had disappeared, except the exophthalmos, which persisted. He then went to Switzerland, where some practitioner assured him that he could cure the exophthalmos (which was very disfiguring) by injections into the eyeball. An injection was performed into the left eye, with the result that the sight of that eye was lost. However, he considered himself practically cured of the disease.

He was accepted for active service, and was able to carry out arduous and responsible duties during the first sixteen months of this campaign.

An examination was made of the eyes and the base of the skull to see if any definite anatomical cause could be found for the exophthalmos.

The body was thin, but not emaciated. The eyes were still prominent. There was no pigmentation of the skin. The fat was of a deep yellow colour.

The thyroid was normal in size, colloid appeared rather deficient. The two chief abnormal features recognized in microscopic sections of the gland were a marked vascularity and an increase of the glandular tissue at the expense of the colloid. The latter change was not so marked as in many typical cases of exophthalmic goitre, since a number of acini with thinned out peripheral cells and a fairly large central mass of colloid persisted. The greater part of the tissue, however, resembled an acinar gland, consisting of closely packed tubules with fine central lumina, many of which contained traces of colloid. The acini varied a good deal in size, and were lined with cubical or columnar cells, both being represented in one acinus in many places. The cubical cells predominated. The cells of columnar shape stained more heavily with haematoxylin and had the appearance of more recently formed elements.

The thymus was persistent but small. The spleen was normal. A small accessory spleen was present.

The pituitary and suprarenal glands showed no macroscopic lesions, and were normal in size and texture. There was no enlargement of the lymphatics, and the cervical ganglia showed no change.

The heart was normal, and there was no thickening, hardening, or dilatation of the blood vessels.

Lungs.—The right was solid and in the stage of grey hepatization; the left contained patches of consolidation. Both lungs were adherent from recent pleurisy.

The parenchymatous viscera showed cloudy swelling. This was verified microscopically in the case of the kidneys.

The meninges were considerably congested and slightly opaque. There was no bony deformity or tumour at the base of the skull, and the brain showed no macroscopic lesion.

On removing the supraorbital plates nothing unusual was found. Owing to the protrusion of the eyeballs, the retro-orbital space was abnormally deep. This space was filled with fat.

Inasmuch as the patient did not die till the sixth day of disease and the amount of lung involved was considerable, one is justified in considering that the pneumonia was an adequate cause of death.

I am much indebted to Captain J. W. Macleod, R.A.M.C., who did the histological work.

Note by COLONEL SIR WILMOT HERRINGHAM.

The interesting feature in this case is the persistence of the exophthalmos when all the other graver symptoms disappeared. We hoped that there would be some definite anatomical cause discoverable. In cases in which the disease is recent no satisfactory explanation of the proptosis has ever been given. It is at once remarkable and disappointing that even in such a case as this, where the disease has been of old standing, we have been unable to add anything to the knowledge already in our possession.

A UNIVERSAL LEG FRAME, SPLINT, AND CRADLE COMBINED.

By MARTIN J. CHEVERS, L.R.C.P. AND S.IREL.,
MANCHESTER.

IN the BRITISH MEDICAL JOURNAL of December 26th, 1914, I briefly mentioned a "universal combined leg splint and cradle," designed by me and made by Messrs. James Woolley, Sons, and Co., Ltd., of Manchester. I had then had it in frequent use for upwards of ten years, but I have since discovered so many further advantages in it that I feel justified in describing it more fully.

The splint consists of a galvanized metal frame, 32 in. long, 7 in. deep, and 9 in. wide; along the top on each side is fixed a row of brass studs, which serve to secure a series of ten straps. These straps, each 3 in. wide, are eye-letted, so as to be adjustable to half an inch; they are made of waterproof material, and may be sterilized by boiling.

The advantages I claim for the splint are:

1. It is adaptable to any size, shape, or length of limb or amputation stump, and removal of one or more straps when being used on either the anterior or posterior aspect of the limb allows of easy access to a wound wherever it is placed without disturbing the limb.

