(1) *Pancreatic Function*: Loewi's adrenaline mydriasis test, negative; diastase in blood plasma, 6.7 units (normal); diastase in urine, 20 units (normal); creatorrhoea, nil; steatorrhoea, nil; bulk and general appearance of faeces, normal.

(2) *Kidney Function*: Albuminuria, nil; deposit, nil; oedema, nil; urea concentration test (Macleod and de Wesselow)—at end of first hour, 1.87 per cent. (vol. 240 c.cm.); at end of second hour, 2.34 per cent. (vol. 120 c.cm.), that is to say, a normal result. Diastase in blood and urine (see above), normal.

(3) *Blood*: Sugar curve July 5th, 1921, after 50 grams glucose

on an empty stomach in the morning, result normal, though it was unfortunate that no estimate was made thirty minutes after the dose of sugar. Glycosuria, nil throughout test.

Remarks.

The diagnosis of "glycosuria of malarial origin" is preferred to that of "very mild diabetes mellitus in a malarial subject," owing to the negative findings in a fairly exhaustive clinical and chemical study. The family history of diabetes would naturally suggest caution. The case should be a very instructive one with which to keep in touch for several years. It is unfortunate that, while under my observation, the nature of the reducing substance in the urine could not have been more conclusively established, but the history makes it extremely unlikely that it was anything but glucose.

It is interesting to speculate as to the site of action of the malarial toxins. Possibly the glycosuria may have been due to diminished glycogenic function of the liver and other tissues. Presumably the urobilinuria resulted from destruction of red blood corpuscles by the malarial parasites, but, in part at any rate, may have been due to the effect of their toxins upon the liver. The islands of Langerhans may have suffered from the toxic action, so that the supply of internal secretion was insufficient to prevent glycosuria on a full diet. Against this is the fact that all the pancreatic function tests performed were negative; it would probably be objected, however, that such tests are too crude. Owing to toxic action on the kidneys their "leak point" temporarily may have been lowered. The type of blood-sugar curve may be said to give some slight support to this hypothesis, for it is not altogether unreasonable to imagine that four days after evident glycosuria the curve should have revealed some degree of hyperglycaemia unless the glycosuria was of the renal type.

Lastly, we may picture a toxic influence on several of the ductless glands, so that the balance between their secretions was upset in such a direction as to cause glycosuria. Of course, there is always the possibility of two or more of the above causes being simultaneously at work. Such theorizing may seem a waste of time and space, but obviously suggests several possible lines of research in malarial patients that might be of interest if not of real value; for instance, (1) examination for glycosuria before treatment, and (2) blood-sugar curves to decide, among other things, if the glycosuria is renal in origin.

Turning now to the malaria itself in this particular case, the differential blood count is noted as unusual (250 cells were counted). Though probably of common knowledge to pathologists with experience in malaria, it was of interest to me to find a number of benign tertian parasites in the peripheral blood (on June 28th and 29th) without any further attack of ague. As in the two cases previously published, so in this instance the glycosuria cleared up with quinine in the absence of dietetic treatment; in fact, sugar was deliberately included in the diet throughout the stay in hospital.

OVER FIVE HUNDRED GALLONS OF FLUID FROM AN OVARIAN TUMOUR.*

BY

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AND

G. A. GIBB, M.D.

The cyst from which this fluid came was noticed in 1893, when a surgeon was consulted and advised against operative treatment. The abdomen was tapped in the autumn of that year. There is no record of the tappings until 1904, but as a conservative estimate there were twenty-five before that date. G. A. Gibb has kept a record since then. The tappings increased gradually from four in 1904 to from thirty-four to thirty-six in each of the last four and a half years. The amount removed was always as nearly as possible 11 pints, and, counting twenty-five for the first ten years, there were 368 tappings in all. Taking 11 pints on each occasion, the total is 4,048 pints, or 506 gallons, which would weigh considerably over two tons.

In 1899, after about six years' tappings, the late John Langton tried, and failed, to remove the tumour. On July 20th, 1906, John D. Malcolm tried again, with the same result.

