if the placenta were made to bulge, it would press the posterior wall back as much as it pressed the anterior one forwards. The placenta is thus surrounded on all sides by a resistance which is equal, except along one line, viz., that running through the plane of contact of the anterior and posterior walls of the lower uterine segment below the placenta. When the placenta is attached to the anterior or posterior wall, this diminished resistance affects only its inferior border in the first instance, which may bulge accordingly. When the placenta is attached over the fundus, it might cause a bulging of the central portion of the placenta, and lead to the formation of a retro-placental effusion, although, until a uterus from a case of normal labour with the placenta in it shows this effusion to be present, we have no anatomical basis to rest on. It is also important to note that at this stage there is no blood-clot in the potential uterine cavity.

(To be continued.)

Part Second.

REVIEWS.

The Refraction of the Eye: A Manual for Students. By GUSTAVUS HARTRIDGE, F.R.C.S. London: J. & A. Churchill.

A short elementary and practical treatise on the diagnosis and optical correction of the anomalies of refraction of the eye was an undoubted desideratum until the appearance a few years ago of Mr Morton’s little book. This contained useful practical hints, as well as a clear exposition of the methods of objective and subjective diagnosis, both in the text and in well-arranged tables admirably suited for reference after perusal of the text. Some explanations were also given in it of the optical signs indicative of errors of refraction, and for the first time in an English text-book there was a good chapter on retinoscopy. The fact that Mr Morton’s book should be so soon followed by another extremely elementary treatise on the same subject shows that a wide interest is now shown in this department of ophthalmology. Mr Hartridge’s book is an excellent one, and cannot fail to be of great service to beginners, as it is copiously supplied with figures which, in most cases, add greatly to the clearness of the text. There is an introductory chapter on Optics, which we think the author has made too elementary. Surely the second law of refraction might have been fully and accurately given without assuming any knowledge of mathematics, instead of being dismissed in the following sentence: “The amount of refraction is the same for any medium at the same obliquity, and is called the index of refraction.” In the next
chapter on Refraction, Accommodation, and Convergence, Nagel's metre angle notation for the degree of convergence is very properly introduced, but it is a pity that the curves of relative convergence (Fusionsbreite) are not inserted.\textsuperscript{1} They form an interesting counterpart to the Donder's curves of relative accommodation. The student is apt to be misled in his ideas of the degree of independence of convergence and accommodation if he pays attention only to the following sentence: "Although accommodation and convergence are thus intimately linked together, it can easily be proved that they may have a separate and independent action. If we suspend the accommodation with atropine the convergence is not interfered with, and if by division of both internal recti for squint the power of convergence is for the time lost, the accommodation can still be brought into play." Although convergence is not impeded when the accommodation is paralyzed by atropine, there remains the impulse to accommodation by which the connection remains undisturbed, and in the same way, after division of the tendinous insertions of the internal recti, there is as great an effort made to converge when a certain amount of accommodation is brought into play as before; this is shown by the movements taking place to the extent to which the remaining muscular insertions permit of. Accuracy and clearness are sacrificed to a desire to simplify and shorten descriptions in such sentences as the following: "The near point recedes as age advances, but should not be further off than 22 ctm." "Infinity is any distance beyond 6 metres, the rays coming from a point at or beyond that distance being parallel, or nearly so."

In Chapter III., on the Methods of Determining Errors of Refraction, the author has introduced Morton's figures, showing the reason why a more or less distinct image of the fundus is obtained with the ophthalmoscopic mirror alone in hypermetropia and myopia, but not in emmetropia. He also gives figures illustrating the changes in size of the image of any portion of the fundus in hypermetropia, as the lens between the ophthalmoscope and the eye is withdrawn from or approached to the eye. It is a pity that similar figures have not been given for the case of myopia, which is a little more complicated and not so easily understood. There is not even an explanation given in the text for why the image on withdrawing the lens should increase in size, nor is any mention made of the appearances when the lens is situated on the observer's side of the inverted aerial image in high degrees of myopia. In the following sentence referring to the ordinary subjective test for myopia, the word weakest should have been inserted and underlined between "note the" and "glass." "If the myopia be of high degree, then probably no glass will enable him to read 6, and we note the glass with which he gets the greatest acuteness of vision." This is a most important practical point which has evidently only been omitted by accident, as

