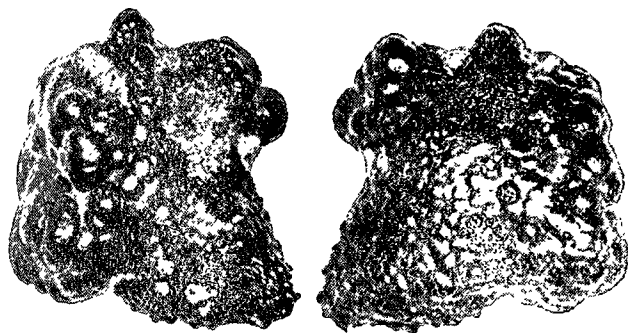


at was stone of the oxalate variety in the left kidney. The patient was very loth to accept the diagnosis as he had consulted several other medical men who had not suggested it. He was a very bad subject for surgical interference, and as he refused to hear of it a temporising policy was pursued. Belladonna locally and lithia citrate internally with an occasional opiate at night until the end of the year rendered life tolerable during 1892 and 1893. He always had the dragging pain, but, as he expressed himself, it was bearable; occasionally he came to see me. In October, 1894, he had profuse hæmaturia so free that the question of cutting down on to the kidney was discussed. By rest and astringents it abated. The hæmaturia clinched the diagnosis. After this he was occasionally worse and better, still preferring to temporise, although told that an operation was the only course. In August, 1896, he came saying that life was unendurable. He was directed to go home and to bed, and two days later, with the kind assistance of Mr. J. C. Weld and Mr. C. D. G. Morier, I cut down on the kidney by the usual lumbar incision. No stone could be felt by the finger, but after the systematic use of the searcher a stone was struck, the kidney was incised, and with some difficulty the large stone here figured was removed. The hæmorrhage was very profuse, so the wound was closely packed and the patient was made comfortable. A few days after the operation a small nucleus of oxalate was passed. Convalescence was a little retarded by some infiltration of urine into the tissue of the back, necessitating free incisions. From the tenth to the seventeenth day after the operation his mental condition was very serious (an afebrile delirium), but after the seventeenth day he recovered rapidly. On the twenty-seventh day urine ceased to come from the wound; he had then been up in a chair for some few days.

His recovery has been complete and from being a man prematurely aged, of slow, bent gait, and generally depressed condition he is now (three years after the operation) a fairly brisk, cheerful man to whom life has ceased to be a burden.

The accompanying illustrations give a good idea of the



Two aspects of the stone.

stone and of its actual size. It was clearly an oxalate with some deposit of phosphates; it weighed rather over 240 grains. It is not a little remarkable that so large a stone should only have produced one serious attack of hæmaturia, that attack occurring two years before the removal.

Adelaide.

## HALLUX VALGUS AND HALLUX VARUS.<sup>1</sup>

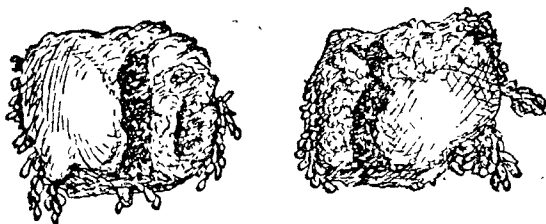
By J. JACKSON CLARKE, M.B. LOND., F.R.C.S. ENG.,  
SURGEON TO OUT-PATIENTS AT THE NORTH-WEST LONDON AND CITY  
ORTHOPÆDIC HOSPITALS.

*Definition of terms.*—The fact that in Latin the terms “valgus” and “varus” were used inversely to the manner in which we use them need hardly be made the subject of discussion, since their misuse has become so well established that their meaning is never in doubt. When it is desired to express accurately the nature of the deformity some careful consideration of the meaning of words is desirable. In different languages the terms “abduction” and “adduction” as applied to the great toe are used in opposite ways: thus Hoffa defines hallux valgus as an “Abductionstellung” of the great toe. Redard terms it “outward deviation” of the great toe, but uses the terms “adduction” and “abduction” in

the same sense as Hoffa—that is, conversely to their employment by English anatomists. Perhaps it will be simpler to follow the continental fashion in this matter and make the meaning of the term “abduction” clear by adding the qualifying phrase “from the median sagittal plane of the body.” There is in hallux valgus something more than this and I should be inclined to suggest as the complete definition the following:—Hallux valgus is a deformity in which the great toe, when the foot is at rest, assumes a position of abduction from the mesial sagittal plane of the body and at the same time is, to a greater or less extent, subluxated outwards, it being understood that normally the great toe lies in the same plane as the first metatarsal bone. Hallux varus is the condition converse to hallux valgus.