Almost to the last the condition of the patient was fairly good. She got up and about and ate enormous quantities of food, except just before the tappings, when she suffered from nausea and vomiting. The legs were oedematous as early as 1906.

The tappings in recent years were always performed with a trocar and cannula having a diameter of one-eighth of an inch. The evacuation was usually completed in about fifteen minutes. There was never any adverse symptom. Occasionally the puncture leaked, and then the need for the next tapping was delayed. Hard masses remained after each tapping, and these were never the same shape.

On June 30th, 1921, when a tapping was about due, the patient was seized with abdominal pain and vomiting, and she was tapped without relief. One-third of a grain of morphine hypodermically removed the pain, but vomiting continued, and the patient died early on July 6th at the age of 67.

At the autopsy 4½ pints were removed, leaving a secondary cyst five inches in diameter lying on the left pelvic brim. It was obvious that this secondary cyst would soon have burst into the main cavity, and that a development and rupture of secondary cysts caused the constant change of shape observed after the tappings. There was also much papillary growth from the cyst wall. A piece of this was described by Dr. C. Fletcher as having

"the histological structure of a serous papillary cyst of the ovary. The epithelium covering the papillary processes is of a low columnar (cuboidal) type, and there is in places a deposition of salts from the secretion. The stroma is of very dense fibrous tissue with areas of commencing infiltration with lime salts. The tumour is innocent."

As in 1906, the cyst was everywhere firmly adherent, and its wall was so friable that many hours of careful dissection would have been necessary to remove it. The intestines occupied a very small space at the back of the abdomen. They were not distended. No peritoneal cavity was found. The liver when exposed was smooth and not enlarged. The other organs were not examined.

One of us (G. A. Gibb) has found the following record on a tombstone in Bunhill cemetery, City Road, E.C.:

"Here lies Dame Mary Page, relict of Sir George Page, Bart. She departed this life March 11th 1728 in the 56th year of her age. In 67 months she was tapped 66 times: Had taken away 240 gallons of water without ever repining at her case or ever fearing the operation."

Possibly this lady had an ovarian tumour.

Sir John Bland-Sutton has drawn our attention to a case recorded by Dr. Pye-Smith.¹

Dr. Pye-Smith's case was that of a woman suffering from papilloma of both ovaries with secondary deposits on the peritoneum; she was tapped 299 times in Guy's Hospital between 1884 and 1893, when she died at the age of 44. The

* This case was referred to in the President's valedictory address to the Obstetric and Gynaecological Section of the Royal Society of Medicine in 1920. Proceedings of Section, vol. xiii, p. 212. The record is now complete.

fluid in this case was secreted into the peritoneal cavity. The amount removed is not given, but as much as 16 and 18 pints were withdrawn at a time, so that the total quantity might possibly be greater than in the case now recorded. This patient also "ate, slept, and looked well" after manyappings. Dr. Pye-Smith stated that he should have recommended early operative interference more urgently than he did, because removal of a primary papilloma is sometimes followed by shrivelling of the secondary growth and a complete cure.

The case now related shows that sometimes an ovarian tumour causes death simply from exhaustion and pressure. The enormous appetite of the patient was an index of the nourishment required by the growth, and it was only by constantly removing the pressure that the patient could be kept alive. There can be no reasonable doubt that she could have been easily and completely cured if an operation had been performed as soon as the cyst was discovered. It is clear that as late as 1893 some surgeons did not recognize the importance of early interference in these cases.

REFERENCE.

Transactions of the Pathological Society, vol. xlv, p. 111.

A METHOD OF SKIN-GRAFTING.

BY

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LATE CAPTAIN R.A.M.C.

THE operation of skin-grafting, usually regarded as a trivial and simple procedure, is not always attended with the success that one would expect. During the war, when skin-grafting was so frequently employed, faulty technique, especially the omission of details of procedure, often led to a failure of the operation. The following method which I adopted gave invariably good results.

