

organ without interference; thus the testis with the remainder of the processus vaginalis has come down behind the abnormal pouch. It frequently happens, on the other hand, that when this kind of developmental accident occurs the normal descent of the testis is also prevented. In this way is brought about the double pathological condition of an interstitial or properitoneal sac in association with imperfect descent of the testis. I have already pointed out the underlying cause of the correlation of these two conditions in a paper which I read before this society in May, 1900,⁴ combating the view that in their association the imperfectly descended testis could be considered in any way as a cause and the interstitial hernia as a result. They are associated results of a common developmental cause and the diverticulum from the main portion of the processus vaginalis which gives the character to the hernia is a congenital sacculation identical in origin and nature with others that we frequently see in the inguinal region and with the sacculation which we have seen to be so constant a feature of the femoral sac. Thus you will see that all the varieties of oblique inguinal hernia receive a ready explanation, although there is one variety which appears in the table and about which I have said nothing but about which a great deal has been written, known as "infantile" hernia. It appears that this is a term used very loosely to cover a variety of different anatomical anomalies and to these there need be, and there is, practically no limit. I suppose the case I have just now detailed to you might by some be classed as a form of infantile hernia, though why "infantile" does not seem very clear, for any other adjective would be equally appropriate as a designation. The varieties of infantile hernia present absolute uniformity in one respect only; they never arise in any of the ways which our ingenuity has ascribed to them. For our credit let us abolish the name and find any other that will in some measure indicate what these forms of hernia really are—viz., herniæ into irregular sacs, congenital in origin, and formed by variation in the saccular arrangement of the funicular process. Under the heading of "simple (as opposed to sacculated) funicular hernia" you will notice there are placed two varieties—viz., total and partial funicular hernia. "Total funicular" indicates that form which unfortunately is usually called "congenital"; "partial funicular" indicates the form which is usually distinguished as "funicular." These terms were suggested by me as long ago as 1899.⁵ A few words will not be out of place here as to the need for such alteration in the accepted terminology of hernia.

The term "congenital" has hitherto occupied a place in the nomenclature of hernia which it acquired falsely and as the result of a misapprehension; in its ordinary acceptation congenital hernia signifies an oblique inguinal hernia into a funicular process which is unobliterated throughout, so that there is no barrier separating the abdominal peritoneum from the tunica vaginalis. This attachment of a term which conveys an important etiological significance to what was at best a mere anatomical condition, reckless as it now appears to us, might have proved harmless enough. It was clearly understood that the term "congenital hernia" was to be taken as meaning not that the hernia was present at birth but that the hernia had entered what was obviously a congenital sac; evidently it was considered that the inguinal hernia in which the sac was found to be distinct from the tunica vaginalis might be safely relegated to the category of acquired hernia, and acquired hernia, as I need hardly remind you, implies that the sac is not a developmental structure and is not therefore present at birth, but that it has been formed by the stretching and pushing down of the normal peritoneum in front of the descending hernia, the essential cause of the hernia in such a case being a local weakness or inadequacy of the abdominal wall. The first foreshadowing of troubles to come might have been felt when it came to be pointed out that hernia descending into an open funicular process need not of necessity find its course to the tunica vaginalis completely unopposed, but that on the contrary it was common for the tunica vaginalis to be cut off from the main length of the tube by an obliterated portion of varying length. Now it is obvious that the upper portion of the partially obliterated funicular process is no whit less entitled to the name of "congenital sac" than is the whole of it, but a distinctive title of some kind was called for; and as the term "congenital" had been already appropriated by the one

