and feet. This was at first considered to be due to muscle spasm; but it was found, when plasters were first applied, that even under anaesthesia there was still definite limitation, although greater range of movements could be obtained. When changing plaster, and after the termination of treatment, flexibility of joints was quite obvious, particularly in hands and fingers, even after long periods of immobilization. Thus in no case did the immobilization result in increased stiffness; in fact, all movements were much better after the period of rest. This was so obvious that some patients remarked that the limb which had been in plaster felt more useful than the corresponding one which had not been so treated.

No contractures developed in patients who received plaster treatment within the first three weeks. In later cases contractures had already started to develop, particularly in areas where there had been full skin loss. In these plaster provided an excellent method of control.

Healing

As previously mentioned, only grossly septic burns were put in plaster, less severe lesions being treated chiefly with vaselined-gauze dressings. When both types existed in the same case it was repeatedly observed that the severe lesions healed as quickly as the much less severe ones not treated in plaster.

The rate of healing varied with the severity and extent of the burnt area, the degree of sepsis, and the interval between injury and the beginning of plaster treatment. Eight burns of the hands and fingers extending on to the wrists and forearms healed in ten days, except for an area of granulation tissue on the palmar surface of a wrist in one case. This healed in a further eight days in plaster that immobilized the wrist-joint only. Two other hands and fingers with burns and sepsis of greater severity healed in eighteen days. In these, at the time of plaster change, areas of granulation tissue were present on the dorsum of the hands and palmar surfaces of the wrists, involving one-quarter to one-third of those surfaces. Burns of the wrists healed in ten days. All feet and ankles healed in twenty-three days, and showed large areas of granulation tissue when the plaster was changed. In all cases in which granulation tissue was present the ingrowing epithelium did not reveal any signs of limitation, as is seen definitely during other methods of treatment. In most it appeared to be invading the granulation tissue in an irregular protrusive manner, and later these same areas showed epithelization that was complete except for occasional very small granulations which healed in two to three days after application of silver nitrate. This new epithelium was well formed, smooth, and pliable, and there was very little evidence of scarring even over areas which had been granulating. Hypersensitivity of this epithelium was less than in cases not treated in plaster.

In one case of burns involving the whole of both upper extremities plaster treatment was begun three weeks after injury. The right limb showed numerous areas of granulation tissue varying in size from one to three inches in diameter at the first plaster change, and was practically healed in twenty days. The left limb showed clean granulation tissue involving the whole forearm and lower part of the arm at the first change of plaster. At the end of twenty days only three-quarters of the forearm was involved, and it was considered advisable, because of the lateness of starting treatment, to "seed"-graft this area and reapply plaster in an effort to speed up epithelization.

Return of Function

This also varied with the severity and extent of the burnt area and the degree of sepsis, but especially with the

interval between injury and application of the closed-plaster treatment. In cases which were received within one week of initial treatment function that was nearly normal was obtained in seven days and full function shortly after. In cases received later than this return to full function was slower.

Summary

A description is given of a series of 16 cases of infected burns of the extremities in which closed-plaster treatment was used.

The difficulty in assessing the degree of burn in infected cases is commented on.

Details of technique are described.

Certain definite advantages of the method are claimed—namely, freedom from pain, rapid improvement in general condition as evidenced by fall in pulse and temperature, ease of nursing (important where large numbers have to be dealt with), maintenance of joint flexibility, and prevention and correction of contractures.

The results in this series are such as strongly to suggest that epithelization and return of function are quicker than in cases treated by other methods.

My thanks are due to Lieut.-Colonel G. M. Millar for his co-operation and for permission to publish these cases.

Medical Memoranda

Crohn's Disease with Acute Obstruction

The following case is placed on record because of its uncommon nature.

CASE REPORT

The patient, a soldier aged 27, gave a history of vague attacks of umbilical pain of increasing frequency and severity over a period of three years. These attacks occurred every few months and lasted from one to two days. He never vomited and he had no other symptoms. Two years previously he had sought medical advice, but radiological examination of the gastrointestinal tract was negative. No cause for his symptoms was found at that time, and when he entered the Army a year later he appeared to be quite fit.

