Place four pairs of tins under each stretcher and secure with a strap round the tins and stretcher in each case.

Place the two prepared halves parallel, 18 inches apart, and pass the two 6-foot poles through the runners at each end. Lash the poles to the outside runners and the complete raft is now ready for launching.

One stretcher case can be placed lengthwise on the raft (see fig. 1). If two cases are taken, they are placed across the raft, head to foot, to distribute the weight evenly (see fig. 2).

If one end of the raft becomes submerged very little water can enter the tins as the holes in them are covered by the canvas of the stretcher.

VINCENT'S INFECTION OF THE TONSILS.

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AND

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This investigation was undertaken because of the increasing number of cases of Vincent's infection of the tonsils which was seen in the throat department of a General Hospital.

The main object of the investigation was to find any particular method of treatment which would hasten the disappearance of the infection and prevent relapses.

A proportion of the present series of cases had been treated by the usual routine methods, some of them for many weeks, but had failed to respond beyond a certain point. Some of these patients had been discharged from
hospital as cured but, when seen, still showed evidence of an active infection.

All the patients in this series were examined (a) clinically and (b) bacteriologically and a diagnosis of Vincent's infection was made only when the results of the two examinations tallied.

The clinical findings constituted ulceration of one or both tonsils while the bacteriological criterion of infection was the presence of fusiform bacilli and spirilla in numbers much in excess of what may be found in a normal mouth and throat. In the great majority of cases of Vincent's infection of the tonsils these organisms are present in very striking numbers and could not by any possibility be missed, presenting a picture which is typical of this disease. Organisms morphologically indistinguishable from the fusiform bacilli and spirilla met with in the true infection are to be found in the normal mouth and throat but usually only after a long and careful search. Thus in a series of one hundred swabbings of normal mouths and throats 21 per cent showed the presence of fusiform bacilli and spirilla, either separately or in combination, which were not to be distinguished morphologically from those associated with Vincent's infection.

In this connexion it has been said that fusiform bacilli and spirilla are present in over 90 per cent of healthy mouths but after careful investigation our findings cannot substantiate this. It must be emphasized however that swabs in the present series were taken from the buccal surface of the cheeks and from the tonsils, not from the gums between the teeth, where spirilla at least are so often found.

The clinical and bacteriological aspects of this investigation are considered separately.

CLINICAL SECTION.

It is rare for Vincent's infection to attack a healthy tonsil and in the present series each case showed evidence of a chronic tonsillitis. The clinical manifestations are a typical ulceration, greyish in colour, of the tonsil, often a co-existent acute tonsillar infection, and enlargement of the lymph glands in the neck. The breath is very heavy and the tongue coated.

Until recently the routine method of treatment adopted in this hospital was a preliminary intravenous injection of neokharsivan (0·45 gramme) and the local application of one or other of the better known aniline dyes dissolved in spirit. After the ulceration had cleared up the tonsils were removed, mainly because test for cure in this condition is uncertain. The infection may lurk undetected in the deeper tonsillar crypts with consequent immunity from a positive bacteriological finding. Several cases came to this hospital having been treated for this complaint elsewhere and one can recall a case who had been under treatment as an in-patient for six weeks and had been discharged apparently cured but on re-examination was gloriously positive. The danger of such a patient being a carrier will be appreciated. On reviewing the cases treated in this manner one was struck by the comparatively long time taken to achieve cure so search was made for some procedure which
would shorten this period. It was therefore decided to remove the tonsils in the presence of an active ulceration but after the initial medical treatment as already detailed. At first an interval of ten days was allowed to elapse before operation was undertaken but the results were found to be so favourable that the interval was progressively shortened and now surgical removal of the tonsils is performed on the day after admission to hospital.

Operative Technique.—The patient is pre-medicated with scopolamine and omnopon one hour before the operation. He then receives in the theatre 1 gramme of pentothal intravenously and this is followed by the usual intratracheal administration of gas, oxygen and ether. Presumably there might be some contamination of the anaesthetic tube in its passage through the infected area but no untoward incidents have occurred and this risk must be considered negligible. A Boyle-Davis gag is employed with the patient in the recumbent position and the head fully extended. The pharynx is thoroughly painted with 1:1,000 aqueous acriflavine and a pack soaked in this solution is inserted around the anaesthetic tube at the aperture of the larynx. The nasopharynx is packed off in a similar manner. On seizing the tonsil the ulcerated area is avoided if possible as it is extremely friable and, apart from this inconvenience, portions of infected tissue might be disseminated to adjacent areas. The tonsils are dissected with great care in the usual way with scissors. The swabs used for removing the blood from the operation field are wrung out in iced 1:1,000 acriflavine solution and at the conclusion of the operation the tonsillar fossae are packed with similarly treated swabs. The extreme coldness of these swabs tends to reduce oozing to a minimum. When a dry field has been obtained the tonsillar fossae are insufflated with sulphanilamide powder. This last procedure serves to keep down any post-operative infection of the raw areas. (Sulphanilamide has no curative effect on the course of Vincent’s infection.) After the removal of all packs the patient is returned to bed with an intrapharyngeal airway in position. Rather more bleeding may be met with in this type of case after tonsillectomy but in none of the series did it cause trouble either at the operation or at any time afterwards. The post-operative progress was most satisfactory and healing undelayed. No complication occurred in any of the cases and no recurrence of Vincent’s infection took place. The patients were fit for discharge one week after the operation.

