extension from the inflamed liver, and its complete resolution. (c) The subsequent period of apyrexia for over three weeks, during which time the abscess must have been forming. (d) The insidious extension of the suppurative process to the pleura. (e) The great severity of the inflammatory process locally.

I regret that I did not immediately explore the liver again, after finding the empyema, but it was thought that the "peccant" abscess was the one previously opened, the temporary improvement following the operation seeming to support this view.

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**A CASE OF SIMPLE FRACTURE OF THE VAULT OF THE SKULL.**

_by Major J. S. Eady._

_Royal Army Medical Corps._

On May 22nd, at Meerut, Bengal, Lieutenant S. was galloped into, at polo, with tremendous force, the two ponies and riders rolling over and over. Lieutenant S. never left the saddle and was lying on his back on his pony's loins, with his head on his pony's quarters, and before I could get hold of the officer's head and shoulders, and jamb my leg against the pony's quarters, the pony gave two more rolls off and on to Lieutenant S.'s head and shoulders, crushing the head between his quarters and the ground.

The patient was quite unconscious, with stertorous breathing and violent vibrations of the right arm which lasted for about two minutes; by which time his leg was cleared from under the flap of the saddle, and we had carried him back a yard or two. He then became deeply cyanosed and appeared to be dying. This condition, however, somewhat improved, and getting him into a dhooly, I went with him to the hospital, about a mile off, sending on ahead to have an officer's ward opened. When nearly there, he again became deeply cyanosed, and I then thought him dead.

On placing the dhooly on the verandah I made the pulse out again—44 beats to the minute—and the cyanosis passed off; I let him rest for an hour, fanning him awhile. He was then lifted on to a bed, and for the next fifteen minutes he was very sick.

During the following half hour he lay quite still, the pulse falling to 40 beats in the minute; I gave 2 drachms of brandy in some water and the pulse returned to 44. He was wearing a sola topee at the time of the accident, but without cross bands inside; the crown was completely crushed in and the front and left side of the brim broken downwards.

His forehead, left eye, elbows and shoulders were much contused. At 10 p.m. he was given 4 grains of calomel in butter on his tongue, and
was ordered a pint of milk for the night; I then noticed a conical swelling, the size of half-a-crown or more, over the right temple, and suspected a fracture with effusion of blood deep to the fascia, as there was no discolouration of the skin. The pupils were contracted and equal, and remained in this condition exactly two days.

The next morning about daylight he was semi-conscious, eyes closed, temperature 100·4° F., pulse 64; the swelling over the right temple "pitted" on pressure, but there was no discolouration; on the opposite side there was some boggy swelling—pitting on pressure—but over a larger area. No discharge from the ears or nose; bowels not moved. He had taken his milk well, and a good deal of iced soda water. It must be remembered it was the middle of the hot weather, the temperature varying from 103° F. to 109° F. in the shade. An enema was given which acted well, and his temperature remained 100·2° F. all that day.

On May 24th he slowly tried to put out his tongue when asked, opened his eyes for a moment with a vacant look, and closed them again. The pulse was irregular and weak, varying from 48 to 64 beats in the minute during the quarter of an hour I sat observing it. He had had a very restless night, but the temperature was 98·4° F. He indicated he wanted to pass urine, by rubbing his pubes, and trying to slip out of bed; he passed large quantities rather frequently; the skin not acting well, compared with other patients at this time of year. Of course "punkahs" and "tatties" were working freely; the temperature of the room was kept down to about 90° to 94° F. About 10:30 a.m. the pulse became worse, violent twitchings of the left side of the face and left arm set in, which lasted perhaps five minutes, and recurred about every second hour; loss of power in the left arm was noticed, and loss of sensation in the left leg. The pulse, however, very soon improved, but was slow. I gave him 10 minims of liq. strychniae. He was rapidly developing a scarlet-fever-like rash all over his body, but mostly about the back and buttocks and backs of the arms; I now noticed that the swelling over the right temple was very marked, and some discolouration was apparent low down behind the right ear. The head was shaved to allow of the closer application of the ice bags.

At 4 p.m. the temperature was 101·6° F., the twitchings of the face and arm were frequent, and these symptoms increasing, with grinding of the teeth, at 8 p.m., together with some dilatation of the right pupil commencing, I thought I would probably trephine in the morning, and requested the night sister to prepare the instruments, &c. When the fit was over the pupil contracted again, and the left pupil now became slightly dilated also, whilst a fit of twitching was going on. During the night I gave 2 minims of croton oil and 20 grains of bromide three times.

At 11 p.m. he was comatose, the left arm colder than the right; pupils slightly dilated, especially that on the right side, but acting to
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light; the croton oil had not acted and I gave him an enema, with a good result.

