recovered easily from the operation and was alive and in good health two years later.

The growth of cancer in the colon is often slow and insidious, and there is a massive form of colic cancer which, during its symptomless stages, is indistinguishable, especially when the mass lies in contact with the uterus, from a subserous fibroid. The diagnostic signs are sometimes especially deceptive if there should at the same time be a few small hard fibroids in the uterus.

Sometimes I have undertaken an abdominal operation hoping to find an impacted fibroid, but have found a hard cancerous growth in the sigmoid flexure impacted in the pelvis, and the operation has ended in colotomy. In happier cases I have started on the operation with strong suspicions that the patient had a malignant mass in the bowel, but found an impacted fibroid. It is a most evil combination when a fibroid of moderate size occupies the uterus and a massive cancer of the sigmoid flexure adheres to it. I am not alone in such experience; some of my gynaecological colleagues have occasionally stumbled on a cancerous pelvic colon in mistake for a fibroid, and have assigned the patients to their surgical associate for the operation of resection.

UTERINE FIBROIDS AND GALL STONES.

Gall stones are common in women, so are fibroids, and it sometimes happens that women come under observation with the two conditions giving so much trouble that the surgeon is puzzled to know which should be dealt with first. On three occasions I have removed a calculous gall bladder in the course of hysterectomy for fibroids. In each instance the uterus was so large as to require for its removal an incision reaching nearly to the ensiform cartilage. In these circumstances the removal of the gall bladder was a simple operation. In one instance the inflamed gall bladder adhered to a large subserous fibroid. In two other instances of this combination I removed the gall bladder six months after the hysterectomy. The only definite rule which I think can be laid down in the matter is this: If a woman deeply jaundiced in consequence of a stone impacted in the common duct also suffers from a uterine fibroid which so troubles her as to make it desirable to remove the uterus, I should prefer to remove the stone from the common duct first, because it is well known that cholaemia predisposes to haemorrhage. Hysterectomy in a woman with persistent jaundice is an operation which would place her life in the gravest peril from post-operative bleeding.

The pelvic complications of uterine fibroids, such as ovarian cysts, pregnancy, pyosalpinx, inflamed appendix and the like, are so common and so well understood that they have no place in this discussion. We are anxious to obtain the experience of those who perform hysterectomy for fibroids, especially in relation to such complicating conditions as heart disease, goitre, diabetes, renal disease, and cancer of the intestine. Fatal accidents in technique (such as haemorrhage and shock) occur occasionally, like railway collisions and deaths from lightning, but post-operative deaths from heart disease, pulmonary embolism and injuries to the ureters will be fewer if we profit by the experience of those who have faced these difficulties. In this way the risks of hysterectomy for fibroids, though small, will be reduced, and, small as they are, I am sure we have not reached the irreducible minimum.

THE annual dinner of the Anglo-American Continental Medical Society was held in Paris on Saturday, October 18th, at the Hôtel Majestic, with Professor Robert Saundby of Birmingham in the chair. The other guests were: Drs. du Bouchet, Castex, Desfosses, Galezowski, Lutaud, Field Robinson, and Mowat; and among the members of the club present were: Dr. Eugene Dupuy, Dr. Koenig, Dr. Leonard Robinson, Dr. Warden, Dr. Magnin, and Dr. Robert Turner (Honorary Secretary). After the loyal toasts had been duly honoured, the Chairman proposed the prosperity of the society, pointing out that it constituted a valuable link among Anglo-Saxon physicians practising on the Continent and the Mediterranean littoral, and served to maintain not only a friendly bond of union, but the professional traditions which are honoured alike in England and the United States. The toast was acknowledged by Dr. Leonard Robinson, who proposed the health of the Honorary Secretary, and congratulated him on his approaching marriage.

Remarks

ON

THE TREATMENT OF SPASTIC PARAPLEGIA (LITTLE'S DISEASE).

BEING AN INTRODUCTION TO A DISCUSSION IN THE
SUBSECTION OF ORTHOPAEDICS OF THE XVIIITH
INTERNATIONAL CONGRESS OF MEDICINE.

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PATHOLOGY.

WE are not now concerned with the pathology of spastic paralysis further than it affects our methods or proposed methods of treatment. It is well known to all of us that the causes are lesions from haemorrhage or disease, or developmental defect of the upper motor neuron affecting particularly the pyramidal tracts. Such abnormality may be visible to the naked eye, or only to be found by microscopic investigation. Cases of the latter kind have been recorded by J. H. W. Rhein and by S. Miura. The last named has shown by a review of the literature of the subject to what very various initial processes the brain lesions in cerebral diplegia may be due.