*Anatomy.*—The internal lateral ligament is elongated, sometimes thicker, sometimes thinner, than normal. With the outward displacement of the base of the first phalanx there is a corresponding outward displacement of the sesamoid bones and the flexor, extensor, and other tendons. The cartilage of the inner part of the head of the first metatarsal bone tends to undergo fibrous metaplasia, and an adventitious bursa to form between the internal lateral ligament and the skin over the exposed inner part of the head of the metatarsal bone. In persons suffering from rheumatoid arthritis or gout the anatomical changes of these conditions, separately or combined, are present. In rheumatoid arthritis there is, I believe, constantly a groove denuded of cartilage and lined by rarified bone; the groove is caused by the pressure of the inner margin of the base of the first phalanx. Extensive villous overgrowth of the synovial membrane may be present in the same class of case, and I have also observed both in operating and in making post-mortem dissections that in rheumatoid cases the internal lateral ligament is usually thin and often allows the adventitious bursa to communicate with the joint cavity. The changes in the heads of the metatarsal bones as seen in a case which I have previously reported to the British Orthopædic Society are shown in Fig. 1.

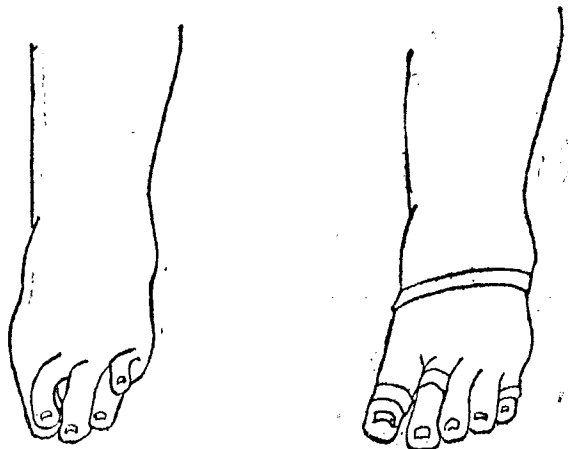
FIG. 1.



The anterior surfaces of the heads of the metatarsal bones removed for hallux valgus in a case of rheumatoid arthritis.

*Causation.*—Congenital hallux valgus, though far less common than acquired, is met with from time to time. I can recall three instances that have come to my notice in the past three years. One was that of an infant a

FIG. 2.



The left foot of an infant with congenital hallux valgus, &c., and (to the right) the same foot with the deformities corrected by strips of adhesive plaster.

few days old. In this case there were about 40 degrees of hallux valgus, the second toe was displaced upwards above the great toe, and the little toe was displaced inwards upon the dorsum of the foot, as shown in Fig. 2. The toes were

<sup>1</sup> Introduction to a discussion at the meeting of the British Orthopædic Society held on Feb. 17th, 1900.

readily replaced and retained in their normal positions by strips of strapping. The second case in which the deformity was said to have been present at birth came to my notice when the patient was 14 years of age. The second toe was a hammer-toe of the common type and the little toe was deformed in the same way as in the first case. The third case was admitted into the City Orthopaedic Hospital under the care of Mr. Poland, who operated, and who, I hope, will record the nature and result of his operations. I have no doubt that these cases are of mechanical origin and, like congenital club-foot, are due to accidental cramping in utero.

