only working at certain times, a neglect which was a cause of censure by
the Senior Medical Officer.

The isolation ward on board ship should be provided with separate
lavatory accommodation. A family consisting of the father, mother and
four little children had to be isolated on account of scarlet fever, and
the want of this essential was much felt.

The importance of avoiding overcrowding is so obvious as to need
no comment, but I would mention that in the troop deck of the married
families, much air space was taken up by boxes containing clothes being
placed in the berths. This could be avoided by allotting a “change of
clothing” baggage room, and I think the higher standard of comfort
now required by the soldier’s wife demands this concession.

A CASE OF SEPTIC CEREBRO-SPINAL MENINGITIS.

BY MAJOR H. E. WINTER.
Royal Army Medical Corps.

TRUMPETER H., 77th Company, R.G.A., aged 18 years and 6 months,
with 4 years and 4 months service, arrived in Colaba from England
in February, 1907, and reported himself sick on July 4th, 1907. He
had had no previous illness in the Service. He was detained by the
Assistant-Surgeon on duty, who, from the symptoms, considered the
case one of ptomaine poisoning. A dose of castor oil and opium was
administered.

On admission into my ward next morning he was complaining of
severe headache, his face was flushed, and he had persistent vomiting,
the vomited matter consisting of curdled milk and bile-stained fluid; the
temperature was normal, and the bowels not open for three days. He
was very restless and kept on turning from side to side and sighing. He
was also excitable and tried to impress on one that “he would be quite
well if allowed out of hospital.” He answered questions quite rationally,
in fact, intelligently, but when one ceased speaking to him he would
begin to talk nonsense. He was stated to be very fond of sea-bathing
and diving in shallow water, but no “history” was forthcoming, and he
showed no signs of injury to the head or spine. It was also stated that
“he used to go about in the heat of the day in a small cap.”

On July 6th the sickness ceased, but the temperature rose to
101·6° F. in the morning, and 102·4° F. in the evening. He was still
quite rational. The bowels were very obstinate and did not react to
drugs, so he was given a soap and water enema, which acted satisfactorily,
bringing away a large quantity of scybala and liquid feces. On the
7th he complained of severe pain in the nape of the neck, and on the
8th the muscles of the neck were rigid and he kept his head in one
position and turned towards the left side.
On the 9th his temperature gradually dropped to normal, but notwithstanding this the pulse-rate was much accelerated, being 120. Head still retracted and towards the left side. Any movement of the head caused intense pain; pupils dilated and fixed. No symptoms of ear or nose disease, no throat symptoms. The tache meningitique was extremely well marked. Abdomen retracted; Kernig’s sign present. Examination of blood showed numerous large polynuclears. There were signs of hypostatic congestion of the base of the right lung.

On the 10th, in the morning, after a good night, the pulse was very rapid and irregular; temperature normal, decubitus dorsal with the legs drawn up, but he frequently straightened them out, and kept on moving his arms and hands about as if “picking things out of the air.” In the afternoon he was delirious and there was marked internal strabismus.

On the 11th, in the morning, he was quite rational, strabismus had disappeared, pulse was very quick, “running,” and difficult to count, and he complained of much pain in the nape of the neck. In the evening the pulse was accelerated, but quite regular. * No paralysis.

On July 12th he was reported to have had no sleep during the night. He took all his nourishment well; no dysphagia; was very drowsy; head still retracted towards the left; pulse regular, but accelerated.

On the 13th he slept well after an opiate (liq. opii sed., m xv.), but was very shaky and tremulous. No cough, no expectoration. The bases of both lungs, especially the right, were extensively congested. He developed Cheyne-Stokes’ respiration in the evening and died suddenly at 8.30 p.m. A few minutes before death opisthotonus supervened.

Post-mortem (twelve hours after death).—Post-mortem rigidity almost passed off. Post-mortem staining of dependent parts well marked, also patches on the face. A curious feature was that these patches corresponded to the flush patches during life. On removing the skull cap a quantity of dark venous fluid escaped. The vessels of the dura and pia mater were much dilated and engorged with blood. On removing the dura mater, a difficult process, owing to the extreme softness of the brain tissues, no deposit of lymph or pus was found on the upper surface of the brain, but the convolutions were intensely injected with blood. On removing the brain and examining the base, there was a good deal of recent opaque, greyish-yellow gelatinous lymph, with some pus, in the meshes of the pia mater over the optic chiasma and space behind it. The condition extended over the crura and pons varolii and into the fissures of Sylvius, both of which were glued together by adhesions, as also were other fissures and sulci at the base. The same kind of lymph extended all around the medulla in the meshes of the pia mater. The whole substance of the brain and cerebellum was acutely injected. The ventricles contained a good deal of semi-opaque cerebro-spinal fluid, and there were adhesions of patches of lymph. On examining the inside of the base of the skull, there was no evidence of middle ear disease nor of...
spread of infection from the nasal cavities. The pituitary body was glued down to the fossa by lymph, and the dura mater was adherent to the underlying bone at several points, especially round the crista galli of the ethmoid.

