together with mattress sutures, the wound being partially closed with tubal drainage.

The patient made an uninterrupted recovery, and was discharged from hospital five weeks later, quite well, and with his wound healed.

Comment.

This was an undoubted case of a recurrent attack of acute appendicitis, and merely gives additional evidence to prove the inadvisability of not operating on these cases.

It is interesting to note that in this particular case the patient himself alone was to blame.

SYNDACTYLISM IN FOUR GENERATIONS.

BY

DAVID PERKOFF, M.R.C.S., L.R.C.P.

RECENTLY I have treated the rare condition of syndactylism in three generations of one family, and a member of the fourth generation, now deceased, was definitely known to have this deformity. These cases are submitted as an interesting problem on the subject of heredity.

Syndactylism, as the name implies, is a condition in which there are webbed fingers, with a more or less close union of contiguous digits. Three main varieties may be distinguished: (1) union by skin only; (2) union by skin and fibrous tissue; (3) a condition when the bones are more or less fused together.¹

FIG. 1

Photographs of the hands of the grandmother mentioned in the text. Fig. 1 shows the backs of the hands, and Figs. 2 and 3 the palms; the rudimentary separation of the thumb of the right hand is seen in Fig. 2.

FIG. 2.

FIG. 3.

Another variety, the "lattice type," exists in which the bases of the fingers are separated, but distally they are united. Such cases afford a strong reason for assuming a mechanical origin. It is possible that the fingers have developed, and then later, for some reason, they have been subjected to pressure and adhesion has taken place. This assumption is strengthened when it is noticed that sometimes at the point of union the last phalanx of one finger overlies the other. It is usually the inner side of the hand which is affected, and the fusion of the thumb and index finger is a rarity. Messrs. Roucayrol and Klausner have, however, reported cases of this rare type.

CAUSATION.

The leading theories of causation, according to Roucayrol and other authorities, are:

1. Lesions of the foetal nervous system (Guérin).
2. External pressure and traumatism during pregnancy (Cruveilhier).
3. Embryonic amniotic adhesion (Lommelougue).
4. Amniotic loops or bridles (Doreste).
5. Reversion to early conditions (Darwin).
6. Osler thinks it occurs more frequently in children of syphilitic appearance.

7. Edwards states that it is a stigma of degeneration occurring in persons of weakened intellect.

8. Goldman asserts that syndactylism may be regarded as an arrest of development, since during foetal life the fingers are bound together for a time by webs of varying extent, the thumb almost always remains free, and in most instances two fingers only, usually the third and fourth, are bound together.

Like many foot and hand conditions, syndactyly is markedly hereditary.² Luaces³ mentions a syndactylic

An unusual feature was that the recurrent attack occurred inside the sac of a post-operative ventral hernia, and this complication helped to cause some difficulty in pre-operative diagnosis.

The absence of tenderness over the hernial sac and of rise of temperature pointed to the condition being one of incarcerated hernia rather than to its being an acute gangrenous perforated appendix, with the presence of pus.

I am indebted to Mr. Lionel Stretton for permission to publish these cases.

family of thirty-nine members, fourteen of whom had the deformity. Sverdrup⁴ describes it in six generations of a Norwegian family. Epstein reports it occurring in five generations, transmission occurring in male and female.

A valuable monograph² by Messrs. Lewis and Embleton gives a very exhaustive investigation of the members of one family in which there is a record of forty-four members having deformities of the hand and foot. Douglas P. Murphy⁵ has made a study of the deformity in five successive generations.

In the Johns Hopkins Hospital Bulletin⁶ of 1927 a case was reported of combined acrocephaly and syndactyly occurring in mother and daughter. The two cases reported support the view expressed by Park and Powers that the combined malformations are evidences of germ-plasm defects rather than the results of externally operating causes.

CASES DESCRIBED.

I have been able to obtain full details from the living members of this family which I am about to describe. Unfortunately I have not been able to trace the great-grandmother, but she was definitely known to have deformed hands.

