Fig. 4.—Chronic gout. Asymmetrical lesions and deformities.

Fig. 5. Chronic gout. Asymmetrical lesions and deformities.

Fig. 6.—Chronic gout. Ulnar flexion of right hand. Asymmetrical lesions and deformities.

similar to what I have just described. As disease progresses, the joints become more or less fixed in this position by either bony or uratic deposit, and the position is by degrees magnified into a marked deformity.

ON THE RHYTHMIC CONTRACTILITY OF THE SPLEEN.¹

BY

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THE authors have investigated the rhythmic contractility of the spleen, which was discovered by Roy², and the influence of nerves, drugs, and animal extracts upon it. For this purpose the changes in its volume have been studied by aid of a specially constructed plethysmograph, so arranged as to afford the least possible obstruction to the blood vessels entering and leaving the hilum. Under these circum-

stances the spleen exhibits evidence of responding immediately by alterations in volume to every alteration in blood pressure, respiratory and cardiac, and *a fortiori* to such greater changes as are produced by compression of the aorta (contrary to Roy). This is even manifest when the organ is left connected with the rest of the vascular system by one artery and vein only. The conclusion which Roy arrived at, that the spleen is practically cut off from the arterial system, and that its circulation is maintained by its own contractions, is thus shown to be incorrect.

The rhythmic contractions are independent of the central nervous system, for they will proceed after all the nerves passing to the organ are severed, and they can also be shown in an excised spleen perfused with defibrinated arterial blood.

They are excited to increased activity by intravenous injection of certain drugs and animal extracts which act specifically upon the organ. Prominent amongst these are curare, water extract of suprarenal, and water extract of brain. Suprarenal extract causes an enormous contraction, followed by increased extent of rhythmic waves; curare and brain extract, mainly the latter, without a preliminary contraction. Indifferent fluids, such as normal salt solution, produce in moderate quantity no such effects (contrary to Roy), and the same is the case with many animal extracts.

As was shown by Roy, a condition of dyspnoea causes marked contraction of the spleen. The authors show that this contraction is of central origin, for after severance of all nerves to the organ it is replaced by a passive dilatation, due to the rise of general blood pressure, this being soon followed by an increase in extent of the rhythmic contractions. Temporary cessation of the blood flow through the organ also has the effect of increasing their extent, probably because the splenic tissue is thereby deprived of oxygen and rendered temporarily more excitable.

The splanchnics, both right and left, contain not only nerve fibres which produce contraction of the spleen (Tarchanoff, *Pflüger's Archiv*, vol. viii; Roy, *loc. cit.*), but also others which cause dilatation of the organ.

There is no evidence that the vagi contain any centrifugal fibres which influence the volume of the spleen (contrary to Roy). Provided their inhibitory action upon the heart is neutralised by atropine, even the strongest stimulation of the peripheral end of either cut vagus produces no direct effect upon the spleen.

Stimulation of any of the nerve twigs which accompany the arterial branches to the spleen causes strong contraction of the whole organ. The contractions which result from splanchnic stimulation are also obtained even when there is only a minute twig left, all other nerves being severed. There is, therefore, probably a very free nervous communication within the organ. We have obtained evidence of the existence of numerous afferent (sensory) fibres in the nerves supplying the spleen.

A CASE OF CHOLECYSTOTOMY: A REMARKABLE GALL STONE.

BY MARK WARDLE, L.R.C.P. AND S. EDIN.,
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A WOMAN, in her 70th year, had been under my treatment at intervals for several years, for a condition that had passed for the last 30 years under the name of "spasm of the stomach." During one of these periodical attacks the gall bladder became considerably distended, and could be plainly felt. She could not at that time be brought to consent to surgical treatment, and under the influence of palliative drugs the pain ceased, the gall bladder resumed its normal size, and the gall stone that was supposed to have caused the attack was presumed to have passed into the gut. Several subsequent attacks of a similar character, but without the bladder distension, served to confirm the diagnosis of stone. The patient steadfastly refusing to be operated on, the "olive oil treatment" was instituted, and resulted in the discharge of a large number of supposed gall stones with the fæces. These on analysis proved, however, to be composed of oxidised oleic acid, food debris, etc., with no trace of chole-

¹ Abstract of a Paper read before the Royal Society.