\textsuperscript{1} Vide Nagel, Mittheil. aus Tübingen, vol. i., and Grafe-Seemisch Handbook, vol. vi. pt. 2.
it is distinctly stated for myopia with normal vision. At p. 46 the author remarks, "Landolt says that if glasses, which are to correct the ametropia, be placed 13 mm. in front of the cornea, the retinal image of the ametrop is to be of the same size as that of the emmetrop." This, of course, refers to axial ametropia, and it might have been explained that it is owing to the corresponding displacement of the second nodal point. It was first, we believe, pointed out by Girand-Tenlon in 1869. The estimation of the amount of refraction by means of the direct examination with the ophthalmoscope is very satisfactory in the lower degrees of ametropia, and with practice can be effected with very great accuracy, possibly, as some assert, to within half a dioptre. In higher degrees this amount of accuracy is impossible, owing to the relatively great difference in the glass required for correction, according to the distance separating the eyes of the observer and the patient, and not, as Mr Hartridge thinks, p. 59, because this method "requires much greater practice than any other method of examination; probably many observers can never relax their accommodation so completely as to give satisfactory results." Chap. IV. gives a good description of Retinoscopy. Chap. V. is devoted to a more exhaustive account of Hypermetropia. The correction of the manifest hypermetropia alone is very wisely advocated. On p. 100 it is remarked that "the disadvantage of using spectacles constantly is that after wearing them for some time the patient finds he is unable to see without them, which is a serious inconvenience, so that the plan is not to give spectacles for constant use until the hypermetropia has become relative or absolute." This is a good rule, if by relative is meant that without constantly wearing the correcting spectacles the accommodative asthenopia continues to annoy the patient. Mr Hartridge is one of those who firmly believes in the connection between conjunctivitis and even granular lids, and uncorrected hypermetropia. Chaps. VI. and VII. are on Myopia and Astigmatism respectively. Snellen's new subjective test for astigmatism we have found by far the most practical; it is a pity there is no figure given of it alongside of those at p. 133. Chap. VIII. is on Presbyopia, and this, along with Chap. XI. on Spectacles, in which a few sound general rules are given as to the different kinds of spectacles as well as a number of cases of different states of refraction, concludes the strictly optical part of the book. Chap. IX. on Strabismus is, no doubt, introduced on account of the more or less intimate connection of many forms with errors of refraction. Though very short, and therefore necessarily incomplete, it forms a good introduction to the study of muscular anomalies. Chap. X., on Asthenopia, is somewhat behind the times. On the whole, Mr Hartridge has produced a most acceptable book, the general excellence of which suffers but little from the slight inaccuracies and want of completeness which are to be found here and there, and which will, no doubt, be improved on in a second edition.
On Flat-foot and its Cure by Operation. By Alexander Ogston, M.D., Professor of Surgery in the University of Aberdeen.

In introducing the subject of this pamphlet we are told by the author that “Lister’s antiseptic method has placed in our hands modes of remedying surgical deformities that would formerly have been regarded as unjustifiable.” With this statement we cannot but agree. At the same time we feel that there is a danger of performing unnecessary operations, which are not free from risk in unpractised and untrained hands. Though it is somewhat anticipating what we desire to prove, we must say that the operation at present under consideration comes within the range of those which may be performed too often and too rashly under the protection of Listerian dressings.

Professor Ogston gives us at the outset a full and clear account of what flat-foot is. “Flat-foot, or pes valgus acquisitus, is, like scoliosis and knock-knee, almost invariably the result of a disproportion between the strength of the foot and the work it has to accomplish. . . . The flattening of the arch of the foot is the test of the existence of flat-foot, and the condition is better designated by the term flat-foot, or pes planus, not unfrequently bestowed upon it, than by the name of pes valgus, or everted foot, that it oftener bears. The name pes valgus is misleading. The valgus or everted posture is not necessarily characteristic, as it includes another and different condition, which is, I think, generally confounded with it. This condition is that of everted or valgus ankle. Valgus ankle is usually seen in young girls passing out of childhood, and is sometimes temporary, sometimes permanent. The ankle, especially when seen from behind, is observed to have lost its straight form and to fall inwards, so that the malleoli approach the middle line and constitute a ‘knock-ankle.’ . . . In true flat-foot, on the contrary, the ankle-joint can hardly be said to participate. The arch of the foot suffers, and the bones, tendons, and ligaments that maintain the shape of the instep are so modified that the arch unfolds, its two extremities recede from one another, and its curve finally becomes a straight line, touching the ground along its whole length.”

We have next a description of the condition of the joints of the foot affected, and the diagnosis by palpation. We are told that examination of the foot demonstrates “a slight laxity of all its articulations,” but principally that “between the scaphoid and the head of the astragals.” The laxness of all the joints, and especially of the astragalo-scaphoid, is generally very evident in cases of flat-foot. For if pressure upwards be made on the ball of the great toe in such persons, it will readily rise till the inner margin of the foot becomes a straight line.

