CONGENITAL MALFORMATION OF THE HANDS AND FEET TRANSMITTED THROUGH FOUR GENERATIONS.

By WILLIAM ANDERSON, F.R.C.S.,
Assistant-Surgeon to St. Thomas's Hospital.

THE subjoined cases of congenital malformation bear great resemblance to the series reported by Mr. H. A. Fotherby, in the JOURNAL of May 22nd, and will serve as a further illustration of the possibility of a repetition, generation after generation, of abnormalities of development that were probably, in a certain sense, accidental in their origin.

The history of the defect commences, in 1798, with J. G., an only child, of healthy parentage, who was born at full term, with a peculiar pincer-like conformation of the hands and feet, which is said to correspond exactly in appearance with that figured below, from his grandson, E. G. He was well developed in all other respects, and no previous example of deformity of any kind is known to have existed in the family of his mother or father. The strange aspect of the affected members was attributed by the mother to an alarm in the early period of her pregnancy, caused by the sight of a parcel of living lobsters.

J. G. married early, and had fourteen children. Of these, eleven were malformed in the hands and feet, like their father, one in the feet only, and two were perfect. All except three of the number died before the age of puberty, and no further information can be obtained with regard to them. The survivors were the following.

1. J. H. G., the eldest son; hands and feet deformed as in Figs. 1 and 2. He became the father of twelve children (see below).

Fig. 1.—E. G., Left Hand.

Fig. 2.—E. G., Right Foot.

2. H. B., a daughter; defective in the feet only. She married, and had one child, who reverted to the type of the grandfather, and was deformed in all four members.

3. F. G., son; normally developed. He has had three (?) children, all free from deformity.

J. G. died in 1871, at the age of 73.

The third generation is represented by the twelve children of J. H. G.; the son of H. B.; and the three children of F. G. No further details have been obtained as to the two latter families; but the information as to the issue of J. H. G. is fairly complete, and the more essential facts have been tabulated in the following list.

1. Son (J. F. W. G.); normally developed. Has two children, both free from defect.

2. Son; deformed in hands and feet; died in childhood.

3. Daughter; deformed in hands and feet; died in childhood.

4. Son; deformed in hands and feet; died in childhood.

5. Daughter; deformed in hands and feet; died in childhood.

6. Son; normally developed; no issue.

7. Daughter (M. H.); deformed; feet pincer-shaped, like those of

E. G., fifth digit with its metatarsal bone hypertrophied (Fig. 4)

Fig. 3.—M. H., Left Hand.

Fig. 4.—M. H., Right Foot.

Hands present each but one finger, the fourth, which is distorted, and buried as far as the second joint in the metacarpal integument (Fig. 3). She is married, and has three children (see on).

8. Son; normally developed; died in childhood.

9. Daughter; deformed in hands and feet; died in childhood.

10. Son; normally developed; died in childhood.

11. Son (E. G.); deformed; hands and feet pincer-like (Figs. 1 and 2). Married, and has one child (see below).

12. Son (I. G.); deformed; feet pincer-shaped, like those of E. G.; deformity of hands of a more advanced type than in any previous case—thumb, index-finger, and middle finger wanting; metacarpal bone of thumb and distal portion of second metacarpal bone undeveloped, ring and little fingers united by a web of integument.

The fourth generation includes the families of J. F. W. G. (1), M. H. (7), and E. G. (11).

(A) J. F. W. G. (normally developed) has had two children, both perfect.

(B) M. H. (deformed) has had three children.

1. Son; deformed; mutilation more extensive than in foregoing examples; feet represented each by the tarsus and little toe (Fig. 6);

Fig. 5.—I. G., Right Hand

Fig. 6.—W. H., Right Foot.

Fig. 7.—H. W. G., Left Hand.

the right hand presents only a single digit, the fifth; in the left hand, the fourth digit also is preserved, but is united with the fifth by a web of integument.