While in barracks in February, 1941, he developed pain similar to his previous attacks and was admitted to our care, with the diagnosis of recurrent appendicitis. When seen by us he had had severe umbilical colic intermittently for six hours, and had vomited once. His temperature was 99°, pulse 110, and respirations 24. On examination the tongue was coated and the breath offensive. There was no abdominal pain or rigidity between spasms, but he complained of soreness on pressure of any part of his abdominal wall during a pain. This was no worse at any one point than another. On rectal examination nothing was found. A blood count showed 15,650 leucocytes per c.mm., with a predominance of polymorphonuclear cells.

Acute appendicitis seemed to be the most likely diagnosis, but as this was by no means certain the abdomen was opened through a right lower paramedian incision. The peritoneal cavity contained a considerable amount of cloudy fluid. About six inches of the lower ileum was acutely inflamed and thickened; the bowel above this portion was dilated and that below collapsed. One foot of bowel was resected, a side-to-side anastomosis made, and the abdomen closed. The patient made an uneventful recovery.

Examination of the specimen showed an inflamed piece of small intestine, with partial obstruction due to thickening of the wall and reduction of the lumen for approximately two inches. Above this the muscle wall was hypertrophied. The obstruction was completed by a pea in a small pouch immediately above the narrow portion, otherwise the lumen was patent. The mucous membrane was covered by rather ragged ulcers, and the muscular wall was thickened, hard, and rather translucent. Microscopically there was an extensive old fibrosing granulomatous lesion. A few recent typical tubercle follicles were seen in the lymphatics deep to the muscular wall, but no tubercle bacilli were detected.

in the sections. The mucous membrane was partly necrotic. Many large foci of lymphocytes were seen in all the layers, and there was an extensive eosinophilic infiltration. Except for the eosinophilia the appearances were characteristic of tubercle; but this type of lesion is usually regarded as non-tuberculous, and was described by Crohn as regional ileitis. Our patient showed no sign of tuberculosis elsewhere.

COMMENTARY

Crohn's disease is not common, and for it to appear as an acute obstruction is still less so. Usually the patient is operated upon through a small incision for chronic appendicitis, and the appendix is removed without the real nature of the disease being realized. The condition then goes on to fistula formation or the patient has repeated attacks of subacute obstruction. This might well have happened in our case had not the pea caused an acute obstruction at a relatively early date.

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Leeds.

DEREK T. THOMAS, M.R.C.S., L.R.C.P.

Depressed Fracture of the Sternum

John B. Hartzell (1935) stated that fracture of the sternum is an exceedingly rare condition, and that it is often complicated by fractures of the ribs or spine. Holderman (1928) found sixty-two cases among 46,237 fractures of all types—an incidence of 0.075%. The following case of depressed fracture of the sternum due to indirect injury may therefore prove interesting.

CASE REPORT

The patient, a woman aged 67, was admitted on May 5, 1941, after having fallen downstairs. She was suffering from shock, and had considerable difficulty with respiration. She complained of pain over the upper dorsal region and severe pain and tenderness over the upper end of the sternum, where there was a depression about an inch deep in place of the normal angle of Ludwig. There were no bruises or abrasions of the skin over either the sternum or the dorsal spine. Clinical examination revealed no involvement of the spinal cord. The patient had apparently fallen with her head flexed forwards, as in gambolling, the fracture being due to hyperflexion. A radiograph revealed a fracture of the sternum at the junction of the manubrium and the body (the upper fragment being displaced behind the lower) and a compression fracture of the fifth dorsal vertebra.

On May 7 a plaster jacket was applied in hyperextension; this extended to the mandible anteriorly and to the lower lumbar region posteriorly. Difficulty was experienced in obtaining enough hyperextension owing to pre-existing kyphosis, but the patient was much more comfortable after the application. A later radiograph showed a very satisfactory position: the depression was corrected, and the manubrium and body of the sternum were in line.

I wish to express my thanks to Mr. L. A. Dingley, senior honorary surgeon to the hospital, for his kind assistance and permission to publish this case, and also to Sister Burrows of the x-ray department.