2. By removing a strap, heel pressure can be relieved.
3. Elevation of the limb can be attained by steady graduated support to the whole under-surface.
4. It can be used as a double inclined plane by regulating the straps.
5. One or more straps can be used over instead of under the limb or amputation stump in order to steady it.
6. If alternate straps are lowered nearly to the bed, but so that the leg still swings, and the others buttoned tense across the top of the splint the latter act as a bed cradle or as a rest for lotion trays or irrigation solution.
7. If any portion of the foot should project above the splint, an adjustable and detachable guard (η-shaped) can be used; its legs fix firmly in holes placed at intervals in the upper parallel bars of the splint to remove the weight of the bed clothes at any required spot; this guard has a notch at the top, so that if the leg has been placed in another splint it can be suspended from the notch.
8. The waterproof straps are specially useful for keeping an ice-bag or dressings in place when the constriction of bandages is not advisable, or when excessively moist dressings are necessary, or where continuous irrigation is required (the receptacle being placed within the splint, underneath the suspended leg).
9. The splint, when the limb is suspended in it, is almost immovable by the patient on any ordinary mattress and covering; the leg can be placed in an abducted position and fixed extension applied by placing across the end perpendiculars of the splint a flat board containing a central perforation through which the extension loop can be passed and the loop retained there by passing through it one or more pieces of wood according to the tension required, counter-extension being attained by a graduated rise in the thigh straps towards the popliteal space. If required, fixed extension and counter-extension might be attained for the thigh if the upper end of the splint (that is, the U-shaped bar) is surrounded with Gamgee padding or spongiopilin, and made to act as the ring of a Thomas's knee splint.
10. The foot may be kept at right angles to the leg or valgus prevented by wrapping two or three turns of a bandage round the foot and making the ends fast at each side to the perpendicular or parallel bars.
11. For fractured patella I find the splint acts better than a Thomas's knee splint on account of the steadiness of the side bars, over or round which the bandages are passed, and across the front of the leg, keeping a firmer pressure on the pads placed above the upper fragment and below the lower fragment.
12. In cases of severe infection, where flush amputation has been necessary, skin traction in after-treatment is facilitated.
13. The waterproof straps can be made use of for a Thomas's knee splint; when passed round the bars they are secured by means of ordinary bone studs passed through the eyelets in the straps, attaining without any trouble perfect equality in the length of the straps—a matter of importance. I have used a Thomas's splint in conjunction with my frame, both on account of the protection the latter affords and for the purpose of suspending the Thomas's splint from the notch in the top of the η-shaped cradle guard.
14. The disturbance caused by putting on and taking off bandages, the heating and constriction of the limb which may be the result of bandaging can all be entirely done away with, the straps being used instead; they

retain a dressing in place at any point, whether anterior, posterior, internal, or external. In order to retain an anterior dressing the centre of the strap is placed on the dressing, and the extremities are passed beneath the middle side parallel bars of the frame, and then upwards to be buttoned to the studs of the upper parallels according to the tension required (or a bandage can be used in the same way, knotting the ends together after having passed over the upper parallels). The proceeding in order to retain an internal or external dressing in place is to first pass one end of the strap round the centre parallel bar of the frame, and fix by uniting the eyelets by means of ordinary bone studs, then pass the other end of the strap beneath the limb round over its anterior aspect back to the same side of the frame, and then either beneath the central or upper parallel to be buttoned to the brass studs on the upper parallel. The proceeding for retaining a posterior dressing requires no explanation.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CASE OF SPONTANEOUS RUPTURE OF SPLEEN: SPLENECTOMY: RECOVERY.¹

E. H., aged 44, was admitted to the Princess Christian Hospital, Weymouth, on March 8th, 1916, with a bad septic hand, which required several incisions, and eventually the removal of the first finger.

He had had a bad attack of syphilis twenty years earlier, for which he was treated at a lock hospital in London for six months.

He was getting on quite well, and had been allowed up and about for several days, when on the morning of April 21st, while trying to get out of bed to dress, he felt an acute pain in the epigastrium. He was reported to be perspiring freely; clammy, very pale. The temperature was subnormal, the pulse about 60, and the respirations 24.

When I saw him about 10 a.m. the epigastric region was tender and slightly distended. The liver dullness was diminished, and the apex beat displaced upwards. He was very pale, and evidently in a good deal of pain. The pulse was 90. Drs. Macpherson Lawrie and Nuthall saw him with me later, and we decided to operate if his condition did not improve.

After midday his pulse began to get rapid and weak, and his condition evidently worse. The pulse rose to 120, and, with Dr. Lawrie's help, I opened the abdomen to the right of the middle line. On opening the peritoneum there was a gush of bright blood, which continued in large quantities, swamping everything, and making it for the time impossible to find out from where the bleeding proceeded. I put my hand over the stomach, and was able to feel a mass of clot under the left lower ribs; three handfuls of clot were removed from this region. While doing this I felt the spleen, and found an irregular tear on the anterior surface, from which steady oozing was proceeding. Grasping the spleen, I pulled it up to the wound, and immediately the bleeding stopped. The patient was by this time *in extremis*. The splenic vessels were ligatured and the spleen removed, the abdominal wound stitched up quickly with through-and-through stitches, leaving about one quart of saline in the abdominal cavity.