The accompanying diagram is almost self-explanatory and calls for very little description. The grafts and area

FIG. 1.—a, Thiersch's grafts; b, small Wolfe grafts; c, silk threads; d, protective; e, deep dressing—thick layer of sterile gauze; f, over-all layer of aseptic dressing; t, rubber tubing.

to be covered are prepared in the ordinary way, and the grafts are applied to the skin-free area in the usual manner. Silk threads are then carried from one side of the surrounding healthy skin over and through the graft and into the underlying granulation tissue, as the diagram explains, and then through to the healthy skin on the opposite side. The grafted area is then covered with perforated sterilized protective (preferably the transparent variety which is used in America for watching the progress of wounds—the perforations being easily made with the punch used for making holes in Carrel-Dakin tubes), which is then anchored in position as per diagram. On top of the protective is then placed the thick layer of sterile gauze damp with the physiological saline or artificial serum, and then a final over-all dressing consisting usually of a thin layer of dry sterile gauze. The silk threads are then utilized, as the diagram shows, for anchoring all the dressings, the silk being finally threaded through thin rubber tubing and then knotted on the tubing to prevent cutting through. The knots are tied so that they can be easily undone, and the ends of the silk threads are left long. The whole of the operation area is then covered with a layer of wool and the usual bandaging is applied.

By this method the grafts can be easily and frequently fed, after removing the bandage and wool, by squeezing the artificial serum or saline from a swab on to the silk threads between the dressings and the skin, or additionally, by undoing the knotted threads and taking out and replacing the damp thick layer of gauze. The silk threads not only carry the feed, but act as in the operation for lymphangioplasty and drain away the discharge which forms round the granulations. The amount of the discharge also is lessened by the frequency and simplicity with which the feed can be given. The great advantage of this method is that it is not necessary to disturb the grafts and there is little risk of doing so as with the old methods when the dressing is changed on the third or fourth day. A change of new sterile protective is also unnecessary. Curling and retraction of grafts does not so readily occur and healing is accomplished more certainly and more quickly. The anchoring of the grafts and the dressings is also beneficial in providing the means for applying firm gauze pressure, which is so essential for ensuring success, and for keeping grafts and dressings in position in cavities and hollow surfaces and over convex areas such as the shoulder, breast, and ischium. Grafting over the latter area, previous to the adoption of this new method, was rarely successful because of the difficulty of keeping the grafts in position, and of keeping clean the parts, which often become soiled by the dressing shifting to the anal area. The use of splints, strapping, and the application of collodion is thus also done away with. When the transparent variety of protective is used the state and progress of the grafts can be watched each time a new feed is given when the thick layer of damp gauze is replaced by a fresh one.

The only disadvantage of this method is the little extra time involved in performing the operation. This naturally becomes less and less with practice, and is readily compensated for by the greater percentage of successful cases.

The method adopted can thus be briefly stated as consisting of the principle of the application of the method of lymphangioplasty combined with that of anchored dressings.

EIGHTY-NINTH ANNUAL MEETING
OF THE

British Medical Association.

Held at Newcastle-on-Tyne, July, 1921.

SECTION OF SURGERY.

Professor J. RUTHERFORD MORISON, D.C.L., LL.D.,
F.R.C.S., President.

DISCUSSION ON COMPOUND FRACTURES
OF THE THIGH AND LEG.

OPENING PAPER

BY

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SUCCESSFUL treatment of compound fractures demands a thorough knowledge of the treatment of fractures by external splintage. Before the war the results of the operative and non-operative treatment of simple fractures was a subject of investigation by a special committee of this Association. In nearly every age-group operative cases showed a higher percentage of good results than non-operative cases. The suggestion to an unbiased observer was that operative technique would in time almost entirely supplant treatment by splintage.

I think you will agree that as a result of the war the outlook is changed. In the early days the compound fractures presented a problem which could not be solved by operation. The splints of the textbooks got a fair trial and were found wanting. The minds of the greatest surgeons of all countries were endeavouring to devise means for the fixation of the compound fracture of the lower extremity, and only after two years did it become