Clinical Summary.—(1) A safe method to accelerate the recovery from Vincent’s infection of the tonsils has been detailed. This treatment has been carried out in a series of fifty cases.

(2) Chemotherapy consists in the administration of 0·45 gramme neo-kharsivan by the intravenous route and the direct application of 2 per cent brilliant green in spirit.

(3) Tonsil removal is undertaken on the same or following day after the commencement of medical treatment and undelayed healing free from any complication has been obtained in each case.
(4) The soldier is returned more quickly to his unit free of Vincent's infection and much valuable working time is saved.

**Bacteriological Section.**

Swabs from the mouths and throats of one hundred healthy individuals were examined for fusiform bacilli and spirilla. The volunteers were made up of medical officers, nursing sisters, N.C.O.s and other ranks. The swabs were rubbed well over the buccal surfaces of the cheeks and on the tonsils. Two smears were made from each swab, one being stained by carbol fuchsin (1:20 for two to three minutes) and the other by Gram's method.

As stated above 21 per cent showed the presence of organisms indistinguishable in their morphology from the fusiform bacilli and spirilla found in cases of true Vincent's infection. 15 per cent. showed the presence of fusiform bacilli alone, in 5 per cent they occurred along with spirilla, while only one individual showed spirilla alone. The organisms were scanty in 99 per cent of the people examined and only one showed them in larger numbers. They had generally to be carefully searched for before they were observed.

In order to determine the frequency with which Vincent's organisms are to be found in an acutely infected throat, clinically not a Vincent's infection, fifty-three patients were examined, all of them suffering from an acute throat infection, streptococcal in many cases. Twelve (22·6 per cent) showed both fusiform bacilli and spirilla but not in large numbers; fusiform bacilli alone were seen in four (7·5 per cent) instances while only one showed spirilla alone.

The results of the examination of healthy mouths and throats and of the throats of those with acute local infection are set out in tabular form below.

<table>
<thead>
<tr>
<th>Type of Case</th>
<th>Number</th>
<th>Fusiform bacilli and spirilla</th>
<th>Fusiform bacilli only</th>
<th>Spirilla only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy mouths and throats</td>
<td>100</td>
<td>5 per cent</td>
<td>15 per cent</td>
<td>1 per cent</td>
</tr>
<tr>
<td>Acute throat infections</td>
<td>53</td>
<td>12 (22·6 per cent)</td>
<td>4 (7·5 per cent)</td>
<td>1 (1·8 per cent)</td>
</tr>
</tbody>
</table>

It will be seen that while 21 per cent of healthy mouths and throats harboured fusiform bacilli and spirilla, separately or in combination, these organisms were found in 32 per cent of infected throats and it will be noticed that they were in combination considerably more often in infected throats than in the case of the healthy individual.

There were 53 clinically and bacteriologically proved cases of Vincent's infection of the tonsils, and tonsillectomy was performed on 50 of them. Clinically all healed normally and there was no suggestion of a post-operative Vincent's infection of the tonsillar fossae. 37 of them were swabbed at intervals after operation and in only one case were fusiform bacilli and spirilla found in large numbers. This patient had not been given neokharsivan before operation. Usually the organisms were either absent or very scanty.
in from two to nine days after operation. It was found that the spirilla tended to disappear before the fusiform bacilli.

**Bacteriological Summary.**—(1) 100 healthy mouths and throats were swabbed. 21 per cent showed the presence of fusiform bacilli and spirilla either separately or in combination.

(2) The organisms were never numerous and were generally found only after prolonged search.

(3) Fusiform bacilli and spirilla were rather more numerous in the throats of patients suffering from acute sore throat (clinically not Vincent's infection) than in the mouths and throats of healthy people, the figures being 32 per cent in infected throats as against 21 per cent in those not infected.

(4) After the removal of tonsils in cases of Vincent's infection fusiform bacilli and spirilla either disappeared entirely from the tonsillar fossae in from two to nine days or were present in very small numbers and there was never any suggestion of an infection of the tonsillar fossae by these organisms except in one instance where neokharsivan had not been given before operation.

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**OBSERVATIONS ON THE TECHNIQUE OF THE BLOOD SEDIMENTATION RATE.**

**By Private H. DUSCHINSKY.**

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The essentials of the technique of estimation of the blood sedimentation rate, as employed in nearly all the methods described, are (1) the mixing together of 1 volume of citrate solution and 4 volumes of blood and (2) the placing of a portion of this mixture in a vertical tube, where the rate of sedimentation of the red cells is measured.

As a rule, a quantity of the citrate solution is drawn up into a hypodermic syringe, a vein is pierced, and blood equal to four times the amount of citrate is sucked up.

It was noticed that it was frequently impossible to prevent a varying quantity of air from entering the syringe with the blood. This was due to some minute fault in the fitting of the needle or plunger and, more often than not, the resulting mixture was disturbed to an unknown degree from the essential of 1 volume of citrate and 4 volumes of blood, i.e. 20 per cent citrate and 80 per cent blood.

It appeared important therefore to determine whether much disturbance of the mixture introduced an error of clinical significance in the interpretation of the result. For this purpose the following investigation was initiated, leading in the end to a proposed technique, a modification of that of Harvey and Hamilton (1936), which is thought to be accurate, simple and inexpensive in apparatus.
Vincent's Infection of The Tonsils

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