#### ACQUIRED HALLUX VALGUS.

Much has been written about this very common deformity and various categories of causes have been adduced. Thus, according to Redard, we have the following theories:—1. The muscular theory—e.g., Nélaton attributes it to contraction of the extensor proprius hallucis; Duchenne to paralysis of the adductor (*Anglice*, abductor) hallucis; and Dubreuil to predominance of the abductors over the adductors. 2. The ligamentous theory. According to Malgaigne the deformity should be regarded as the effect of softening of the internal lateral ligament of the joint. 3. The mechanical theory. Broca appears to have been the first to recognise the part played by badly-shaped boots and shoes in the causation of hallux valgus; I believe that tight socks will sometimes occasion the condition in young children. Redard on this head observes: "I admit that boot pressure, though not an efficient, is an occasional cause. How, in fact, can we explain the occurrence of hallux valgus in persons who have never worn boots or at any rate tight ones?" 4. The osteo-articular theory. Verneuil counts everyone who has hallux valgus to belong *ipso facto* to the arthritic class. He found that 50 per cent. of the patients had rheumatoid arthritis. My own investigations which were made when I was pathologist at St. Mary's Hospital upon some hundreds of such joints would give a still larger percentage. On closer examination these theories resolve themselves into a simpler statement. Paralysis of the adductor (*Anglice*, abductor) hallucis apart from that of the other muscles I have not observed, but it may occur and would give rise to hallux valgus. Of the remaining theories the second becomes part of the fourth, for softening of ligaments apart from traumatism or extension of inflammation from the superficial tissues is only seen in some bone and joint affections. Thus the case may, I would submit, be stated thus:—Hallux valgus acquisitus is usually due to certain predisposing causes acting together with an exciting cause. The predisposing causes are such as cause weakness of muscles and softening of ligament and bone—e.g., gout, rheumatoid arthritis, traumatism, and rickets. The commonest exciting cause is badly-shaped boots or shoes.

*Sex incidence.*—Women are more commonly affected than men; probably, I would suggest, because they are more often influenced by stupid fashion in boots and their muscles are less powerful to oppose the deforming effect of boot-pressure.

*Symptoms.*—Lameness arises when the deformity is pronounced and is due to pain in the first metatarsophalangeal joint, to the loss of the action of the great toe in walking, and to concomitant deformities. The latter deserve separate notice.

*Concomitant deformities.*—Ordinary flat-foot and transverse flat-foot with or without metatarsalgia are naturally common because the same predisposing causes contribute to them as to hallux valgus. The outward displacement of the long flexor of the great toe and of the transversus pedis muscle may also help in producing the two forms of flat-foot in cases where the hallux valgus precedes the other deformities in point of time. Some of the concomitant deformities follow the outward wheeling of the great toe as direct results; all four remaining toes may be displaced outwards, their abduction being usually accompanied by some extension of their metatarsophalangeal and flexion of their interphalangeal joints. This may attain such a degree that they have the characters of hammer-toes. The second toe is most commonly affected to this more severe extent. In severe cases of hallux valgus the second, third, and fourth toes may lie upon the great toe. Less commonly the second and third toes lie beneath the displaced hallux. Davies-Colley has expressed the opinion that many cases of hallux rigidus become converted into hallux valgus. I have not as yet observed this myself.

*Treatment.*—General treatment is often of the first importance and the aid of the physician is required. Careful