In this connexion it is well to remember that there are cases of hereditary or familial spastic paraplegia, which are generally progressive and can only be temporarily improved by treatment. If the statement of Pierre Marie that the centres in the cord constitute "une machine toujours sous pression," the manifestations of which are controlled and inhibited by the brain, be accepted, it is clear that an interference with the paths of the inhibitory impulses will release these manifestations, and that the spastic symptoms may be considered as a disorderly exaggeration of the normal muscular tone. Centripetal stimuli, whether sensory or other, are no longer controlled by the centrifugal inhibitory impulses, which either through central defects never originate, or, if originated, are unable to reach the anterior horns in the spinal cord.

Thus there is no longer any just proportion between the stimulus and the muscular contraction. The slightest centripetal stimulus in an extreme case will cause the most violent muscular contraction, not only of the muscle or muscles connected with its place of origin, but also of the whole muscle group or of many groups of muscles in many parts of the body.

As Küttner has so tersely put it, "The subcortical centres are continually spurred but not bridled."

RATIONALE OF TREATMENT.

The lesion being, then, a radical one, incapable of true cure, the most that science and art can hoped to achieve is improvement, by attempting to restore the lost balance by interference at some point or points in the nervo-muscular combination.

There may be said to be too little (defect) weight in one scale of the balance. If we cannot restore equilibrium by adding what is lacking to the scale which kicks the beam, we can perhaps make the beam level by removing something from the overloaded scale.

Clinically, the manifestations of spastic palsy range from slight hypertonus, say, of the triceps cruris, to general rigidity of the limbs and of some of the muscles of the trunk and neck. Therefore it is clear that the amount of justifiable interference must vary greatly.

HISTORICAL.

Before proceeding to deal with the question of present-day treatment, it may not be out of place to review briefly past practice.

When in his lectures on deformities in 1843 W. J. Little described "universal rigidity of the muscular system, or of the flexor muscles only, in newborn infants," a disease which has since become known by his name, he limited his recommendations as to treatment to advising manipulations, instruments, counter-irritation of the spine, and tenotomy as a *dernier ressort* only when secondary structural shortening had supervened. He instanced as the

parts requiring section, "the adductors of the thighs, the hamstrings, gastrocnemii, and adductors of the feet." In suitable cases this treatment rendered good results, and it was for many years the usual treatment among orthopaedic surgeons, if we accept the phenomenal outburst of tenotomy by Jules Guérin, who divided sixty or more muscles at one sitting.

Among general surgeons, however, the treatment of spastic palsy received very little attention, and many physicians, and especially neurologists, condemned all operations, Gowers writing as lately as 1899, "The tendo Achillis is sometimes divided for the contracture of the calf muscles, but the operation is useless and ought not to be performed."

At the same time that the physicians deprecated operation, medical treatment of the disease was at fault, except in rare syphilitic cases where the results were doubtful. Dejerine wrote in 1892: "Les plus souvent, les enfants . . . sont condamnés à l'inactivité pour toute leur existence."

Nevertheless D'Heilly, by the use of potassium bromide, extolled by Charcot, obtained a temporary cessation of contracture, but the spasm returned on the administration of the drug ceasing.

Some writers have attributed to syphilis an important rôle in the causation of spastic palsy. For instance, Delbet tested 13 cases, and found the Wassermann reaction positive in all. On the other hand, H. R. Dean, who examined 330 inmates of the Wilhelmsstift, an asylum for idiots at Potsdam, found 15 cases of congenital spastic diplegia, in only one of which was the Wassermann reaction positive.

Whatever part syphilis may have in the causation of these cases, there is no reason to think that antisiphilitic treatment can benefit them, seeing that the damaged tissues are beyond repair.

RECENT ADVANCES.

Within the last quarter of a century orthopaedic surgeons have much increased the scope of treatment. Instead of restricting surgical interference to tenotomy only of those tendons which are structurally shortened (secondary contraction), it is now recognized that spastic muscles and tendons may and often should be divided, lengthened, or ruptured.

In 1890 V. P. Gibney recommended and had performed tenotomy of spastic muscles, and maintained the corrected positions for months afterwards by means of splints, with a record of great improvement.

In 1891 A. Lorenz reported a case of a young man of 17 with marked contracture of the hamstrings and of the plantar flexors of the foot, which produced contraction of the knees and talipes equinus, and divided or excised ten tendons at one sitting. The patient, who before the operation could hardly stand up, was afterwards able to walk and to remain for several hours at a time on his feet.