2. Daughter ; normally developed ; died in infancy.

3. Daughter ; deformed ; feet pincer-shaped ; right hand defective in a relatively small degree, all the digits being present, but the index is distorted, and the middle and ring fingers are webbed ; the left hand lacks the thumb and the last two phalanges of the forefinger ; the middle finger shows on its radial side, opposite the first phalangeal joint, a cartilaginous nodule resembling a rudimentary digit.

(c) E. G. (deformed) has one child, a boy, who is defective in hands and feet ; hands present each only one digit, the fifth (Fig. 7) ; the right foot in a similar condition ; the left foot pincer-shaped.

The main points for observation in this curious series may be summed up as follows.

1. The malformations, apparently commencing *de novo* in the great grandfather, have descended through four generations, affecting twenty-four out of thirty-six members of the family, and showing a tendency to increase in degree in the later scions. The condition was in no instance associated with other defects, physical or mental, nor was any excessive length of arm observed, as in Mr. Fotherby's case.

2. The children of the undeformed subjects were all normally developed, but a reversion of type appeared in the case of the child of the surviving daughter of J. G.

3. The typical deformity was the pincer-like shape of the hands and feet represented in figs. 1 and 2. This predominated throughout the first three generations, except in the last member of the third, the youngest son of J. H. G., who appears to have been the first to lose the thumb ; and in the fourth generation, the great toe also disappeared in two cases. The hands were normally formed in only one instance amongst the affected members of the family. The error of development was always limited to the digits and metacarpal bones, except, perhaps, in the fourth generation, where there were indications that some elements of the distal row of carpal or tarsal bones were imperfectly formed. The lesion was usually symmetrical.

4. The morbid features were not confined to a mere suppression of parts. Syndactyly (as in Fig. 5), compensatory hypertrophy (as in the little toe in Fig. 4), distortion of articulations (as in Fig. 2), and multiplication of parts (as in the third child of M. H.) were also present. The latter peculiarity was better marked in Mr. Fotherby's series. The manipulative power retained in the deformed parts was surprising, considering the degree and nature of the mutilation.

5. The selection of the subjects for attack or exemption seemed to be quite capricious ; neither sex nor order of seniority appeared to influence the manifestation ; males and females were affected alike, and the defect was handed down as readily by the latter as by the former.

It is to be hoped that further observations will cast some light upon the origin of these and allied faults of evolution. The probabilities are strongly adverse to the efficiency of maternal impressions in producing such conditions as these now described ; but the case in support of this possible factor has been more damaged by the absurd examples adduced in its support, than by any arguments that have yet been offered against it. It is at least certain that, until our knowledge is more advanced, we cannot afford to neglect the evidence, imaginative as it often is, that mothers frequently volunteer in explanation of the defects of their children.

The figures illustrating this paper were drawn in outline from life, and the osteological details were filled in after careful examination of the parts by palpation.

CLINICAL MEMORANDA.

SPECIFIC DISEASE OF THE BRAIN AND SPINAL CORD : SYMPTOMS OF LOCOMOTOR ATAXY.

MR. HUTCHINSON'S lectures on syphilis, recently published in THE BRITISH MEDICAL JOURNAL, together with the doubt that has been expressed as to the occurrence of ataxy, having syphilis for a cause, may render the following case interesting.

G. W., an officer in the army, aged 46, of temperate habits and nervous disposition, began to complain of debility early in 1885. Twenty years previously, he contracted a sore, which was cured in a fortnight, and, as far as he could remember, was not followed by secondary symptoms. In April, 1885, he complained of weakness in the legs, exhaustion after slight exercise, loss of appetite, and feverishness. This weakness of the legs increased, and he was sent to the hills. About the middle of June, he came under my observation. He complained of lightning pains in his lower limbs, and tingling sensations, "as of pins and needles," in both arms. Both his arms and legs were slightly paretic ; and, when he stood up, there was some