He was given $\frac{1}{2}$ c.cm. pituitrin on the table, and every four hours after till 10 a.m. next day. Strychnine $\frac{1}{16}$ grain was also given every four hours, and he also had continuous saline by the rectum for twenty-four hours, by which time he had absorbed four pints.

After the first twenty-four hours he gave very little anxiety, and the wound healed by first intention. He left the hospital during the first week of June.

Dr. Nuthall kindly examined his blood on June 25th, and reported:

Red cells	...	...	...	4,910,000
White	...	...	...	7,720
Haemoglobin	...	...	...	75 per cent.

It is difficult to say what the cause of this serious condition could have been. Unfortunately, the spleen was not

examined; it was not enlarged, but was certainly friable, my fingers easily making holes in it when grasping.

Was the condition due to syphilis, or to the septic condition, or both combined? He had never contracted malaria.

Weymouth.

JAMES MILLER, M.B., CH.B.

Reviews.

TYPHOID AND PARATYPHOID FEVERS.

TYPHOID fever has long been known as the scourge of armies in the field. Possibly the paratyphoid fevers A and B have equally ravaged armies in days gone by, but of this we have no certain knowledge. We do, however, know that these two infections have been abroad among the combatants during the last two years of war, and that they have given rise to a considerable amount of sickness among the fighting troops of all the nations involved, although that amount has been far less, thanks to protective inoculation and hygienic precautions, than was expected. Drs. VINCENT and MURATET¹ have recently published an admirable account of the three fevers, with full clinical descriptions of the various forms they may take and the complications to which they may give rise. Their book is based largely on the recent work on these fevers published in Europe and elsewhere, but, as is perhaps natural, its data have been collected mainly from the observations of the French military physicians. A very interesting chapter is that in which the differential diagnosis between typhoid fever and the two paratyphoids is considered. The authors remark on the comparative shortness of the incubation period in paratyphoid fever, a matter of at most from nine to fourteen days, but often less than a week; in typhoid fever the incubation generally lasts from a fortnight to sixteen or twenty days, and may be as long as five or six weeks. The onset is usually more abrupt in paratyphoid than in typhoid fever, with rigors and vomiting, occipital headache, and often an eruption of herpes on the face, lips, or buccal mucous membrane. In paratyphoid fever there are often heavy night sweats; rose spots appear in some 60 per cent. of the patients, and may recur for days after the defervescence; moreover, signs of meningism are relatively common. Constipation is the rule in paratyphoid fever, and it is said that the liver as a rule becomes enlarged during its course. In general, paratyphoid fever lasts less long than typhoid, and the patients are not nearly so ill; the temperature rarely rises above 104° F., and, as was pointed out by Torrens and Whittington (*BRITISH MEDICAL JOURNAL*, 1915, vol. ii, p. 697), the temperature chart often exhibits a certain spikiness. So far as the mortality of the three fevers goes, the death-rate for adults in typhoid is said to be from 11 to 14 per cent., though it is considerably higher in the second half of life. Merklen and Trottain recorded 10 deaths in 356 cases of paratyphoid A and 5 in 90 cases of paratyphoid B; among 2,725 cases of paratyphoid fever Saquépéc found 41 deaths recorded—a mortality of 1.5 per cent. Cases of every degree of severity occur in both paratyphoid A and B; the milder cases often escape recognition, being diagnosed as indigestion or "gastric fever." Death, when it does occur, is most often due to bronchopneumonia, intestinal haemorrhage or perforation, toxic absorption, collapse, uraemia, or meningitis. Relapse occurs with equal frequency—in 10 per cent. or so of the cases—in each of these infections. The complications that may be observed are identical. There is, it seems, no radical difference between typhoid and paratyphoid fevers from the clinical point of view; the differential diagnosis must be made either (and preferably) by cultivating the infecting bacillus from the patient's blood or by special agglutination tests. The ophthalmo-diagnosis of typhoid fever as distinguished from paratyphoid, proposed by Chantemesse, does not furnish trustworthy results.

A full account of the epidemiology of typhoid and paratyphoid fevers is given by Drs. Vincent and Muratet; they attach great importance to fatigue as a cause predisposing to its acquisition, and also to excessive heat,

¹ The patient was shown at the meeting of the Dorset and West Hants Branch of the British Medical Association on July 19th.

¹ *La fièvre typhoïde et les fièvres paratyphoïdiques (symptomatologie, étiologie, prophylaxie)*. Par H. Vincent et L. Muratet. Collection Horizon, précis de médecine et de chirurgie de guerre. Paris: Masson et Cie. 1916. (Cr. 8vo, pp. 189; 97 figures. Fr. 4.)