The spinal cord was removed, and between it and the dura mater there was a thick packing of yellow gelatinous lymph and pus, which was apparently more copious in the lumbar and lower dorsal regions. The process, however, extended through the foramen magnum, and was continuous with that described at the base of the brain.

The circumvallate papillae and mucous glands at the base of the tongue were very much hypertrophied. They were found on section to be composed of masses of lymphoid tissues due to great hyperplasia of the submucous tissues normally present in that position. The tonsils externally appeared normal, though slightly enlarged; their surface was smooth and only slightly congested. On cutting them across the follicles were found to contain thick offensive pus. Little of the true tonsillar tissues remained.

The bases of both lungs, but more especially the right, were extensively congested (hypostatic congestion). No pneumonia. The other organs were normal, except that their vessels were all extensively injected with blood.

**Bacteriology.**—Cultures on agar-agar from the effused lymph showed numerous colonies of staphylococci. Smears on slides showed streptococci and pus cells. *Diplococcus intracellularis meningitis* not found. A section of the cord, kindly made by Captain Mackie, I.M.S., showed under the microscope, recent lymph, chiefly on posterior surface of cord, in large amount, and exhibited the usual characters of acute inflammation, together with a few scattered cocci. A thin layer extended to the anterior surface underlying the spinal dura. The central canal was dilated and contained excess of leucocytes.

**Points of Interest.**—Considering the extensive effusion of lymph along the whole length of the cord, most of the usual symptoms of spinal meningitis were absent throughout, viz., severe pain in the back, increased by pressure, shooting and darting pains of a paroxysmal character radiating in the course of the nerves, hyperesthesia of the skin, opisthotonus (this symptom was absent until a few minutes before death), retention of urine, paralysis, anaesthesia, dysphagia, great elevation of temperature, slow pulse (there was considerable acceleration of pulse). A peculiar feature with reference to the pulse was, that in the morning it was very rapid and “running,” notwithstanding reports that he had slept well during the night; in the evenings the pulse, although accelerated, was invariably steady.

**Remarks as to Cause.**—Injury to the head, otitis media, suppuration of mastoid cells, necrosis of skull, disease of nasal cavities, &c., can all be eliminated in this case as a cause of the meningitis. There is a history
Clinical and other Notes

of exposure to sun, but the symptoms do not point to this. The only possible cause traced was the condition of the tonsils, and it is probable that the infection found its way from the tonsils by the deep lymphatics, through the cribriform plate of the ethmoid, or through one of the foramina (anterior ethmoidal or the foramen cecum) into the anterior fossa of the skull, and subsequently spread to the spinal cord. The focus of inflammation seen in the neighbourhood of the crista galli is strongly in favour of this being the route of infection, and the absence of any other focus of suppuration to account for it, renders the tonsillar origin almost certain.

My thanks are due to Captain F. P. Mackie, I.M.S., and Captain J. G. Berne, R.A.M.C., for their valuable and skilful assistance during the post-mortem, and for the bacteriological examination of the exudations and spinal cord.

A CASE OF DIETL'S CRISIS.

By CAPTAIN J. FAIRBAIRN.

Royal Army Medical Corps.

Mrs. M., aged 28, 2-para, attended the Family Hospital, Colaba, on the morning of July 19th, 1907, complaining of great pain in the right side, shooting down into the groin, frequency of micturition and pain on passing water. She had vomited frequently during the night, and obtained no sleep on account of the severity of the pain. The attack had come on suddenly. She looked worn and ill, with dark rings under the eyes. The pulse was 95 per minute, of good tension and volume, and regular in time and action. The respiration was not increased; temperature 101° F. I sent her home to bed, where a more thorough examination was carried out. On examining the right side nothing definite could be made out, the abdominal muscles being contracted, but great tenderness was found in the right hypochondriac and lumbar regions. The urine contained blood in fairly large amount, and gave a corresponding reaction for albumen. It was markedly acid in reaction and showed, after centrifuging, pus cells, flat epithelial cells, and cells of a transitional type. Absence of crystals was remarked. All other systems seemed healthy, and a provisional diagnosis of renal calculus was made. Treatment: urotropine, gr. x., and tint. hyocyami, ηηη., every three hours, turpentine stipes and a calomel purge; plain milk diet.

The history elicited was that she had had two similar attacks previously, which were diagnosed "inflammation of the bladder." The first attack occurred in April, 1899, six weeks after her first confinement, which was premature, and at which time she lost considerable weight, which she has never regained. The second attack occurred in August, 1904. Her menstrual periods had been regular, the last occurring on June 22nd, 1907. She had a miscarriage in December, 1899. The