

passed through the left rectus by means of a separate incision and fixed to form a permanent colostomy, and finally the main wound sewn up.

The operation lasted one and a half hours, but the patient bore it extremely well, the pulse not exceeding 100. Next day, however, there was a good deal of discomfort from distension, which necessitated the opening of the colostomy in 48 hours after the operation. After this her recovery was rapid, there was no trouble from the necrosed bowel, which separated off on the sixth day, the temperature did not exceed 100.2°F ., and in 14 days she appeared quite fit for the second operation, the wound being quite healed and the colostomy acting well.

At the second operation, with the patient in the extreme lithotomy position, a lozenge-shaped incision was made round the anus and carried backwards to the sacrum. The coccyx was removed, the sacro-rectal space opened, and the dissection carried upwards until the closed upper end of the rectum was reached. Unfortunately the peritoneal adhesions at the invagination gave way during this manipulation, and septic material from the interior of the rectum escaped into the wound. This was sponged away and the opening closed as well as possible with a gauze pad while the lateral and anterior connexions of the rectum were separated. This was accomplished without much difficulty and the rectum and anus removed. There was some oozing from the deep part of the wound which caused delay. When this had been stopped the edges were sewn together and a large tube left in the sacral end of the wound.

There was a good deal of shock from this operation, which lasted one hour, the pulse rising to 132, due in part, no doubt, to the oozing above mentioned, but chiefly, it seemed, to the anaesthetic, which on this occasion the patient took very badly. The shock, however, soon passed off, the pulse falling to 112 in a few hours, and after this she made a perfectly satisfactory and uneventful recovery. The wound, though necessarily septic owing to the escape of the contents of the rectum, gave no trouble, and almost the whole of the anterior part had united when the stitches were removed on the seventh day. The posterior portion where the tube had been healed more slowly and was not closed until six weeks after the second operation, when the patient returned home. The colostomy was then acting once a day, and required nothing more than a simple pad. The latest information is that she is doing extremely well.

The portion of the bowel removed showed a soft carcinomatous growth about 4 inches long, commencing $2\frac{1}{2}$ inches from the anus, and nearly encircling the rectum. The upper limit of the growth was about $\frac{3}{4}$ inch below the level at which the invaginated portion had separated off.

From the satisfactory result obtained in this case it seems reasonable to conclude that Coffey's suggestion is of distinct value and likely to prove useful in suitable cases.

Truro.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

ASPHYXIA FROM DEFECTIVE SHIP-BOARD VENTILATION.

BY GILBERT E. BROOKE, L.R.C.P. & S. EDIN, D.P.H.,
PORT HEALTH OFFICER, SINGAPORE.

FATAL accidents take place from time to time on board ship as a result of faulty or imperfect ventilation. Generally speaking, these accidents are the result of poisonous and explosive gases from consignments of cargo, as, for instance, ferro-silicon, which when acted on by moisture evolves phosphoretted hydrogen, often accompanied by arseniuretted hydrogen. A number of examples of shipping fatalities from this cause will be found in a special report on the subject issued by the Local Government Board in 1909 (Cd. 4958). Occasionally, however, in the absence of proper ventilation, changes in the normal oxygen and carbon dioxide air content, brought about in various ways, may result in serious mishaps. As far as my experience goes these changes are of two types. A condition may arise in which some of the oxygen in a compartment is used up, while the normal CO_2 content is unchanged; while, on the other hand, the amount of CO_2 may be much increased at the expense of the existing oxygen.

The first of these two types is, of course, the least dangerous. The following is a good example of it:—

An empty oil-tank ship arrived in Singapore. Her after-cofferdam had been filled with Suez water, most of which had been used, and the compartment had been battened down for about a month. When the compartment was first opened several men who attempted to enter became unconscious. After being rescued and removed to the fresh air they all recovered without further mishap. An analysis of air in the compartment showed that there was no petroleum vapour and that the CO_2 was normal. The oxygen, however, had fallen to 15.4 per cent. The result was therefore merely an oxygen starvation, which, if not too long continued, could be easily recovered from. The only reasonable cause which could be discovered for the condition was a process of rapid oxidation of the bulkhead ironwork (in the presence of closure, heat, and moisture), leading to a large abstraction of oxygen without other chemical action.

With regard to the second type mentioned above, two cases have come to my notice, both of which were attended with fatal results.

A ship named the *Merapi* arrived from China on April 28th, 1908. When her lower holds were opened up for the removal of cargo two of the ship's crew who attempted to enter the hold fell down insensible. They were removed after a little time, but artificial respiration was tried without success. On analysis the air of the hold showed oxygen 8.6 per cent. and CO_2 11.8 per cent. I was on leave at the time, and could, unfortunately, get no particulars as to the ventilation of the compartment nor the composition of the cargo.

The second case was a still more remarkable one. A Dutch steamer, the *s.s. Jacob*, arrived in Singapore on Dec. 22nd, 1915, with general cargo from Amoy and Swatow and 1826 'tween-deck coolie passengers. The passengers were all healthy on arrival and were given pratique at the quarantine anchorage. The ship then proceeded to the inner roads to discharge her cargo. This cargo had been battened down in the lower holds for six days of a tropical voyage. On opening one of the fore'd holds (No. 2) two of the Chinese crew descended, but immediately fell insensible on the top of the cargo. All attempts to bring them up were unsuccessful, until the hatch cover had been removed for some ten minutes. The men were then apparently dead. Artificial respiration was continued for some time, but without avail. Spaces between cargo-bales enabled me to obtain a sample of air from near the limber-boards, which, on subsequent analysis, disclosed the following remarkable figures: Carbon dioxide, 22.55 per cent.; oxygen, 1.86 per cent.; marsh gas, 0.30 per cent.; nitrogen, 75.29 per cent. When the hold had been properly aired after an hour or two I was able to go down and make a survey. The air was hot, slightly aromatic but disagreeably acid. There had been originally two ventilators communicating with that hold. The fore'd one traversed the 'tween-deck intact and ended as a six-foot shaft above the main deck. This shaft was fitted with a fixed mushroom top, and could therefore at best only act as an uptake, but would have no action at all in the absence of other ventilating openings or intakes. The second ventilator was situated aft, and, like the first, traversed the 'tween-deck intact, but was then diverted in square section through some cabins and was supposed to open on the upper boat deck. The opening, had, however, been permanently decked over, seemingly for a long time. There had therefore been a condition of air stasis for six or seven days in a hold three-quarters full of cargo, and at a temperature probably increased by "wild-heat" to over 90°F .

Under such circumstances the composition of the cargo was the important question. A few sacks of soy beans, sugar, and cooked rice comprised the smaller portion. There were also 277 baskets of garlic and over 1000 large wooden tubs of fresh oranges. The rest of the space was occupied with bales of Chinese paper and baskets of fowls eggs. The replacement of all the oxygen by carbon dioxide must have been brought about by respiration of the oranges and garlic in the absence of any ventilation; and the high temperature was probably a contributing factor of importance.

Singapore.

A CASE OF ADVANCED INTRA-ABDOMINAL PREGNANCY.

BY B. RANDALL VICKERS, M.B., B.S. LOND.,
IN CHARGE WESLEYAN MISSION HOSPITAL, WUCHOW, SOUTH CHINA.

IN view of the rarity of abdominal pregnancy continuing to the later months, it is worth while recording the following case recently treated in Wuchow, Kwangsi Province, China.

The patient, a boatwoman, aged 39, appeared at the clinic on Nov. 23rd, 1915, complaining of a lump in the abdomen