variety to the exclusion of another whose claim to the title was equal, this latter variety by a transparently artificial arrangement received a title to which it in turn had no more special claim than the first and was called "funicular." In short, it is obvious that both are congenital and both are funicular in exactly equal degree, and this simple plan of satisfying conflicting claims by the diplomatic expedient of an equitable distribution of titles, however admirably it may serve in a world of lesser issues, becomes in the highest degree inconvenient when introduced into the domain of scientific discussion. I cannot illustrate this better than by shunting the difficulty I myself experienced when I first made a communication to this society on inguinal hernia in childhood in which I asserted that the sac was invariably congenital. I had frequently in those days to encounter friendly critics who came to me narrating cases they had met with in respect of which my statement was proved to be erroneous because the sac of the hernia was entirely separate from the tunica vaginalis. I then had to explain that as applied to hernia the term "congenital" has two meanings; of these, one has been injudiciously associated with a distinct anatomical condition—viz., complete patency of the funicular process throughout; the other meaning of the term "congenital" is "congenital," and I personally think that it should retain that significance to the exclusion of any other. It is clear, then, that the time has come for re-editing our nomenclature of hernia and the use of the term "congenital hernia" as denoting a variety distinct from all other forms of hernia must be discontinued. It is with this end in view that I have suggested the substitution of the terms "total funicular" and "partial funicular" for those at present in common usage—viz., congenital and funicular respectively.

In an earlier portion of this paper I remarked that while direct hernia is demonstrably of congenital origin sometimes it is also the only form in which, as it appears to me, the possibility of a truly acquired origin cannot be absolutely eliminated by the evidence at present at our disposal. I have indicated my own opinion, but whether that opinion is right or wrong is a matter of trivial importance. Direct hernia as an individual member of the hernia family is by far the least important and is literally such a very small matter that we can afford practically to disregard it. We will admit that it may possibly be an occasional exception to the fundamental principle the truth of which impresses itself more strongly on my mind as experience and observation accumulate year by year and which it has been the object of this address to aid in establishing—that acquired hernia does not exist; there is absolutely no such thing.

THE AMBULATORY TREATMENT OF FRACTURES OF THE LOWER EXTREMITY BY HOFFTCKE'S MODIFIED HESSING'S SPLINT CASE APPLIANCE.

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THE sight of a man with a fractured femur walking three days after admission with the aid of one stick is a possibility which is not well known in this country. The splint by which it is accomplished comes from the continent where it has been in use for several years and is now a universally recognised form of treatment. The designer, Hessing, was a village carpenter who started fitting wooden legs to amputation stumps and from that has gone on increasing his business and has devised the splint which now bears his name. He possesses a vast establishment near Augsburg and to-day is a wealthy man. This splint has been in use on the continent for at least ten years. It is useful mainly in two conditions—viz., fractures of the lower extremity and disease of the elbow, hip, or knee, and contractures of the same joints.

The following three cases illustrate what can be done by means of this splint in fractures of the lower extremity.

CASE 1.—The patient, aged 32 years, was admitted to the London Hospital on Sept. 28th, 1903. A stack of cheese had

⁴ Intercolonial Medical Journal of Australasia, May 20th, 1900. See also THE LANCET, Oct. 20th, 1900, p. 1128.

⁵ THE LANCET, Nov. 18th, 1899, p. 1353.

fallen directly on the right leg. On admission a diagnosis of fractured tibia and fibula was made. A plaster cast was taken and the leg was put up in back and side splints. A radiograph showed transverse fracture of the tibia in the lower third. A fractured fibula was doubtful. On Oct. 2nd Hessing's splint was applied. The patient walked across the ward with a stick. On the 9th there was some swelling of the knee but no pain at the seat of fracture. On the 20th he was discharged from hospital. The knee was allowed free movement. He walked without a stick. On Nov. 5th the splint case was removed. The bone was firmly united. There was no displacement. He had no pain from the day the appliance was put on and returned to work in November.

CASE 2.—The patient on Jan. 28th, 1904, slipped and fell down eight or nine steps. He was carried to hospital one and a quarter miles and was "not absolutely sober" on admission. A radiograph showed the tibia and fibula to be fractured transversely just above the malleoli. The lower fragments and the foot were displaced backwards and the foot was everted. The foot was greatly swollen and there was much extravasation of blood. A plaster cast was taken. On Feb. 1st the leg was much swollen, covered with bullæ, and black. The splint appliance could not be tried on. The leg was put in back and side splints and the foot and ankle were covered with boric powder. On the 8th the splint was applied. The man got out of bed and walked so well without assistance that the knee-joint was allowed to be free. He complained of no pain in the fracture. The great swelling, discolouration, and bullæ which formed on this leg delayed the application of the splint for six days.