² *Jour. Physiol.*, vol. iii.

sterin or bile pigments. They, however, served to prove the presence of gall stone to the patient's mind, and, in conjunction with a specially severe attack of pain, secured her consent to an operation. This was done on August 16th, 1895. On exposing the gall bladder by the usual incision it was plain that I had to do with an unusual conditions of things. The whole extent of the bladder presented to both touch and sight the character of a parchment-like skin tightly stretched over one stone. On opening the bladder this proved to be the case; and the stone, of which an illustration is appended, was with tedious and careful dissection cleared from the bladder wall, to which it was intimately adhering throughout its extent.

The narrow buffer-like end was distending the cystic duct. At A B there is a shallow groove going completely round the neck and terminating in a gap sufficient to allow the passage of bile. To this is to be attributed no doubt the fact that throughout the whole case there had been no jaundice. The largeness of the incision in the gall bladder precluding any attempt to anastomose with the intestine, its edges were secured to the parietal wound. Although the operation was a long one, having occupied fifty-five minutes from commencing to give chloroform to replacing the patient in bed, she suffered remarkably little from shock, had no considerable pain, and was cheerful and bright. Twenty-two hours after the operation, however, she suddenly complained of feeling sick, went into a state of syncope, and died in about two minutes.

The points that appear worthy of remark are the size of the stone (2½ inches), the length of time it must have taken to accrete, the total absence of jaundice, the fallacy of the treatment by olive oil, and the death from syncope when everything was looking so favourable to recovery.

ORBITAL TUMOUR: THIRTY YEARS' GROWTH; HISTORY OF INJURY!

By J. BROOKE RIDLEY, M.D. EDIN.,
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B. A., 46 years of age, a strong healthy man, wheelwright by trade, states that thirty years ago he was struck over the left eye by a wheel falling whilst he was mending it; the result was a severe black eye, but no external wound or injury to the globe itself. About a year after the accident he discovered that his sight was going fast in the left eye, and a few months later he became aware of something growing in the orbit. This has slowly increased since, though he says that little advance has been made during the past seven years. The present state of the growth is well shown in the photograph. The orbit is filled by a firm, resisting, and somewhat elastic tumour, occupying mostly a unilateral position on the nasal side of the eye, causing marked proptosis, with downward and outward displacement, con-

gestion of the affected area, with dilated vessels due to pressure on the ophthalmic vein, but no œdema of the skin or subcutaneous tissues. The free edge of the growth is distinctly apparent at the inner margin of the orbit, but does not appear to invade either the bones or eye. No pulsation, *bruit*, or thrill is to be detected on palpation or auscultation. There is no pain or constitutional disturbance, only slight discomfort from epiphora and headache due to pressure on the duct and supraorbital nerve; the headache varies much in intensity, being absent for days at times.

The external appearance of the eye is normal; mobility is good, though somewhat impeded by the growth. The eyelid shuts easily over the globe; tension is normal; the pupil is the same size as that of the right, and responds well to light. The fundus oculi shows dilated tortuous veins and optic atrophy. He is only able to distinguish light with the left eye. The skin is freely movable, there being no adhesions, enlarged glands, or signs of any inflammatory action or invasion from neighbouring sinuses or fossæ, and no change is observed on compressing the carotid artery.

As regards the nature of the growth, it is evidently not a bony, vascular, or malignant one; but beyond this it would be difficult to speak with certainty, as in the majority of cases of this description no positive diagnosis can be arrived at until an operation is performed. This he refuses to allow.

AN UNUSUAL CASE OF RUPTURED INTESTINE.

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FROM its rarity and from the obscurity as to its exact causation, the following case seems worthy of record:

A lady aged 58, who had suffered frequently from constipation, sometimes going seven or eight days without any action of the bowels, was suddenly seized whilst out walking with severe pains of a bearing-down character, commencing in the back and coming round to the front, not radiating into the groins and thighs. The bowels had been open that morning and regularly for the last week. She was in excellent health when the pain seized her. She was able to get home—only a short distance—and I saw her about an hour after the onset