The grandmother, aged 65, has syndactyly of both hands and has never undergone operation for the deformity. From the accompanying photograph (Fig. 1) it will be seen that there is complete syndactyly of the left hand, with that rare occurrence the fusion of the thumb and index finger. The dorsal surface of the hand is very misshapen on the ulnar side, with marked bosses over the interphalangeal joints. The nails are very large and there is a slight division in them, showing attempts at separate nail formation. The right hand has complete syndactyly, but the thumb is separated in a rudimentary form (Fig. 2). There are less fingernails on the right hand, and they are marked by grooves, showing attempts at separation. In spite of these deformities she is quite dexterous, and can manage all simple household work.

The mother, Mrs. X, aged 33, has syndactyly of both hands. She came under the care of Mr. Openshaw at the London Hospital in 1897, when she was 3 years old, and was successfully operated upon. She has one sister who is similarly affected, and three other sisters who are quite normal in this respect; there was also a stillborn brother who was said to have had the prevalent defect. Originally in both hands the fingers were enclosed in a web of skin.

Both Mrs. X and her sister had six sets of digital bones on the right, but the mother and one of the other child's sixth set were more complete than Mrs. X's, whose sixth finger consisted of a small rudimentary process of the other side of the hand. The digital bones otherwise appeared quite complete, and the movement suggested that the muscles were normally attached. At the distal part of the web of skin was a ridge of nail-like substance representing the normal nails. The thumb was partially separate on each hand.

In a period of three years fifteen operations were performed, and as a result she now has five very useful and completely functioning digits on each hand. She is able to wear a wedding

ring, can do anything with the fingers, and is able to write well. She has a slight nasal deformity—a flattening of the terminal cartilage. Her mother has the same defect in a slight degree. The feet of both are quite normal.

The child, aged 6, was treated at the London Hospital by Mr. Souttar when she was 15 months old. She had complete syndactyly of both hands. The x-ray report showed that the right hand had six metacarpal bones, and the left hand had five metacarpals. She exhibited polydactylism in both feet, and had a supernumerary digit on the tibial side of the big toe on each foot.

She was operated on in 1922 and the hands were divided down the centre along an incomplete division which was present. There were three fingers on each side of the division. The completed hand was of the "lobster claw" variety.

In a further operation the supernumerary digits of the feet were removed. She has had no further operations, but her hands in their present form are quite useful. She exhibits the nasal deformity of the mother.

It will be noticed in these interesting series that the stigma has continually appeared in females, although it is known that one stillborn male had the defect.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ANTISTREPTOCOCCAL SERUM FOR INSECT BITES.

THE British Isles are remarkably free from dangerous biting insects, but at this time of the year, as noted in the lay press, they take their small toll of life. The insignificant origin makes this all the more distressing. The course taken by these cases is that, immediately following the bite, there is acute inflammation, due either to poison in the insect's mouth or to its excreta deposited there. This inflammation subsides, but after a day or two lymphangitis or erysipelas develops, and the patient dies of septicaemia. The two following cases are reported to show the remarkable effect of polyvalent antistreptococcal serum; I have not heard previously of the use of this serum in such cases.

Case 1.—A woman, while gathering raspberries, was bitten by a grey fly. She saw me ten minutes later when the finger was twice its normal size, red, and pulsating violently. I advised a tight bandage for an hour, fomentations, and radiant heat. The following morning the finger seemed to be much better, but twelve hours later it became intensely painful, lymphangitis was present and spreading on to the dorsum of the hand, and the patient felt ill. An injection of 25 c.cm. of polyvalent antistreptococcal serum was given into the buttock, with the result that in three hours' time the lymphangitis had almost gone, and the pain was much less. The bite discharged for three days, after which the patient had no further trouble.

Case 2.—A child, aged 5, with a similar history, was given 5 c.cm. of serum; in one hour the lymphangitis, which had extended almost up to the elbow, was arrested, and it had disappeared on the following day.

Being interested in infected insect bites as a cause of non-filarial elephantiasis, I made inquiries as to what insects found in this country were liable to cause infection. It appears that almost all the fatal bites are due to the stable-fly, *Stomoxys*, the mandibles of which are heavily infected with bacteria, especially streptococci, from contact with manure and stable refuse. The house-fly is neither a blood-sucker nor a biter. Occasionally infection may follow mosquito stings, but it is rarely that any bite in this country causes death, except the *Stomoxys*.

Harrow.

A. P. BERTWISTLE, F.R.C.S. (Ed.)

COMPLETE RUPTURE OF JEJUNUM WITHOUT EXTERNAL WOUND.