regulation of the diet and the use of guaiacum and lithia internally are most frequently called for. The treatment of the surgical accidents—e.g., suppuration—hardly concerns us in the present discussion. Prophylactic treatment includes allowing children to walk with bare feet as much as possible and providing them with roomy socks and properly shaped boots. I need not here go into detail on the latter point, but I may say that I think the rules laid down by von Meyer may always be followed. Gymnastic treatment, active adduction exercises, and Ellis's tip-toe exercise are all useful; passive manipulations, douching, and massage are also of use. As to mechanical treatment, in slight cases bandages made on the plan described by Sayre, together with the foregoing measures, may suffice. I find that many patients can be taught to make efficient bandages of webbing for themselves. The septate boot treatment is an idea which originated with von Meyer and which has been well worked out by G. R. Fowler. The "toe-post" has recently somewhat displaced it in this country. I have tried this latter device in a fair number of cases but save in slight degrees it has proved unsatisfactory. Mr. Luke Freer's instrument, which I think might be termed a "toe lever," certainly promises better things and we shall hope to hear his further experience of it. A simple device ascribed by Hoffa to Mr. Noble Smith consists in surrounding the great toe by a leather band to the inner side of which is attached a string which is passed through an aperture in the inner border of a correctly shaped boot-sole. Beely has so arranged the same device that the aperture in the sole does not communicate with the exterior. Sole-plates, whether of leather or metal, are often of use. Some are designed to be worn inside the boot, the toes being fixed to the plate by tapes. This method amounts to wearing a sandal inside a boot. Where the hallux valgus is complicated by the presence of deformities in other toes this plan is sometimes required, but when the deformity of the great toe is the only condition requiring treatment the sole-plate may, in my opinion, be conveniently dispensed with in favour of a lever as described below. For use at night, especially after operations, a well-made sole-plate with a good heel-piece, ankle- and instep-straps, as well as toe-straps is often to be recommended. This appliance, like all other instruments, should be carefully designed by the surgeon. The familiar "bunion spring" of the late Mr. Heather Bigg, sen., is so well known that I need not here describe it. Springs may also be added to the metal sole-plate. I think that the simpler rigid apparatus is preferable to springs. The mechanical device of the lever is the one I most commonly use. The instrument consists of a thin, flat band of steel shaped to lie under the great toe, to curve outwards to avoid the head of the first metatarsal bone, and to end in a second straight piece which lies under the hollow of the arch of the foot. The fulcrum is a padded metal projection jointed to the front of the hinder straight piece and working on the inner side of the metatarsal bone just behind the head. A strap is attached to the posterior end of the lever to pass in a figure of 8 round the ankle and to be fastened off at the fulcrum. A second strap may be added passing round the forepart of the waist of the foot. The toe is attached to the front arm of the lever by a leather loop. This arrangement can be worn inside the boot and most patients can also bear it at night. In some, however, the pressure of the fulcrum interferes with sleep and in such cases I recommend a sole-plate for night use.

*Operative treatment.*—Tenotomy, syndesmotomy, osteotomy, partial and complete excision of the head of the metatarsal bone, and excision of the base of the first phalanx have all been employed. My own experience is limited to partial excision and complete excision of the head of the metatarsal bone. Of these two operations I now usually adopt the latter; firstly, because there is less pain immediately after the operation, and secondly the shortening of the great toe diminishes the tendency to return of the deformity. The incision which I have used is a longitudinal one at the supero-internal aspect of the joint. The head of the bone is readily removed either by a chisel or a Gigli's saw. The internal lateral ligament can be shortened and fixed by one or two cat-gut stitches and the bursa, villous growth, and synovial membrane generally can be removed. Hæmophilia, diabetes, defective kidneys, and broken-down constitution are the chief contra-indications to operative interference.

#### HALLUX VARUS.

Hallux varus, as already stated, is the converse of hallux

valgus. Some confusion has arisen by certain authors using the term "hallux malleus" as a synonym. The chief characteristic of hallux malleus is pronounced flexion at the metatarso-phalangeal joint and such flexion is combined with adduction of the great toe in some cases of hallux varus; when this is the case it would, perhaps, best be described as "hallux varus et malleus." The congenital hallux malleus observed by Nicoladoni to become complicated in after-life by flat foot may in some cases present a certain degree of hallux varus in the original deformity.

Hallux varus may occur congenitally either alone or as part of the deformity of congenital equino-varus. In the latter condition if treatment is begun at the proper time—i.e., soon after birth—the deformity is always cured. Hallux varus has been noted in cases of congenital absence of the fibula. No case of pure congenital hallux varus has come to my notice, but I should anticipate that persistent careful bandaging would remedy the condition.

*Hallux varus in dichotomy of the great toe.*—A set of four casts in the museum of the City Orthopaedic Hospital were taken from a patient under the care of the late E. J. Chance. The feet before operation had each six digits, as in Fig. 3 to

FIG. 3.



To the right a cast of a foot with dichotomous hallux, the innermost digit being in a state of hallux varus; to the left a cast of the same foot after amputation of the innermost digit.

the right, the innermost being in the position of hallux varus. In such cases removal of the innermost toe is all that is required, and Chance's case shows that the result is highly satisfactory.

*Acquired hallux varus*—The records are very scanty on this head and I must confess that I have no personal experience to give. It occurs in some cases of severe genu valgum. In certain paralytic and traumatic cases this deformity would probably arise.

In conclusion I would venture to state my opinion that every case of hallux valgus is curable. The most troublesome cases are those in which a second hammer-toe has been (quite unnecessarily) removed previously to the patient being seen.

