rectly, by freely oxidising the blood and the tissues generally; hence the anæmic, badly nourished children of our large towns derive great benefit from it. Rickets is also well treated by strong sea-air; this is a rare disease on the north-east coast.

I have repeatedly observed that such remedies as iron, cod-liver oil, alkaline salts—especially those of potash—phosphate of lime, etc., remedies which we may for convenience designate “medicinal foods”, are apparently of great value in the treatment of children at the sea-side. It is not improbable that sea-air may favour the action of some medicinal tonics, more especially during the period of growth.

Hospitals for diseases of children should be located as far as practicable at the coast. I am anxious that a children's hospital should be established at Redcar; it would be a boon to the populous towns in the immediate vicinity, and the climate is most suitable for the purpose. I hope the need for such an institution on the coast of Cleveland will soon be supplied.

3. *Scrofula*.—The unanimous opinion of the profession has asserted that scrofula above all other disorders is benefited by sea-air and sea-bathing. I have seen excellent results from the treatment of strumous cases at Redcar. At the Convalescent Home, it would appear that these cases do best during the winter months. The climate of the north-east coast is undoubtedly well adapted to the treatment of nearly all forms of struma. It is more than probable that a dry, moderately cold sea-air, such as we have on the north-east coast, may exert a more powerful effect on the imperfect nutrition of scrofulosis, than the somewhat moist and warm sea-air of the south and west coasts; though, now and then, special complications may cause us to decide in favour of the latter. In the treatment of glandular enlargements, and of intractable ulcerations occurring in strumous subjects, I have observed beneficial results from the local employment of sea-weed—the red seaweed (*laminaria digitata vera*) which contains iodine.

4. *Some Functional Disorders of the Nervous System* sometimes derive benefit from bracing sea-air. I have seen hysterical paralysis, and aphonia (probably hysterical) disappear completely at the sea-side. Short sea-trips prove very useful and even curative in such cases—in aphonia, not depending on organic changes, the voice has been suddenly restored during such trips.

5. Some forms of *Dyspepsia* do well at the coast—in particular what has been termed “atonic dyspepsia”, accompanied with exhaustion of the nervous system, and with but slight changes in the gastric mucous membrane; a class of cases produced mostly by over-work, anxiety, and the like.

6. *Debility produced by Town-life*.—The tonic properties of sea-air are of great value to those persons whose energies are exhausted by over-work, especially of the brain, or by what is commonly called worry. In such cases, expenditure of energy has exceeded the supply; exhaustion has occurred, and will continue, until income and expenditure are again fairly balanced. The health-agents of the sea-side assist the efforts of nature in the restoration of the lost balance of energy, chiefly by increasing the supply. It may be justly said, that rest anywhere will bring round the desired result; but it is often of importance to secure the best effect in the shortest time, and bracing sea-air is the most valuable hygienic agent for that purpose.

7. *Degenerative Changes in the Tissues*, as in old age, and in the prematurely old. It is not improbable that residence at the sea-side, where the sea-air is strong, may be of great value when the tissue-changes begin to flag, when construction is imperfect, and when old and used matter is allowed to remain. Somewhat in support of this position, we have the fact of longevity at the coast; and, as a rule, the old people who reside there look younger and more robust than persons of corresponding age inland. The climate of Redcar appears to me well suited to cases of paralysis depending on degeneration. There is not only a strong sea-air which may be had at all times of the tide on the beach, which is everywhere most easy of access, but the absence of hills is particularly grateful to persons whose pedestrian powers are impaired.

8. I have heard the east coast objected to in cases of *Spasmodic Asthma*. It would appear that any very decided change of air often does good in this most capricious disease. I have seen some cases greatly relieved, while others appear to have been made worse by the dense atmosphere on the coast of Cleveland. Redcar is a good resort for cases of hay-asthma. *Apropos*, I have met with a sort of spurious asthmatic attack set up apparently by inhaling the strong marine effluvia emitted from the sea-weeds which cover the rocks of Redcar; certainly this must be a rare occurrence, yet I think it is noteworthy.

The following classes of cases are unsuitable for residence on the north-east coast.

