is an undue interference in a normal case. But this objection does not apply to cardiac cases. These patients, instead of suffering the shock of an abdominal section under local anaesthesia, can have a normal labour without any extra strain upon their heart.

Any case of longitudinal lie can be treated by this method. Naturally the patient should have been at rest and her heart compensated so far as is possible, with or without digitalis, before labour. The discomfort of the first-stage pains should be reduced by the use of morphine-scopolamine analgesia.

Illustrative Cases

Case 1.—Mrs. M. is an example of a vertex presentation. She had had a premature labour two years previously and was extremely anxious to have a living child with this pregnancy. She attended the ante-natal clinic on Jan. 18, 1943, when she was 22 weeks pregnant. She was dyspnoeic even at rest. Her apex beat was very irregular, varying between 70 and 150 a minute. The pulse showed many dropped beats. An electrocardiogram on Jan. 26 showed a grossly irregular action due to a nodal rhythm. The patient was brought into hospital and digitalis therapy started, but by the second day her apex beat had dropped to 40 and the digitalis was discontinued. It was decided, after consultation with Dr. Boyd, the consultant physician, to keep the patient at complete rest until normal labour began. She started having pains on May 18. Morphine and scopolamine were given during the first stage. Her blood pressure was 110/80; the pulse rate varied between 70 and 140, and was irregular. At this stage, when the os was almost fully dilated, a low spinal anaesthetic was given. The blood pressure remained constant at 120/80. The patient was delivered one hour later by low forceps. At no time during the labour was she distressed beyond feeling the pains of uterine contractions. The puerperium was uneventful.

Case 2.—Mrs. H., a primigravida aged 22. Breech presentation due July 13, 1942; sent into hospital with cardiac decompensation on July 2. She was a case of classical mitral stenosis with presystolic murmur. There was dyspnoea at the slightest exertion. She had had a haemoptysis for a week before admission. Pulse rate, 120 at rest. Complete rest was ordered and digitalis therapy was started immediately. After a week she was fairly well compensated, with a pulse rate between 70 and 80. Pains started at 3 a.m. on July 21, and she was kept under morphine and scopolamine. The blood pressure at this stage was 125/80. The os was almost fully dilated at 6.45 a.m. Heavy percaine 0.6 c.cm. was given. The blood pressure remained constant. At 9.30 a.m. the breech was presenting. Episiotomy was performed and the child delivered normally. At no time was there the slightest distress.

Many other similar cases have been delivered by this method without any fatality. These patients are usually asked to attend a birth control clinic after discharge and to return later for