CASE 3.—A man, aged 31 years, was admitted to hospital on Feb. 2nd, 1904. Six days previously about six hundred-weights of cement fell on to his back and then slid on to his right thigh. He was taken to a cottage hospital and a long splint was applied. The medical attendant was not satisfied and sent him to my wards on the sixth day. The femur was broken at the junction of the middle and lower thirds (see Fig. 1). A plaster cast was taken on the evening of admission

FIG. 1.

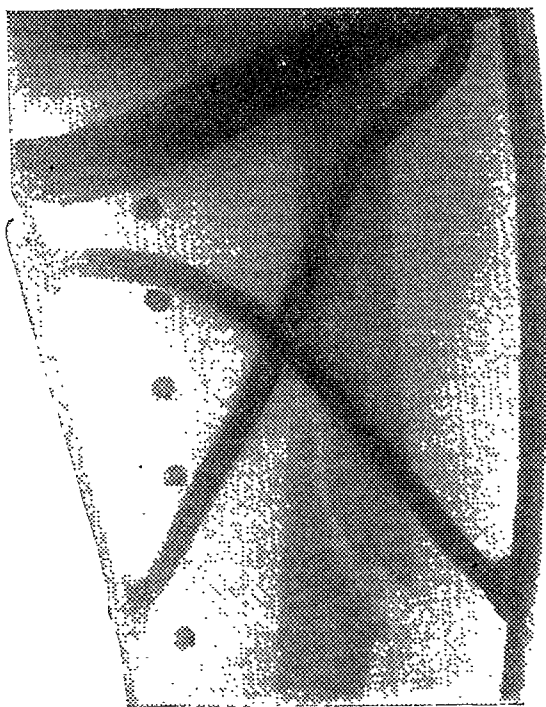


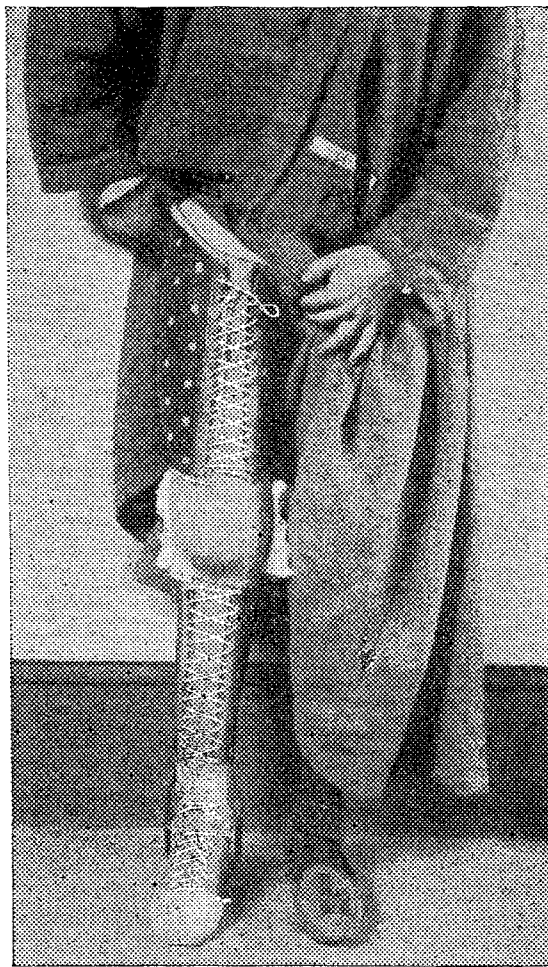
Illustration showing fracture of the femur and steel splints of the appliance.

and a long Liston splint was applied till Feb. 4th, when Hessing's splint was put on and the man walked across the ward on the third day after admission (see Fig. 2). The patient had been up every day since. On the 10th the knee became somewhat swollen but he had no pain in the thigh.

This splint-case appliance consists of four other cases united by steel bands. A casing of stout leather, strengthened with thin steel bands, encircles the thigh from just above the patella to the level of the tuber ischii behind. The leather is open down the front where it is to be laced up when fitted. Numerous holes are punched in it to prevent

uncomfortable heat and it is lined with flannel. Along each side are clamped firm adjustable steel supports which serve to transmit the weight of the body from the leather casing to the ground. The weight of the body is transmitted to the leather thigh-casing in two ways: first, the tuber ischii on that side rests on the top of the

FIG. 2.