The great mobility of “Chopart’s joint,” as Professor Ogston calls it, is easily made out by direct manipulation. Of this there is no doubt. But we cannot agree with the author in taking for granted that because the astragalo-scaphoid joint is the most mobile,
that therefore its anchylosis will cure flat-foot, which is the argu-
ment and centre point of his whole essay.

Next, Professor Ogston gives a clear account of the stages and
changes through which the foot goes in this disease. At first the
lax and plastic foot can be made easily to assume (under manipula-
tion) the normal arched, or the abnormal flattened condition.
After a while, however, the flattened state, which prevails when the
patient puts weight on the foot, becomes permanent. This is ex-
plained by Professor Ogston as being due, not only to the altered
position, but to an alteration in the shape of the bones, especially of
the astragalus. And this alteration makes reduction by manipula-
tion or apparatus impossible in aggravated cases.

"In the extreme dorsal flexion of the astragalo-scaphoid joint
present in flat-foot, the caput tali is no longer so much covered
below by the scaphoid as it normally is, but escapes from it down-
wards and inwards, so that it finally forms on the inner side of the
sole a prominence greatly exceeding in size that of the tuberosity
of the scaphoid. The articular surface of the scaphoid is altered
in direction, so that it looks more downwards, and tends to for-
sake its contact with the caput tali. There would be an actual
gap between the bones below did not the astragalus accommodate
itself to the void and assume an angular form with two facets
nearly at right angles to each other, one looking forwards and
articulating with the scaphoid, and the other looking downwards
to the ground, parallel to it and resting on the inferior calcaneo-
scaphoid ligament.

"So soon as the altered shape of the astragalus head becomes pro-
nounced the deformity ceases to be easily reducible, and it shortly
comes to pass that it offers an insuperable obstacle to the re-
duction; the foot is henceforth fixed, because the prominent angle
cannot be made to ascend behind the scaphoid, since it
locks upon it with every attempt at plantar flexion."

On the ground of this alteration in the shape of the astragalus
Professor Ogston has devised his operation, which we shall not
describe, as it has been already given at length in the Surgical
Periscope for March of this Journal; we shall merely state that
the operation is for the purpose of securing anchylosis of the
astragalo-scaphoid joint in a good and normal position, after the
removal of a sufficient quantity of cartilage and bone.

We wish now to draw attention to some omissions in the paper. At
page 2, Professor Ogston tells us that flat-foot occurs "seldom save in
those who are over-worked." With this statement we do not agree.
The condition of flat-foot to a minor extent is very common, and
occurs in persons of all ages and occupations. But those who
complain of it and who seek for relief are certainly the heavy
worked. We have been in the habit of noting three varieties of
flat-foot according to cause. Cases due to general relaxation of the
parts from weakness of ligaments, fasciae, and tendons, connected
with a general weakness and debility. Secondly, cases due to
the carrying of weights and long standing in the erect position,
in which, as it were, the constant pressure of the weight of the
body and its extra load transmitted through the tibia to the
astragalus, drives the latter down from its normal position. The
third class of cases is the gouty. Flat-foot is very common in
these last, and is, we believe, due largely to a tenderness of the
metatarso-phalangeal joints, which makes the person walk on his
heels, and thus, from not exercising the foot and the flexors of the
toes, relaxation of the whole foot takes place, and flat-foot is the
result. Now, the practical use which we would make of these
distinctions is that in class 2 the "Chopart joint" will undoubtedly
be most to blame, but in classes 1 and 3 all the joints along the
inner margin of the foot will be to blame, and consequently
ankylosis of the astragalo-scaphoid joint will have no beneficial
effect on the patient's powers of walking. Another point which
we consider Professor Ogston has allowed to escape him is that the
foot, in the disease we are considering, is flattened not only antero-
posteriorly (that is, from toe to heel), but laterally. In other words,
the lateral arch of the foot gives way. Hence, to a considerable
extent, the apparent valgus condition of the foot in aggravated
cases. Again we ask, What good will ankylosis of the astragalo-
scaphoid joint do to such a state of matters? It could not in any
way improve the lateral flattening of the foot.

Without going any further in the criticism of Professor Ogston's
operation, we would submit that, while there doubtless will be
cases in which the relaxation of the astragalo-scaphoid joint is
evidently the main, and almost sole cause of flattening of the
tarsus, and in which the operation of pegging the two bones will
be not only justifiable but appropriate, there are many more cases
in which other treatment should be adopted. The pegging
operation will be most appropriate in those cases which are due to
direct pressure on the astragalus from carrying weights and long
standing. In cases due to general debility and relaxation, some
mechanical support combined with certain gymnastic exercises
will, we believe, be found more suitable.

