THE YOKOHAMA EARTHQUAKE.

SOME MEDICAL EXPERIENCES.

BY

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It may be of interest to relate some experiences of the recent earthquake in Yokohama, Japan, from a medical point of view. Descriptions of the catastrophe have reached the press over and over again, and it is unnecessary to repeat them. The loss of life has not, and cannot be estimated; the fact that the first shock occurred at a time when cooking was in progress for the midday meal undoubtedly added to the casualties, being responsible for the countless cases of severe burns, so many of which ended fatally, and the typhoon not only caused much death by drowning, but also prevented any attempt to rescue refugees by lifeboats for several hours.

All hospitals in Yokohama fell at the first shock, killing or wounding doctors and nurses, with the result that thousands of victims remained without any medical attention for many hours; indeed many hundreds who might have been saved must have been burned to death by the rapidly spreading fire. This enforced delay added also to the appalling sepsis which confronted us when refugees eventually began to arrive on the ships.

The British ship *Dongola* of the Peninsular and Oriental Steam Navigation Company was at the time lying in Yokohama harbour; she is admirably equipped with medical arrangements, but unfortunately her store of dressings had been depleted after the outward voyage, and this added greatly to the difficulties of handling such large numbers of wounded.

Within a short space of time after the first shock, Yokohama was hidden from our view; dense clouds of smoke from burning wreckage and columns of flame eclipsed everything. The harbour was as usual full of lighters, mostly built of wood, many of which contained Japanese cargo workers, both men and women. These were in extreme danger, owing to the increasing typhoon. Many were completely swamped, with much loss of life, but it was possible to rescue from the water some of those who were comparatively close to the ship; such were our first casualties, mostly in a state of collapse. They yielded to simple remedies, and eventually recovered.

After an enforced delay of some hours, it became possible to lower lifeboats, and rescue parties set out to the shore; they brought refugees of all nationalities in their hundreds back to the ship; the majority were damaged, and many extremely badly hurt. Most of the wounds had no covering, and it was evident that sepsis would be present in an appalling degree. Our first case of extreme urgency was an English boy, aged 11 years, whose right arm was smashed in many places, being merely pulp as far as the insertion of the deltoid muscle. The arm was extremely dirty and the child's general condition was so bad that nothing could be done at the time but to give brandy and morphine and to place the limb in a bath of hydrogen peroxide; some hours later it became imperative to remove the arm; the general condition had improved somewhat, and amputation was performed. Owing to the hopeless conditions, the lack of dressings, and the fact that there was no anaesthetist on board, this took two hours; and some five or six hours later the boy died of shock. In another case, in which the hand only was involved, amputation was performed later with satisfactory results.

Broken bones were numerous, mainly legs and ribs, and unfortunately the fractures were mostly compound and comminuted. A great number of cases of acute conjunctivitis, due to long exposure to smoke, were treated. A great many cases required hypodermic injections of morphine, of which there was luckily a good supply; any form of sterilization of syringes or needles was, however, impossible, owing to lack of time, and yet it is interesting to note that under the very dirty conditions in which drugs were given hypodermically no additional sepsis resulted. The stitching up of countless wounds with dirty catgut and

hurriedly cleaned instruments also had satisfactory results. The stock of ordinary antiseptics was exhausted rapidly, and until help arrived from the French ship *André Lebon* no iodine was available, and even the supply obtained from this source was absurdly inadequate. The cutting up of sheets and pillow-cases furnished excellent bandages, but the lack of cotton-wool was serious, and frequently to pad splints was impossible. Of stimulants there was no shortage; over forty bottles of brandy and whisky were consumed by the 500 refugees on board within the space of forty-eight hours.

The case of a young Russian child, though deplorable, is of interest; how her injury occurred we could not find out (the problem of trying to understand the many different languages was impossible). She arrived with what appeared clinically to be an appendix abscess developing rapidly into acute general peritonitis; there were no external bruises nor signs of injury; on exploration the abdomen was found to be full of blood, due to a ruptured liver; very little could be done and the child eventually died.

Injuries to joints were common, the most severe being that of a British woman, whose knee-joint was laid open by the falling of part of a building; the wound of course rapidly became infected, and she died on board ship; amputation might conceivably have saved her life, had it been possible to perform it. The Chinese refugees, who on the *Dongola* numbered some hundred and fifty, were in many cases very badly hurt, but none sought help and none uttered so much as a groan; one Chinese woman entered into the first stage of labour while on the voyage from Yokohama, and eventually asked for help. The fortitude and patient suffering of these Chinese men and women were truly extraordinary; one of the women, having a fractured humerus, carried in her arms a baby a few days old only; even in her great anxiety for her child she was patient until the arm could be set.

There were no nurses on the ship, but the British and American women gave of their help so untiringly and worked so well that many lives were saved which otherwise must have been lost. The clothing problem was exceedingly difficult, so many of the refugees being merely in rags. It was possible to supply every refugee in whatever part of the ship with food in plenty owing to the admirable organization of the steward's department.

Our voyage from Yokohama took twenty-four hours, and on arrival in Kobe the Japanese authorities gave every possible aid; excellent arrangements in that place had been made, and we were able to carry out the long task of disembarking the wounded without great difficulty. The more serious cases were conveyed by stretchers across the gangway to ambulances, and on to the International Hospital, where British doctors and sisters in charge of that establishment worked unceasingly to relieve the suffering. The large Oriental Hotel was used as a centre for sorting out the less serious cases, and for relief work, bathrooms and staterooms were rapidly turned into temporary hospitals, and here much valuable medical work was done by Japanese surgeons. British women, themselves refugees in many instances, were everywhere in evidence, giving their voluntary aid unceasingly; many of these women had lost their husbands and children, but I think that the great work they were doing helped for a time to check their tears.

I have said little of matters other than medical. The earthquake itself caused a violent up-and-down movement of the *Dongola*, which resulted in a few minor casualties amongst the crew. Several ships were involved, particularly the *Empress of Australia* and the French *André Lebon*, both of which had narrow escapes from destruction, being moored alongside the burning wharf. Perpetual danger threatened all vessels in the harbour; collision seemed imminent time and again owing to the typhoon and to the fact that visibility was so bad. Lighters and sampans, mostly ablaze, were driven in hopeless confusion amongst the ships by the wind, and the masses of burning oil which poured from the shore upon the surface of the water were a source of intense anxiety. The majority of vessels, however, suffered but little damage, and were finally able to convey thousands of refugees away from the stricken area.