THE interesting case of complete transverse rupture of the jejunum without external wound reported by Dr. J. R. Armstrong in the *British Medical Journal* of June 23rd (p. 1064) recalls a very similar case which occurred in my hospital practice in Hankow, China, about four years ago, and which was not recorded at the time.

A Chinese postman was carrying mail-bags on board a launch when he fell between the launch and pontoon to which it was moored, and his abdomen was nipped between the two. He was brought straight to hospital, and I saw him soon afterwards. There was no injury to the skin of the abdomen, but he complained of very severe pain in the epigastrium, and the abdominal wall was very rigid. These symptoms, together with the history, made me advise operation at once, and fortunately there was no delay over consulting relatives who might or might not consent.

The jejunum was found completely severed transversely in one place, but no other viscus was injured; the peritoneum contained some blood, but no escaped bowel contents. A little trimming of the bruised ends was all that was needed before doing an end-to-end suture.

The operation gave speedy relief to his pain, there was little or no vomiting, and convalescence was uneventful.

This satisfactory result I attributed to the fact that he was a young and healthy man, that there was little soiling of the peritoneum with bowel contents, and that operation was performed early, within less than three hours of the accident.

Glasgow.

R. AIRD.

A CASE OF HERMAPHRODISM.

RECORDS of individuals of doubtful sex have been unearthed at Ur of the Chaldees, and men of old believed in true hermaphroditism; but no case of the efficient formation and discharge of both sperm and ova by the same individual is known. In fact, only three or four cases of undoubted "true" anatomical hermaphroditism are accepted, and in these both partners were not perfectly developed. True physiological hermaphroditism is probably impossible. It is better, therefore, to use the word "hermaphrodite" as meaning simply an individual whose sex is doubtful. No legal definition of sex exists, and it is often impossible to say to which sex an individual of this kind should be assigned.

Such extraordinary advances have been made already in the present century in our knowledge of the meaning of sex and its determination—and so many experiments are now being made in grafting and transplantation and endocrine medication—that the subject is of greater interest than ever. So seldom, however, have human abnormality come to operation or to *post-mortem* examination that our knowledge is still very scanty and our textbooks imperfect, and it seems desirable to report the following case.

"XY," aged 22, not a twin. Appearance is that of well-developed female in all respects, but has never menstruated, although each month there is malaise and aching in head, back, groins, and breasts. Psychically, seems to be typically feminine. Is "courting." Other members of the family are said to be abnormal. In the left groin is a reducible lump, and pressure on this causes nausea and sometimes vomiting.

Operation for Hernia (November 7th, 1927).—The lump, when exposed, did not look like an ovary, but like a testis, with another solid body attached. Vaginal examination was then made; the vagina was roomy, but no cervix, uterus, or ovary could be felt. Next, the abdomen was opened. No ovary, tube, or uterus could be seen, but just inside the right internal abdominal ring there was a lump looking exactly like that exposed in the left inguinal canal. The abdomen was closed. The left ovi-testis (F) was removed and "radical cure" of hernia completed. Convalescence was normal.

Pathological Reports (Clinical Research Association).

Section A is undoubtedly a testis and shows actual, though irregular, spermatogenesis. The cells of Leydig are also seen.

Section B shows an interlaced fibrous tissue with irregular vessels. We cannot certainly identify the tissue of which it is the stroma.

Section C: There is no recognizable ovarian tissue, and the organ, judging by its stroma, is more probably a testis. But no genital epithelium of either type is seen.

The specimen was sent to the Royal College of Surgeons, and Sir Arthur Keith, with his usual enthusiasm and kindness, had further sections examined without finding any definite ova or Graafian follicles, but "the areas of fibrous stroma seem to me to be comparable to ovarian tissue."

Human hermaphrodites, like "XY," are usually born singly and are, therefore, less analogous to the well-known "free-martin" than to sexually abnormal goats and pigs—where an ovi-testis is not unusual and there is a strong hereditary element. The free-martin is externally female, but no sperms are formed by the testes, and it is always sterile and so there cannot be any heredity. Fusion of the chorions of the twin embryos allows mixing of the bloods, so that the testicular hormone from the male twin, being secreted earlier, reaches the female twin and transforms its