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BIBLIOGRAPHY

- Alexander, J. (1931). *Ann. Surg.*, **93**, 489.
Brown, R. (1931). *Surg. Clin. N. Amer.*, **11**, 933.
Ellis, J. D. (1935). *Ibid.*, **15**, 605.
Giorgacopulo, D. (1932). *Arch. Ital. Chir.*, **32**, 181.
Hartzell, J. B. (1935). *Ann. Surg.*, **102**, 158.
Holderman, H. H. (1928). *Ibid.*, **88**, 252.
Pazzi, E. (1926). *Arch. di Radiol.*, **2**, 569.
Rothbart, L. (1929). *Fortschr. Röntgenstr.*, **40**, 89.
Stahl, E. T. (1933). *Yearbook of General Surgery*, p. 265.
Stuck, W. G. (1933). *Amer. J. Surg.*, N.S., **22**, 266.
— (1937). *Ibid.*, **38**, 560.

At the suggestion of Dr. G. Jedlewski, medical adviser to the Polish President (M. Raczkiewicz), a special medical board has been formed in London to prepare plans for fighting epidemics which may break out in Poland at the end of the war, and thus to prevent the spread of infectious disease to Western Europe and Great Britain. The board, acting in conjunction with the Ministry of Health, will also collect medical supplies so that immediate help may be ready at the end of the war.

Reviews

CARDIAC CLASSICS

Cardiac Classics. A Collection of Classic Works on the Heart and Circulation. With Comprehensive Biographic Accounts of the Authors. By Frederick A. Willius, M.D., M.S., and Thomas E. Keys, M.A. (Pp. 858; illustrated. 50s. net.) London: Henry Kimpton. 1941.

To have compiled a work of this character must have involved great labour and research. The authors are therefore to be warmly congratulated on having accomplished so much. In a concise form they have put together important extracts from all the writings of physicians or surgeons who have contributed to our knowledge of the structure of the heart or the diseases affecting it. Such extracts may surely be happily termed "cardiac classics." Omitting all tentative references to the heart in times before Harvey, they begin with the story of the circulation of the blood by giving a full translation of *De Motu Cordis* and end with James Herrick's description of coronary thrombosis. There is a picture of each writer who has extended our knowledge of the structure of the heart or its diseases, together with a short account of his early education and life's work, which is often of particular interest. Then there are a number of excerpts from his writings, sometimes of special value, as in the case of Heberden, where a full account of angina pectoris is given; also of Austin Flint, who wrote widely on all phases of medicine, though his name is most thought of in association with the presystolic murmur sometimes accompanying aortic regurgitation.

It is curious to note how in the case of so many of these physicians, apart from their writings in connexion with the heart, they have contributed much of importance to other departments of medicine. Thus Corrigan (1802-80), in addition to his masterly account of aortic regurgitation, also wrote on fibroid disease of the lung, which was for long known as "Corrigan's cirrhosis." Again, William Gowers, so distinguished as a neurologist, is here included because of his description of the retinal vessels in cases of hypertension. It might have been well to have given more than a passing notice to Vieussens of Montpellier (1641-1710) and to Albertini of Bologna (1672-1733).

In a useful appendix these cardiac classics are correlated with other historical events. Thus Auenbrugger's introduction of percussion was contemporary with the Seven Years' War, and Laennec produced the stethoscope and auscultation two years before the death of Napoleon. In this way the authors draw medicine into connexion with general history, and prevent it from becoming too much isolated from the main current of the life of the world.

R. O. MOON.

EPILEPSY AND MIGRAINE

Science and Seizures: New Light on Epilepsy and Migraine. By William Gordon Lennox, M.D., Sc.D. Hon. (Pp. 258; illustrated. \$2.00.) New York: Harper and Brothers. 1941.

Dr. Lennox, who for more than twenty years has taken the lead in the investigation of epilepsy in the United States, has written this book in order to make available to all who are interested in epilepsy, which includes patients and their relatives and social workers as well as doctors, the new ideas on the nature of this disorder which recent investigations have brought to light. It is thus a popular book of a kind with which we in this country are not familiar, but throughout it is entirely scientific. Four-fifths of it is