On May 25th, however, at 7 a.m., there was a marked improvement; the coma had passed off, he readily protruded his tongue when asked, the pulse was 54 and regular, and he asked what had happened, said he had a pain in the abdomen (croton oil), and asked for some port wine and brandy mixed for it. The bowels were now again moved; the temperature was 97.4°F.; he grasped my hand tightly with the right hand when asked, but could not do so with the left, and there was loss of sensation all over the left half of the body. The operation was postponed for the present; later in the day he recognised me, and about 10 p.m. called me by name; the twitchings of the face continued about every hour, and those of the arm about every sixth hour.

On May 26th, about 7 a.m., he had a severe attack of twitching of the face and arm, with grinding of the teeth, and he became comatose, with exaggerated knee-jerk, no ankle clonus or plantar reflex on the left side, and the right pupil dilated; so at 10.30 a.m. I trephined over the right middle meningeal artery, which I found bleeding; I tied it and cleared away the clot for an area of a five-shilling piece in an upward and forward direction; the dura mater appearing normal in colour; I did not open it. A fracture was seen to run from a point low down between the ear and the eye right over the vertex. By an incision of the scalp upward in the line of the fracture, I formed the opinion that it extended to the opposite side and that there was no depression, but I removed a loose piece of bone about the size of half an almond near the vertex, beyond which I did not continue the incision. The pulsations of the brain become apparent and the wound was stitched up; the trephined button of bone was not replaced, and a small India rubber drainage tube was laid from the dura mater to the angle of the wound, just over the ear. Iodoform and dry boric wool were applied and the wound healed by first intention; the tube, being shortened, was removed two or three days later.

An hour after the operation the patient was dozing naturally, with no stertor, a pulse of 64, which was regular, and an occasional slight twitching of the face only. At 9.30 p.m. patient recognised things, and conversed easily, but now and then he made violent efforts to get out of bed; he was given two large doses of bromide and chloral, with the result that he went to sleep at midnight and slept till 3 a.m.

On May 27th he was again very restless and violent, and at 3.30 a.m. I gave him another 30 grains of bromide and 20 grains of chloral; he slept till 8.30 a.m., awaking with a good regular pulse of 72, respiration 20, and the temperature, which had been 100°F. last night, normal.

The tongue was also cleaner; the wound was dressed; later in the day (May 27th) 20 grains sulphonal was twice given. During the day, however, I noticed the pulse and respirations were increasing until about dusk, when they had reached 84 and 24 respectively, but as the bowels

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had not been moved for nearly two days, he was given an enema, which
moved him twice, and then 4 grains of calomel. He slept a great deal,
with slight twitching of the left side of the face, but none of the left arm,
pupils small and nearly equal; the pulse and respirations fell during the
early part of the night on May 28th, were 70 and 20 respectively,
with a normal temperature, and some general improvement in his condition.

On the morning of May 29th the pulse and respiration were 64 and
20 respectively, the temperature 99°F., and the loss of power in the left
arm and sensation of the left side had practically quite recovered. The
tongue was easily protruded and was clean, but he was still drowsy from
the hypnotics. Last night, as I formed the opinion that it was expedient
to hasten absorption of the inflammatory products, 5 grains of iodide of
potash every fourth hour was commenced for six doses, then every eighth
hour. I had recently treated a case of paralysis of the left arm, nearly
a month old, after concussion of the brain, in the same way, with the
result that in three days the arm had regained almost all its lost power,
and in another week was as strong as ever.

An enema was given with a poor result, so a saline of 2 drachms
each of magnesium and sodium sulphate, with 20 grains of bromide and
bicarbonate of potash, was given with syrupus auranti; calomel seemed
to have no effect on him, for he had had three doses, with no result.

On May 30th the pulse was 64, the respiration 20, and the tempera
ture 98.4°F., he was rapidly becoming intelligently conscious, somewhat
restless, and had had no twitchings of the face since 6 a.m.

On May 31st there was marked general improvement; he opened his
eyes, looked about him, and asked questions. He is of a very active
disposition in health; very much given to having his own way and being
quite irrepressible in his Mess. He is 21 years of age with a rather
small, compact, well-formed frame, and a deep broad chest. The pulse
was now 70, respirations 20, and temperature 97.4°F. this morning, and
he is beginning to resent being kept quiet in bed. I was proceeding
to-day to Muttra for two months' duty, but this has been now postponed
for four days for me to watch the case.

On June 1st the improvement continued. On that date there was
only some paralysis of the left side of the face, and he can converse
intelligently, but he is getting terribly restless and disobedient; it takes
two or three male nurses to keep him in bed. The bruises and abrasions
about the head, body and limbs, are disappearing. The iodide is omitted
to-day and 20 grains of potassium bromide given thrice daily, with raw
eggs and milk, mutton essence, fruit, barley water and lemon. The ice
bags are continued.

On June 2nd the patient's condition still continued favourable; pulse
74, regular, respiration 20, and the temperature normal or subnormal.
He insists that he is quite well and is causing a great deal of trouble.