Patient with a fractured femur walking on the third day after admission.

casing and the steel bands are arranged to meet this pressure; and secondly, the casing is very accurately fitted to the thigh so that the latter fits into it like one cone into another. In this way no pressure is allowed to fall through the apex of the inner cone—viz., the lower end of the broken femur. To the foot is fitted a steel sole-piece with a strong upright on each side from two to three inches in length, which is jointed to the lower ends of the lateral supports from the thigh-piece. The casing seen in the illustration fitted to the leg is not part of the apparatus for transmitting the weight of the body to the ground but is for keeping the ends of the bone in apposition where the tibia and fibula are broken. It is similar to the thigh casing, made of stout leather, strengthened if necessary by thin steel bands riveted in, lined with flannel, and punched to allow of ventilation. It accurately fits the curves of the leg and is laced down the front, so that in the case of any diminution in size from disappearance of swelling or slight atrophy of muscles the casing may still fit closely. This leg casing is adjustable up and down the lateral supports and also to some extent forwards and backwards. If extension be desirable an ankle is provided to which are attached three pairs of strong tapes fastening beneath the steel sole-piece.

The following is the method of manufacture. As soon after admission as possible a plaster cast is taken of the thigh, the leg, and the foot. In order to identify the various points on the cast a line is drawn with a copying-ink pencil up the whole length of the leg anteriorly and laterally. The positions of the knee and ankle joints are also marked out. The leg is then coated with oil and the plaster bandages are applied. The foot must be kept at a right angle. The plaster must be good and set quickly and the bandages must be of thin texture so as to fit smoothly and evenly

They are not applied tightly but merely laid on so as to get the exact size of the limb. The cast is removed while still wet. The best plan of removal of the outside plaster cast is to split it down the front by a vertical incision slightly to the outer side and then horizontally across the front of the ankle-joint. The edges are then fitted together again, the incision thus being closed, and the whole is consolidated by a final plaster of Paris bandage applied after removal. The cast thus taken should be about a quarter of an inch thick. From the cast a model is made in solid plaster and on this the leather casings are modelled. It is impossible, of course, to mould dry leather on the plaster so that it will keep its shape, but the difficulty is surmounted by soaking the leather in water. The only difficulty I have met with in this country is getting suitable leather. English leather does not seem to be nearly so pliable on soaking or to set so well on drying as the continental leather.

In order to make sure that the leather casings are strong enough, especially in the case of adults, thin steel bands are imbedded in the leather. These bands are first fastened securely on the plaster model, then on moulding the leather above them they leave an impress on the casing, so that on removal the bands may be riveted in their exact position in the leather. One band must always strengthen the thigh-piece below the tuber ischii. The holes for the escape of perspiration are punched from within out. The lateral supports are jointed at the knee but the joint is fitted with a peg screw, so that, if desirable, it may be immobilised.

By means of this splint the patient in nearly every case of fracture of the leg can be made to walk, with or without the aid of a stick, at the end of a week. Case 2 was one of the worst cases of Pott's fracture it was possible to meet, where the swelling and ecchymosis were so great that the posterior surface of the limb is still ecchymosed as high as the middle of the thigh now a month after his accident. If this splint can be applied to so severe a case of fracture any case can be treated with it. The bone is united well and the patient's joints, knee and ankle, are no longer stiff, as they would have been had they been kept at rest during the whole time he was in bed with a splint on or had plaster of Paris been applied to the limb. The advantage of this splint, in enabling a man to get up out of bed, to walk about, and even to go to business at the end of a week or ten days, must be very obvious. In cases of fracture of the femur also in old people where it is essential that they should not be kept in the recumbent position with a long splint on, this appliance will enable them to be got out of bed, and the tendency to hypostatic congestion of the lungs and bed-sore is thereby counteracted. The case of fractured femur shown above was one of fracture of the middle of the thigh bone, but this splint is also applicable to fractures of the lower and upper extremities of the femur. This splint was made for me by Mr. Hoeftcke, 21, Woodstock-street, London, W., who has modified and considerably improved Hessian's appliance.

Wimpole-street, W.