1. *An Irritable and Dry Condition of the Bronchial Tubes*, whether coexisting or not with disease of the lungs. The climate of the north-

east coast is almost sure to increase the bronchial trouble, except perhaps during the warm months of the year; and even then any sudden fall of temperature, and a strong sea-wind, are apt to act injuriously upon the chest. ‘Is this due to an excess of ozone,* or to excess of saline matter in the air, or to dryness of it?’

2. *Inflammatory Skin-Affections* are often greatly aggravated by the dry salt air of the east coast. I do not think the dry scaly affections suitable for treatment at the sea-side. A very dry harsh condition of the skin I have not unfrequently found to be a contra-indication, especially when obstinate. Visitors to the north-east coast should pay special attention to the skin; sea-bathing and occasional tepid and warm sea-water baths are to be specially commended for this purpose.

3. Cases of *Tubercular Consumption* in all stages of the disease, so far as I have been able to observe, are injuriously affected by the north-east coast. Though tubercular phthisis among the residents is a very rare disease, yet imported cases, as a rule, make a very unsatisfactory progress; sea-air on the north-east coast appears rather to hasten than to retard the course of the disease. I have, however, met with persons suffering from the ordinary chest-symptoms of pulmonary phthisis, and exhibiting the signs of consolidation of lung, but without much, if any, rise of temperature, persons of a decidedly strumous habit, who were not injuriously affected by strong sea-air, but who, on the other hand, really appeared to derive benefit from it. These were probably cases of scrofulous disease of the lungs, or rather of fibroid degeneration of lung; I question whether they were really cases of tubercular phthisis.

4. Cases of *Bright's Disease* should avoid the dry climate of the north-east coast, in particular during the winter and spring.

The east winds which prevail during the spring months, and often even until the end of June, make it a risky thing for delicate invalids to visit the north-east coast before the beginning of July. The dry polar winds which are thought to be hurtful to people in general, are really rather beneficial than otherwise to the moderately strong; to persons, for instance, with sound lungs. The very bracing and more powerful sea-air of the winter months (October, November, December, January) is, I believe, of very great value in the treatment of scrofula. The study of the therapeutic properties of a cold atmosphere, and in particular of cold sea-air (e.g., residence at bracing marine health-resorts during the winter months), deserves more attention than it has hitherto received.

The climate of the north-east coast is undoubtedly a decided one; if not beneficial, it is very apt to produce injurious effects. It is well calculated to call forth and develop vital energy, and thus to invigorate an enfeebled system; but the substratum of energy submitted to it must not be too low, nor must it have been lowered by exhausting organic disease, or the result may be, as I have more than once suspected, still greater depression.

INTESTINAL OBSTRUCTION: AMUSSAT'S OPERATION: RECOVERY.

By THOMAS B. BOTT, M.D.,
Surgeon to the Dispensary, Bury.

JAMES WALKDEN, aged 28, brickmaker, in the summer of 1868, whilst climbing a bank, fell back, and the handle of his spade, which was upright in the ground, came into collision with the parts about the anus. He had severe pain at the time, and was driven at once to stool. No blood or anything abnormal was evacuated. He suffered pain in walking for many days. Subsequently, he occasionally had gripings in the lower parts of the abdomen, which caused him to go to stool at once.

Three or four weeks before coming under my care, he noticed that his motions were narrow—not much thicker than a tobacco-pipe stem. He generally went to stool twice a day; but he was rather irregular as to time.

Early in February 1870, he was seized with violent pain in the bowels. The bowels were not evacuated. He called in the parish surgeon, who gave him purgatives. He had a motion somewhat resembling barm on Saturday, February 12th, 1870. The bowels had not again operated; but the pain increased.

I was called to him on the evening of Thursday, February 17th, 1870. He lay supine. His face was rather shrunken and anxious. He had no sickness now. He suffered from a feeling of tension of the abdominal parietes. The abdomen was very hard to the touch, but not tender on pressure; it was tympanitic, more or less, except in the hypogastric and iliac regions. The left iliac region was especially dull,

* Dr. Brameld informs me that the ozonometers of the observatory at Saltburn almost invariably record a great charge of ozone in the atmosphere. Is this to be accounted for by the proximity of abundant vegetation, or by the character of the sea-winds at this part of the coast?

swollen, and hard. The rectum was empty. I was unable to reach any stricture or other obstruction with the finger. The parts on the anterior wall of the rectum were very tense—evidently the result of the pressure caused by the liquids and fluids in the bowel. The feeling to the touch was that of a distended bladder; but the introduction of the catheter showed that this viscus was almost empty. At least, two moveable hard lumps could be felt on the anterior wall and to the right side. I ordered small doses of tincture of hyoscyamus in camphor-water, and directed the abdomen to be fomented with a hot decoction of poppies, and an enema of soap and water to be given.