On June 3rd, after a very restless night in spite of bromide and
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chloral, he became quite maniacal, tore up his pyjamas, and it took three men continually alert to keep him in bed. I reasoned with him in his lucid intervals, and compounded with him to let him sit in an arm chair, as the pulse was good; all this struggling was much worse than quietly slipping out into the chair. However, in five minutes he wanted a bath (he has been sponged all over daily), so I put him in a hot bath, which had a considerable soothing effect on him, and he slept, more or less, for two hours after it; then he wanted to sit up, then to be shaved, and all was allowed; finally he wanted to dine outside, have solid food, and a bottle of champagne, for he said he "felt as weak as a cat." However, I gave him a smart saline, containing a large dose of bromide and chloral, and arrangements were made for me to again postpone proceeding to Muttra for a week.

On June 4th the patient was freely purged, and another dose of bromide and chloral sent him to sleep for the afternoon and night. Five grains of pot. iodide every eighth hour was recommenced.

On June 5th he was much more tractable; there were two hallucinations during the day: one was that he was under arrest, and the male nurses were witnesses against him; and the other, that a picture on the wall was photographing him. He was satisfied to be allowed to sit in the armchair and read a paper, but the room was so dark, it was obvious that he did not read anything; after ten minutes he thought he would go back to bed, which he did, and slept for two hours, and was quite rational when he awoke, and recognised the Captain of his Company, who I allowed him to see, at his request, exactly fourteen days after his accident. He, however, was rather restless through the night, and had a dose of bromide and chloral at 10 p.m. and 4 a.m.

This morning, June 6th, he was sleeping a good deal, but awoke rather suddenly about 10 a.m., and insisted on getting rid of his pyjama trousers, but I calmed him by allowing him to sit up in an armchair under the "punkah" and gave him 20 minims of tincture of opium. He also had a hot bath daily and was shaved, all of which pleased him and kept him quiet. He was much stronger on his legs than he was two days ago; of course he was carefully watched that he did not harm himself, he having asked for scissors or a knife to cut his pyjama ropes, and then for a match to burn them through. He was given chicken and bread and butter last night. Possibly the chloral is causing the hallucinations, as he has had a good deal, so at 10.30 a.m. I gave him 20 minims of tincture of opium, as he was rather noisy. He recognised the Padre, who looked in and spoke a few words to him.

On June 7th I find I have the following note: This patient slept at intervals yesterday and last night. When awake he sometimes had lucid intervals, in which he was quite sensible, and sometimes he would ramble on a lot of nonsense about theatricals, the Queen of Spain, that he had heard she was a good actress, and sometimes he would be fractious with
his nurses, the chief thing being that he wanted to lie on the bed without his pyjamas on. There have been no special signs of cerebral irritation. The evening before I find he wrote a note to one of the officers in his regiment, in which he gave the initials of the officer in the address quite correctly, but the letter itself was to the effect that the father of the King of Portugal was dining with him, that therefore he could not come to the Mess. He added that His Royal Highness might also come, but, at any rate, he had only one guest. Liqr. opii sedatives, η xxx., was given at 10 p.m. last night, and η xx. at 4 a.m. this morning, and he has now just awakened after a seven hours' sleep, and insists on lying on his bed without his pyjama trousers on. He was immediately calmed by being allowed to have them off and thrown over his thighs, when he lay quite still. He seems to have quite recovered from the immediate effects of the accident and operation, as his general health and digestive organs are satisfactory; he is quite strong again in the arms and legs, the bruising and swelling have practically disappeared and the wound healed. There is some tendency to constipation, which has to be corrected.

The accident occurred eighteen days ago. This morning I took his Colonel in to see him for a few minutes, and this evening the General Officer Commanding the Division. He recognised them both, asked intelligent questions, and spoke of events which had occurred two or three months previously. As it is somewhat urgent for me to get to Muttra, I have to-day handed over the case for two months, reported as under to the General Officer Commanding for the daily report to the headquarters, and for the weekly report by mail to his parents.

Lieutenant S.'s general condition, now eighteen days after the accident, in so far as the injury and operation is concerned, is most satisfactory; in fact, he may be said to have recovered from the immediate effects of the injury, and the operation wound is practically healed. The mental power, however, I regret to say, gives evidence of becoming unbalanced. There are lucid intervals, in which he is quite sensible and will converse intelligently; but yesterday and to-day these have not been of such long duration as formerly, and he is liable to ramble off into matter, the nature of which I cannot understand or piece together. This may go on for weeks only, or months, and may be recovered from, or may only partially be recovered from, or may become chronic, or may cause death.

My thanks are due to Lieutenant-Colonel A. S. Rose, R.A.M.C., Lieutenant-Colonel Smith, I.M.S., Captain F. A. H. Clarke, R.A.M.C., and Lieutenant Brodribb, I.M.S., for their kind advice and assistance at the operation.

Note.—On June 20th I received a letter which remarks that the patient is very much better.