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## A CASE OF LEPROSY.

By JOHN D. GIMLETTE, M.R.C.S. ENG., L.R.C.P. LOND.,  
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MANY clinical cases of leprosy have been published, but the simple example here recorded is of general interest. The patient was an unmarried Eurasian, aged 27 years. He was born in Singapore but had lived for some time in the Malay Native States. He was a clerk and interpreter in the police-court at Pekan. There was no case of phthisis in the family

as far as was known. One sister suffered from "fits." His father and brother were alive and well. The mother had died in child-bed. The patient had had the ordinary ailments of childhood, but otherwise had been in fairly good health until about Christmas, 1894. He was then treated at Pekan for "simple rheumatic inflammation of the tendon sheaths with some degree of high temperature and glandular swellings." In March, 1896, this illness recurred and was accompanied by a curious bilateral purpuric eruption on the legs fugitive in character. There was again acute inflammation of the tendon sheaths of both feet and of the right hand. He was sent to Singapore, where he was found to be suffering from a peripheral neuritis which was diagnosed as beri-beri. About this time the legs were swollen and he was unable to walk. At the end of June, 1896, he returned to duty. He said that he had squandered his money ever since in the purchase of useless, empiric drugs, but that he had never felt himself again. During the last two years he had had attacks of dysenteric diarrhoea and had been gradually losing heart and strength.

When I saw the patient he complained greatly of weakness and said that his legs often felt useless, especially after walking. He had a rash which came and went. It was on the face, the legs, and the arms. It was not painful and did not itch. About six months previously sores broke out on his fingers, which healed up from time to time of their own accord. Four or five months previously he felt a small lump on the nose. It had given little or no inconvenience and had remained about the same size. He noted that he fumbled in dressing himself and could not button his clothes with ordinary precision. For some time he had had a chronic cold and had snuffled, but he had had no cough. The appetite was indifferent, the teeth were decayed, and the bowels were irregular. On examination he was found to be a tall, thin, sad-looking man with an unnatural aspect. The skin of the face was coarse, with a livid flush on each cheek. The ears were enlarged, projecting, and deformed and were wrinkled and nodular. At the bridge of the nose there was a small broad tubercle. The eyebrows were scanty. The hands were wasted as if from paralysis of the ulnar nerve and the fingers showed clearly some trophic lesions in the skin. They were covered with dry sores, especially on the back of the phalangeal joints. Otherwise the skin here was smooth and glossy as if it had been varnished. There was impairment of sensation in the skin of the fingers and forearms and in places there was anæsthesia. The muscles of the arm and especially those of the forearms were wasted. The interossei muscles were atrophied and doubtless an application of the Roentgen rays would already demonstrate atrophy of the metacarpal bones. The body generally was covered with large patches of brownish pigmentary stains. The chest was ill-developed, but the heart and lungs appeared to be normal. On the outer side of each leg there were patches of anæsthesia with purplish eruptions on the shins. A distinct nodule, among others, of about the size of a split-pea could be felt on the extensor aspect of the right leg. The patient was sent to Singapore where he was seen by Dr. M. F. Simon, in consultation with Dr. J. T. Leask and Dr. W. G. Ellis. They found the bacilli of leprosy in large numbers in the discharge from a sore on the finger and in serum taken from a nodule on the ear.

I have much pleasure in expressing my thanks to the Principal Civil Medical Officer (Dr. Simon) for his kindness in confirming the diagnosis. There were no other cases of leprosy in Pekan at the time. The disease, in fact, is not common in Pahang, where it is usually met with among the poor of the native population. In this case, however, the patient was an intelligent member of the community following a public occupation and leading a more or less healthy life. It is an instance of the mystery which still surrounds the origin of isolated cases of leprosy. The history is of special interest now that the compulsory segregation of lepers is under the consideration of the Government.

It is agreed that leprosy is a contagious disease. All observers, however, who are not influenced by any theory and who have no desire to fit the facts of their cases to any favourite doctrine will, I think, admit that a certain number of cases appear to militate against a very widely received opinion as to the advisability of compulsory segregation. Ample as the reason for legal measures may be in the colonies, they will, I think, allow that under certain circumstances voluntary isolation is a sufficient safeguard. I refer