Feb. 18th. The enema came back *alone*, immediately after being given. I administered enemata myself—first of soap-water, then of turpentine suspended in water by means of the yolk of an egg. No fæces accompanied the expulsion of these clysters.

On the 19th, my father saw the case with me. Bougies of various sizes, down to that of a No. 8 catheter, were introduced. They all passed about six inches, and were arrested opposite the promontory of the sacrum. I could not detect anything like the hard surroundings of stricture; there was simply no passage. Enemata of tepid water, and subsequently of tobacco-water, were given, without a favourable indication being obtained. Dr. Adam Fletcher saw the case with me on the 20th, and endeavoured to pass bougies. The remedies of the previous day were repeated.

On the morning of the 21st, I inflated the rectum with air by means of bellows, and obtained considerable forcing power by this means; but there was no indication of any satisfactory result. He was wasting in the body. The eyeballs were sunken; the features pinched, and expressive of pain and anxiety.

All our means for obtaining a passage *per vias naturales* being exhausted, nothing could now be done to save the man from a painful death but colotomy. He and his friends were anxious that he should live, and consented to have the operation performed. At 3 P.M., therefore, whilst he was under the influence of chloroform, assisted by my father (Mr. Bott), Dr. A. Fletcher, and Mr. John Parks, I performed Amussat's operation. I made an incision over the left loin, according to the directions given by Mr. Erichsen in his book on *Surgery*. Having cut through the tissues and arrived at the fatty areolar tissue next to the bowel, I found it to bulge somewhat into the wound. It was of a reddish tinge. We made the bowel fast by sutures attached to the upper and lower edges of the wound. On opening the viscus between the sutures, liquid fæces gushed forth to a distance of upwards of two feet, sometimes accompanied, and sometimes intermitted, by flatus. Altogether, about as much as would fill a chamber-pot was evacuated. When the flow ceased, we washed the wound with glycerine of carbolic acid (B. Ph.). We then fastened the edges of the bowel to the integument at the edges of the wound. Whilst doing this, we noticed that the peritoneal surface of the gut was exposed in front. Some serous fluid poured out from the opening in the peritoneum. We brought the edges of the wound together by means of three stitches and a strip or two of plaster; applied a pledget of lint to the wound, and a thicker piece over it; and over all put a bandage. He was removed, while still unconscious, to bed. He was in that state, with a good pulse, at 4.30 P.M., at which time I left him. I ordered him to have a grain of opium every four hours, to keep the bowels quiet.

7.30 P.M. He had severe griping and cutting pain in the hypogastric region. He felt inclined to relieve the bladder, but was unable. The catheter was used, but the bladder was empty. There was considerable oozing of blood from the wound. Some fæces and flatus escaped from the opening in the bowel. The wound was dressed with lint soaked in dilute oil of carbolic acid, in the proportion of 1 to 8. A bandage was placed round the abdomen. He was ordered to take beef-tea frequently. I gave him thirty drops of laudanum, and ordered a grain of opium to be taken every hour.

Feb. 22nd, 10.30 A.M. He became easy soon after my visit last night, and went to sleep. He passed urine once during the night. Pulse 140, weak. He looked pale and haggard. The tongue was dry in the centre. He had no pain on moderate pressure over the abdomen. The wound was dressed with lint dipped in Condry's fluid. His soiled flannel waistcoat and sheet were removed, without giving him pain.

Feb. 23rd. He had a good night. Pulse 140. The wound was dressed, and clean clothes put on him. At 5 P.M., he was ordered to take one grain of opium three times a day, and one when any pain came on. He was also ordered egg and milk, alternated with beef-tea.

Feb. 28th. The stitches were all undone. The bowel had receded to the bottom of the wound. Dr. A. Fletcher saw the case with me, and suggested that we should prevent the escape of fæces, except when the wound was dressed. We placed a plug of lint in the opening in the bowel, and packed the remainder of the wound with lint dipped in carbolised oil (1 in 20).