trembling of the legs and thighs. His gait was typically ataxic, and he described the sensation of contact of the soles of his feet with the ground as being "distant," and as though they were covered with felt. He had external strabismus on the right side, with dilatation of the pupil, and absence of power of accommodation. There was paralysis of the soft palate, causing regurgitation of food into the posterior nares ; and each tonsil was the seat of a circular depressed ulcer, with a ragged edge and yellowish base. The patellar and ankle reflexes were absent, and he could not stand with his feet together and his eyes closed. Both eyes were examined with the ophthalmoscope, but nothing abnormal was discovered. On the skin of the forehead was a coppery papular eruption. The inguinal glands were enlarged, but there were no scars on the penis. The paralytic symptoms became rapidly worse ; in three weeks, he had completely lost motor power in his lower limbs, and much difficulty in moving his arms. The muscles of the limbs wasted rapidly, but retained their electric excitability. He had cough, with muco-purulent expectoration, and there were slight dulness and harsh breathing at the left apex. The daily temperature was normal, and there was no albumen in the urine. Iodide of potassium, in ten-grain doses four times a day, with drachm doses of the solution of perchloride of mercury, were first given towards the end of July, and was persevered with for over two months. The patient gradually improved, regaining the power of motion in his lower limbs, and losing the strabismus. During the third week in August, he became extremely irritable, and, on one occasion, violent ; the twitchings and startings of his legs also caused him trouble ; and the dose of iodide of potassium was increased to 15 grains. The eruption on his face gradually diminished. The improvement in the paralysis gradually increased ; and, by the end of September, the patient was able to move about his room, and to take short walks, with assistance. The medicines were stopped during the first week in October, but had to be resumed, as psoriasis of the palm of his right hand (with which he used his walking-stick) appeared. The improvement in his case, up to the time of his leaving India (November, 1885), was permanent.

Whether the ataxic symptoms depended upon the syphilitic poison, or whether they were merely coincident, is open to discussion ; but the fact remains unaltered that, as the paralytic symptoms disappeared, the peculiar gait, the swaying to-and-fro when the eyes were closed, and loss of the reflexes, were no longer observable.

ALBERT LEAHY, F.R.C.S. Eng., Surgeon, Indian Medical Service ; Medical Officer, Kashmir, Sialkote, Punjab, India.

OBSTETRIC MEMORANDA.

HOOR-GLASS CONTRACTION OF UTERUS, WITH PARTIALLY ADHERENT PLACENTA.

MRS. Y., aged 32, has six children living ; one was born dead. The placenta was always retained a long time. The patient is a strong, healthy woman. Labour commenced on April 27th, on going to bed at 9 p.m., and continued the whole night. The child was born about 8.30 on the morning of the 28th, the village midwife being present. I saw the patient two hours after the birth of the child. On examination, I found that I could pass my fingers into the cavity of the uterus, and could trace the funis higher up, without finding the placenta. On introducing my hand, I found the uterus divided into two parts, as if a string were tied round it, and I could feel the placenta in the cavity above ; but, as I could not dilate the constricted part, I administered chloroform, and made the midwife keep the patient under its influence ; and, with patience, I succeeded in getting in my fingers, and at last my hand, and peeled off the placenta, which was only partially attached, and removed it as a whole. The patient convalesced without a bad symptom, and was up and about on the fifth day.

I questioned the patient as to whether the midwife had pulled at the cord, but she said she had not. Though Dr. Playfair says in his *Midwifery* that these cases would rarely, if ever, be met with, if the expulsion of the placenta were brought about by a *vis a tergo*, instead of by a *vis a fronte*, I certainly could not trace it to that in this case.

CHALLONER CLAY.

INTERESTING CASE OF TWINS : VERSION.

ON May 10th I was called to attend Mrs. R., multipara, aged 36, in labour. On examination, I found a head presenting, the child (male) after a time, being delivered in the normal way. The pains now entirely ceased ; but the uterus, from abdominal examination, was still found to be enlarged ; and, on vaginal examination, another head was felt, presenting anteriorly, and a foot posteriorly.