The best mechanical support we have seen is the one figured
below, the invention of Mr Young, cutler, Edinburgh. A broad
leather strap is attached to the outer side of the sole of the boot,
passes beneath the instep upwards to the outer side of the leg, where
it is attached to an upright iron bar. In this way the instep is
not only supported but also drawn outwards. The tendency of
the tarsus to fall inwards as well as downwards is thus
counteracted. A further advantage of this boot is that it supports
the tarsus only when the patient is in the upright position. There
is a joint where the iron rod is attached to the sole of the boot.
When the ankle is flexed the rod comes forward, and the leather
strap is relaxed. This allows, during walking, of the natural
exercise of the patient's muscles, tendons, ligaments, etc., which are thus prevented from undergoing atrophy.

Such exercise (or gymnastics as we have called them) must be of great importance in those cases in which flat-foot is due to debility. If the muscles are relaxed, there will be the more strain on the ligaments. If, on the other hand, the muscles be trained so as to be in better tone, they will support and help the ligaments, and enable them to recover their tone. One can readily see how the tibialis anticus and posticus with the flexors of the toes will assist the calcaneo-scaphoid ligament and plantar fascia to maintain the antero-posterior arch, and how the peroneus longus especially will assist the lateral arch of the foot.

While heartily accepting Professor Ogston's valuable contribution to the surgery of the foot, we would suggest for his consideration, as more generally applicable, the elementary procedures we have indicated above.

---

**Fig. 1.** — Diagram showing principle of apparatus.
A, Boot with upper removed.
B, Lower end of steel support entering box in heel of boot, and passing upwards on outside of leg to below knee at C, and secured in position by band D going round leg.
E, Leather strap passing below arch of foot from outer edge of sole, and pulling upwards on upper end of steel rod at C.

**Fig. 2.** — Apparatus with strap drawing up arch of foot.
**Fig. 3.** — The appliance as in use. The foot strap is seen having passed below arch, coming through upper, and passing across front of leg to upper end of steel support. By the strap passing through upper, interference with its free action by the lacing of the boot is avoided.
The Fold of the Nates. By J. Symington, F.R.C.S.E., Lecturer on Anatomy, School of Medicine, Edinburgh. From the Journal of Anatomy and Physiology.

Mr Symington is well known as a painstaking and accurate investigator. In the present instance he begins by pointing out that almost all writers on anatomy and surgical anatomy describe the fold of the nates as corresponding to the lower margin of the gluteus maximus. In the second place, Mr Symington has no difficulty in showing that these two anatomical lines do not correspond. This he proves by reference to drawings from foreign authors, and by his own observations on the dead body. The third point in this paper is the cause of the natal fold and of its diminution or loss in cases of disease of the hip joint. Mr Symington attributes the fold to the ischial tuberosity and relaxation of the skin in the straight position of the limb. “The skin which is put upon the stretch in flexion of the thigh is relaxed in the extended condition, and thus a fold naturally tends to occur below the projecting ischial tuberosity.” Mr Symington quotes also Luschka’s opinion, who “considers the fold due to a pad of fat and bands of connective tissue which pass from the skin through the fat to the ischial tuberosity and fascia lata.” The decrease of the natal fold in hip-joint disease is explained by Mr Symington “to be dependent upon the flexed position of the limb.” We have reason to believe that he has somewhat altered this opinion since the publication of the above papers. It is wonderful that so plain an anatomical fact as the non-correspondence of the gluteal margin and the natal fold should have been overlooked. It is doubtless one of those things that have got into books and remained there, simply because no one has thought it worth while to investigate the truth. Authors have simply taken the thing for granted, and copied the statement from generation to generation. One of the most recent publications (Treves’ Surgical Applied Anatomy), otherwise a most excellent and reliable authority, says (page 381), “The fold of the buttock corresponds to the lower border of the gluteus maximus.”

---

Part Third.

MEETINGS OF SOCIETIES.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.
SESSION LXIII.—MEETING IX.

Wednesday, 2nd July 1884.—Dr Littlejohn, President, in the Chair.

I. EXHIBITION OF INSTRUMENTS.

Dr A. Bruce showed a new form of portable galvanic battery. The box (Fig. 1) measures 7\(\frac{3}{4}\) inches long, 5 inches broad, by 4\(\frac{3}{4}\)