mammary cancer cells, all other outlets for them being closed or occupied.

In view, then, of the fact that the lymphatic spread of cancer depends on mechanical pressure exercised on the cancer cells, and that the direction in which they travel is determined by the patency or otherwise of the adjacent lymphatic passages, it is possible to offer an explanation as to what happened in this case of mammary integumentary carcinoma or cancer en cuirasse that I am recording. To begin with, everything points to the mammary tumour having existed for some time before the patient sought medical advice in July, 1910. During that time extension had probably taken place by the ordinary lymphatic channels, and it is not unfair to assume that at the time she was admitted

Under it the cancer cells open up the lymph channels of the skin, just as the blood does the smaller arterioles in establishing the collateral circulation after ligature of a main arterial trunk, and if they happen to rupture the delicate walls of the lymphatics in the process the freed cancer cells spread very rapidly in the loose subcutaneous tissue of the skin, whether there be or be not a deep cutaneous lymphatic plexus. Taking everything into consideration, this case seems to support the older view as expressed by Erichsen and Watson Cheyne, that the condition known as "cancer en cuirasse," while occasionally arising from a fusion of numerous nodules connected with the deep fascial plexus, as might have happened with the case shown in Fig. 7, is generally the result of direct spread

FIG. 7.

A case of disseminated malignant disease showing itself locally in the shape of multiple nodules.

to the infirmary the axillary, subclavian, internal mammary and retro-mammary outlets were blocked by accumulations of cells and perilymphatic fibrosis, and also interrupted by rupture of the lymphatic vessels. After admission to the hospital fresh activity in cell development evidently took place, possibly under the influence of the X rays as sometimes happens, and accommodation had to be found for these new cells. Choosing the path of less resistance they obtained it in the *subpapillary lymphatic plexus of the skin*, which was invaded by them, the tension caused by their presence setting up the red erythematous state of the skin, with its bullæ and subsequent ulceration that were such prominent features in the case when the patient entered the Glasgow Cancer Hospital. That cancer cells were present in the skin at that time the sections shown in Figs. 2 and 3 show conclusively, and as we know from the infirmary report that implication of the skin was only noticed about Sept. 4th, these sections represent a comparatively recent lesion.

Under these circumstances, I think the conclusion is allowable that we may have in cases of mammary carcinoma a cancerous invasion of the lymphatics of the skin exhibiting all the symptoms of Velpeau's "cancer en cuirasse," and that Handley's view that the ligneous hardness of the skin found in that condition is at first non-cancerous and identical with the pachydermia seen in elephantiasis arabum, and only becoming cancerous as a late event, is not tenable. Handley is no doubt right in saying that cancer infiltrates the tissues of the skin slowly and with difficulty in the vicinity of *ulcerated* primary growths, because ulceration relieves the pressure in these cases. When ulceration is not present the state of matters is different, and there comes into play forcible dissemination.

of the cancer cells to the lymph channels of the skin, thus emphasising the fact that in cases of mammary cancer the cutaneous lymphatics have to be reckoned with as a possible area of dissemination of the disease.

Glasgow.

A CASE OF TOXÆMIA OF UNCERTAIN ORIGIN, AND ITS TREATMENT BY SEA-WATER INJECTION.

BY IVAN C. MACLEAN, M.D. LOND., &C.,

AND

L. DE C. HARSTON, F.R.C.S. EDIN., &C.

THE patient, a married woman, aged 60 years, was first seen in May, 1910, suffering from pain in the joints and muscles. She had a foul tongue, and constipation was present. Her temperature was 100° F.

Past history.—During the greater part of her life she had resided in India, but with the exception of a severe attack of dengue, there is nothing of importance to note. On her return to England some 20 years ago she seems to have entirely thrown off the effects of the fever, but suffered much from chronic dyspepsia and constipation and later on hæmorrhoids troubled her much, which were operated upon. She was strictly dieted and otherwise received appropriate treatment.

History of the present attack.—In May, 1910, she sought medical aid for pain in the joints and muscles, foul tongue, and constipation. Her temperature when first seen was

100°. The shoulders, elbows, carpal and upper vertebral and maxillary joints were chiefly affected and later the knees, and for the first four or five weeks the case looked much like one of infective arthritis. Among other things she was treated by electric light baths, but in spite of all treatment her condition rapidly became worse, emaciation increased, and there was low continuous fever; later blood and mucus were passed in the stools. She was highly tympanitic over the abdominal region. A systolic murmur at the apex which developed during the attack suggested the possibility of ulcerative endocarditis. The abdominal distension was often severe and the stools were always liquid: in fact, at this time the abdominal symptoms were far more prominent than the arthritic. Blood cultures were sterile, and the typhoid and tuberculo-opsonic reactions normal. The urine contained no albumin. Exploratory operation was suggested, but in view of the vague symptoms and absence of local physical signs it was not thought to be justified, nor was the patient in a fit state to stand an operation well.

The symptoms at this time pointed to some inflammatory infection and possibly ulceration of the bowel, chiefly in the region of the cæcum and ascending colon. There were some enlargement and tenderness of the liver. Several consultations were held, and Dr. H. P. Hawkins, Dr. H. D. Rolleston, and Mr. Cyril Nitch all saw the patient. Bacillus coli autogenous vaccine was prepared and given in increasing doses every third day, having got up to 5 millions at a dose in three doses, with an increase of 2 to 3 millions each time. The result was disappointing.