March 1st. There had been no escape of fæces, and he had had a good night. I dressed the wound, after removing the plug and allowing the fæces to escape. It looked healthier. He was ordered to have a mixture of laudanum and hydrocyanic acid every four hours.

March 4th. The wound had been dressed twice a day; it was granulating nicely. Pulse 118. The tongue, which had hitherto been dry, furred, and cracked, was much improved. There was a copious flow of liquid fæces to-day. I dressed the wound night and morning, cleaning it first by very dilute Condry's fluid, projected from an elastic bag with a nozzle attached. He took three or four pints of milk daily, besides chicken-broth, beef-tea, and eggs occasionally.

March 6th. He passed *per anum* some hard buff fæculent substance, preceded by bloody mucus and softened mucous membrane.

On March 10th, he was passing large stools through the wound twice a day.

On April 4th, he passed *per anum* a stool four inches long and half an inch in diameter, of a light yellow colour—in fact, of the same colour as the fæces passing by the wound. From its appearance, it was evident that the fæcal material had passed in very small pieces through the stricture, and accumulated in the rectum to the size mentioned. It was accompanied by a considerable amount of mucus. The granulations of the wound were on a level with the surface. As the weather was fine, he spent some hours of the mid-day in the neighbouring fields. He passed flatus *per anum* occasionally—about once a week.

April 21st. He passed a stool *per anum*.

May 20th. He passed some blood *per anum*. He had been wearing for some time, in the hole communicating with the bowel, a gutta-percha plug about the thickness of the little finger, with a broad flattish disc about three inches by two at its external extremity. It was mushroom-shaped, and was kept in its place by a bandage. It effectually prevented the escape of fæces for twelve hours. If a longer time elapsed before the wound was dressed, the action of the bowels forced the thin fæces by the sides of the plug to the surface.

June 3rd. He passed small quantities of yellowish mucus, tinged slightly externally with blood, about once in from fourteen to twenty-one days. I examined the rectum with the finger. I could reach no stricture. The hard rounded tumours on the anterior wall had gone. No hardness or thickening of the wall of the rectum could be detected. He had occasional griping pains in the left iliac region.

On July 30th, he passed *per anum* a reddish yellow mass three inches by one inch and one-tenth in dimensions, somewhat resembling a piece of softened muscle. A thin slice under the microscope appeared to consist of blood and mucus, with a few crystals.

Oct. 1st. He had had no evacuation *per anum* since the last report.

REMARKS.—This case has been quite as successful as such cases can generally be expected to be. The man's life is prolonged for an indefinite period. The most potent prejudice, both with patient and surgeon, against this operation, is a fear lest the former should, if the operation succeed, become a nuisance both to himself and to his neighbours. This man does not seem to be an annoyance either to himself or to others. He has very good control over the evacuation of the contents of the intestine; except that, if he do not allow their escape twice in twenty-four hours, he feels uncomfortable; there is a little griping, and some fluid oozes out by the side of the plug. Sometimes, as during a recent attack of diarrhoea, it is necessary to remove the plug oftener. He seems happy, and is gaining flesh. With the experience of this case before me, I would certainly perform colotomy if similar conditions, or any conditions in which this operation was the only means of saving the life of the patient, should present themselves. The operation is no more difficult than that for strangulated hernia; and, if the peritoneum is not injured, it is surely not more dangerous. In this case, although the peritoneal sac was opened, and although, as the escape of serous fluid showed, there was some inflammation of the peritoneum prior to the operation, yet no serious disturbance followed. The irritation caused by the exposure of a mucous surface to the air was well allayed in this case by the administration of hydrocyanic acid.

If I had to perform the operation again, I would, before making any incision, draw a line with pen and ink on the skin parallel with the spine, and halfway between the spine and the left anterior superior iliac spinous process. This would be a guide to the locality of the colon, which I should expect to find behind it and within an inch of it.

VACCINATION.—At the last meeting of the Boston Board of Guardians, a letter from the Poor-law Board was read, complaining that the guardians had not complied with the provisions of the Vaccination Acts. After discussion, it was decided to hold a special meeting in a month, to take the matter into consideration.