AN INQUIRY INTO THE SOURCE OF SCARLATINAL INFECTION AND ITS BEARING UPON HOSPITAL TREATMENT.¹

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My first duty is to thank you for this opportunity of bringing before the Southampton Medical Society for its serious consideration a subject of much medical and public importance. The conclusions at which I have arrived are not altogether in accordance with those usually accepted and as a public official I look upon this society as the only competent tribunal in the borough to discuss and to decide the points at issue. As, moreover, the patients of everyone here form the basis of my remarks and deductions you will further be able to express an opinion as to the accuracy of the statistics and details I place before you. To this end I

have sent to each medical practitioner a list of the cases notified by him during the past year and marked those which had been discharged from the isolation hospital and considered responsible for "return" cases. Gentlemen also who have notified cases of scarlet fever and are not members of this society have been invited to attend and if unable to do so have been asked to communicate any observations they might desire to make on cases which have been discharged from hospital and which are likely to be considered responsible for "return" cases.

The value of isolation hospitals from a public health point of view has recently been a subject of discussion both in the medical press and at the conferences of medical officers of health, and while it is true our knowledge of the infective process is not such as to preclude the possibility of mistakes, yet the observations of those controlling large hospitals and areas must help towards the solution of the problem. The difficulties of an isolation hospital present themselves, by universal opinion, very especially in scarlet fever wards. It is about scarlet fever that the greatest uncertainty exists and this uncertainty has led some experienced officers to demand the abolition of centred hospitals. In making this demand, however, a very important question has been largely ignored—viz., the question of internal administration. Before we can decide whether isolation hospitals are a failure or not we must ask ourselves whether our administration is such that the isolation principle has been properly tested.

In February last I altered my methods of administration and I propose now to sketch shortly the new procedure adopted, with the results obtained since that date. Our isolation hospital is for the use of the whole area of Southampton, in addition to being a refuge for the port sanitary authority, and during the past 12 months a sufficient number of cases of scarlet fever has been admitted and discharged to form a reasonable judgment of the value of the altered methods. The new methods are due to a firm belief, based on observation, that more classification and more segregation are essential and, moreover, that "return" cases are attributable not to the peeling condition, as is generally contended, but mainly to undetected discharges from the respiratory passages and ears in those who have left the hospital. The value of ordinary personal observation in arriving at this belief is enhanced when we bring into review our want of knowledge of the specific organisms and our present ignorance of where and when infection ceases. My observations, extending over a wide range of cases, have led me to regard the upper respiratory passages, particularly the naso-pharynx and the pharyngeal and faucial tonsils, as responsible for the reception and propagation of the infection.

It is not the purpose of this paper to discuss questions of pathological anatomy but a review of the anatomical peculiarities of the upper respiratory tract is essential in considering the feasibility of my contentions. The structure of this region, moreover, shows the possibilities that exist of long-continued infection and may of itself throw light on this obscure problem. I presume, therefore, to remind you very briefly of the more salient points. The nasal passages in the living subject present a very different picture from that viewed in the bony framework, owing to the thick mucous membrane which covers it, causing a narrowing of the openings of the different sinuses and nasal duct. The mucous membrane is thickest over the middle and inferior turbinates and covered by ciliated columnar epithelium with goblet cells on a delicate basement membrane and extends into the various air cells, communicating with the nasal fossæ. The tunica propria is composed of white fibrous tissue, rich in leucocytes and traversed by a venous plexus. Numerous compound racemose mucous glands open on the surface and between them there is much lymphoid tissue sometimes accumulated into nodules. In the air cells the tunica propria is very thin and sparingly supplied with glands. The following sinuses communicate more or less directly with the nose: the antrum, the frontal sinus, the anterior, middle, and posterior ethmoidal and sphenoidal cells, as well as the nasal duct, while the Eustachian tube connects the naso-pharynx with the middle ear. The patency of all these communications depends for our purpose on a healthy condition of the mucous membrane. The mucous membrane lining the accessory sinuses is thin and pale and, with the exception of the frontal sinus, the drainage of these cavities, owing to their openings not being placed near the bottom, depends on the healthy and efficient ciliary action of their epithelium.

¹ A paper read as the annual address before the Southampton Medical Society on Jan. 20th, 1904.