Finding that in spite of all treatment the patient was losing ground rapidly, it was suggested through reading the description of "Injection of Sea-water," by Dr. R. Simons, to try the sea-water injection, and with the patient's consent the first injection was given on Sept. 9th, 1910. We began by giving 25 c.c. of sea-water (plasma marina) injected under strict aseptic precaution, in the right scapular region, but finding that it was followed by no discomfort it was subsequently increased from 25 to 50 c.c., and continued twice weekly for 30 injections. The temperature soon began to fall to normal, but at first after each injection it would fall and then rise again to 100° or thereabouts before the next injection was given. This continued for a time until it came down and remained at normal. She began to increase in weight. Sleep became natural, although up to that time it had to be induced by hypodermic injections of morphia. The improvement continued, the stools became formed and regular, appetite gradually improved, and she thoroughly enjoyed her meals, and a more liberal diet was given. The apical murmur disappeared, as did also the anæmic condition. At the end of six weeks she was for the first time able to leave her bed and sit up daily in a chair. Each week she gained on an average a little over $\frac{1}{2}$ lb. in weight. Her weight before the injection was given was 5 st. 4 lb. (74 lb.). At the end of the 30 injections it was 6 st. 8 lb. (92 lb.). After each injection she described herself as feeling much stronger, and they seemed to act as a powerful tonic to her general system. Finally, six months after the beginning of the sea-water treatment, she was able to take out-door exercise and live her ordinary life.

This is a case in which drugs and vaccine-therapy seem to have utterly failed. How sea-water acts is purely a matter of conjecture and is an interesting question, but Dr. Rolleston suggests that it would tend to increase the amount of sodium chloride and so keep a certain amount of fluid in the tissues, and therefore would counteract any factor, such as diarrhoea, which produces drying up of the tissues and inelasticity of the skin. It is the converse of the salt-free diet employed for oedema, especially of renal disease. Thus, some conditions—e.g., renal disease—are benefited by privation of sodium chloride, whilst others—marasmus—are benefited by an increased administration of sodium chloride.

In the above case it has acted beyond all hope or expectation, and may almost certainly be said to have saved the patient's life. In certain cases it is undoubtedly worthy of a more extended trial.

Sir Frederick Eve, F.R.C.S. Eng., and Dr. Galloway, F.R.C.P. Lond., have joined the medical board of the Royal Sea Bathing Hospital.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON A CASE OF ANGINA SINE DOLORE AND GASTRIC DEFLATION.

BY H. WALTER VERDON, F.R.C.S. ENG.

THE presence of "risus sardonius" removes the case from the ordinary category of fainting attacks, and justifies the title of "angina sine dolore." For the reason that but few of these cases find their way into medical literature, the publication of this one will, I believe, prove of interest to readers of THE LANCET.

On the morning of Saturday, May 20th last, a man, aged 63 years, after taking a bath, was seized with a fainting attack and called his wife to his assistance. With her help he put on some light clothing and a dressing gown and went downstairs. While seated at table in the breakfast room, he complained of feeling very ill, the fainting attack recurred and he fell into a state of semi-consciousness. When I entered the room a short time afterwards he seemed to be dying. The posture of the body indicated collapse. He had sunk into a heap in his chair. His head was resting on one of the arms, and his chin was depressed on his chest. His arms hung listlessly by his sides. His face, neck, and hands were cold, grey, bloodless, and wet with perspiration. No pulse was felt in the radial artery, and respiration had apparently ceased. But for the fact that the muscles of the face were contracted and the jaws clenched I would have come to the conclusion, as his wife had already done, that he was dead.

The sardonic grin distorting the man's features reminded me of a similar expression of countenance often witnessed in persons during the course of an anginal seizure, and in certain cases of this disorder having noticed instant relief follow from deflation of the stomach I proceeded to pass an œsophageal tube. A gap in the wall of teeth at the molar region of the jaws furnished a ready means of access to the throat and allowed me the opportunity of performing the operation without any delay. Upon the distal end of the tube engaging the lower end of the œsophagus, or entering the stomach, I do not know which, it liberated gas in considerable volume, and immediately afterwards the patient was observed to take a deep inspiration. The tube was permitted to remain *in situ* until pulse, respiration and consciousness were fully restored, and then irrigation of the stomach with hot water was practised.

The patient had recently shown signs of heart failure when ascending flights of stairs, when walking on hilly roads, and when engaged in other kinds of strenuous exercise. The pulse had been noticed to show signs of myocardial weakness and intermission even at times of repose. After the seizure the pulse grew firmer than it had been for several weeks past and its rhythm was more even and without intermissions. The patient walked upstairs without the signs of distress to which he is accustomed, and on the following Monday went to town, spent many hours in his office, and attended to his business affairs after his usual custom.

The seizure in this case illustrates the operation of a gastric reflex simulating heart failure and belongs to a category described by me in a paper which appeared in THE LANCET of June 18th, 1910, entitled "A Comparison made between the Simple Gastro-circulatory Seizure and the Angina Pectoris Attack." The pathological conditions underlying this form of seizure and also that of angina pectoris probably consist of increased irritability of the glosso-vagus-accessory group of medullary ganglia, following in the train of a long course of gastric disturbances, hypertension of gastro-mural muscle, and an augmented gastric atmosphere. The immediate cause of the seizure is inhibition of the heart through abnormal vagus stimulation.

The symptom referred to above—namely, the risus sardonius—besides being occasionally seen during the angina pectoris attack, is of exceedingly frequent occurrence in young infants. It is characteristic of flatulent distension of