In 1896 Vincent performed tenotomies in cases of spastic paralysis, and devoted great care to after-treatment by splints and walking apparatus and re-education, with good results; and in 1903 Robert Jones strongly recommended a similar method of treatment, comprising tenectomy and tenotomies, and tendon lengthening and transplantation. He wrote; "No opportunity should be lost of performing a tenotomy. Even in mild cases, where a spastic tendon is felt, let us ruthlessly divide it." He recorded good results and deprecated pessimism.

In 1904 Bastow reported good results in cases of diplegia after transplantation or elongation of the hamstrings.

In 1905 Lange, and in 1906 Hoffa, also recommended transplantation of tendons, following Codivilla, who in 1900 had strongly recommended this procedure.

Soulié, in 1907, had performed arthrodesis of the tibio-tarsal articulation, and in 1909 P. Delbet, finding after tenotomies that the thigh was rotated inwards, did an osteotomy and rotated it out. The result reported—confirmed by Kirmisson—was good.

TREATMENT OF NERVOUS SYSTEM.

During the last five years the attention of surgeons has been directed more to the nerves and nerve roots than to the muscles and tendons.

In 1908 J. J. Nutt of New York proposed and practised an operation to which he gave the name of "intra-perineural neurotomy." The sheath of the sciatic nerve was opened and separated from the nerve, the whole of which was divided and then sutured, and finally the sheath was sutured and the wound closed.

In the same year O. Foerster of Breslau proposed to adapt to spastic palsy the operation which had first been performed for pain by Sir William Bennett. On his suggestion Tietze divided several of the posterior nerve roots inside the spinal canal.

Modifications of this operation were proposed in 1910 by Guleke and by A. S. Taylor. The former recommended division of the roots outside the dura mater, while the latter advocated partial division of half of each of the roots supplying the regions affected, instead of complete section of alternate roots.

Allison and Schwab in 1909 introduced the practice of injecting alcohol into the nerves supplying the spastic muscles, thereby causing motor and sensory paralysis and peripheral degeneration of the nerve.

Stoffel in 1911 divided part of the fibres of the motor nerves supplying the muscles. Vulpius in the same year urged nerve transplantation in preference to rhizotomy.

OBJECTIVES OF TREATMENT.

The immediate objects of surgical treatment may be stated to be:

Correction of deformity, and

Abolition or diminution of spasm, with the ultimate end in view of enabling the patient to place the limbs in such a position that he may use them properly, but before undertaking any treatment the surgeon must form an estimate of the mental capacity of the patient. If this seems to be normal or even approaching to normal, it is worth while to undertake thorough and long-continued treatment, in the belief that the patient's will power and intelligence will enable him to take advantage of every improvement. If, however, the patient is idiotic, there is little hope of his learning to use his muscles, and disappointment is nearly sure to follow treatment. In a case of doubtful intelligence it is desirable to give the patient the benefit of the doubt, and to undertake the treatment, always remembering on the one hand that parents generally overestimate the intelligence of these children, and on the other that improvement in the physical condition is nearly always accompanied by improvement in the mental condition, sometimes to a surprising extent. Almost all observers are agreed upon this point, and also in the opinion that treatment must be patient, prolonged, and persevering.

AGE SUITABLE FOR TREATMENT.

The question as to the appropriate age for beginning treatment is answered differently by different surgeons. Some—for example, Froelich—would begin at 3 years old, while others—for example, Kirmisson—prefer to wait until the age of 7. It appears to me that the sooner correction and training can be begun the better; and I am disposed to agree with Froelich rather than with Kirmisson, for the somewhat complex acts of maintaining the erect position and of progression in it require the development of certain automatic paths and centres in the central nervous system, which paths are normally developed before the age of 3 years. Given fair intelligence, it is surprising how quickly a child will develop powers of walking erect, as soon as the surgeon has rendered the physical condition of the limbs suitable to the purpose. In a case of severe bilateral congenital varus, the patient, aged 5 years, had never walked, but although he was of poor intelligence, he was able to walk well less than a month after the deformity was corrected.

RECAPITULATION.

It will be seen from the following list that the means of treatment fall into two categories, which, however, are not mutually exclusive, because the employment of some of both categories may be advisable in any individual case. For instance, no one will deny the advisability of tenotomy of a structurally shortened muscle for the relief of deformity, although spasm in such a case may have been

abolished by one of the operations on the nervous system. Nor will it be doubted that after muscle and tendon operations have failed to produce a good result, more radical operations on the nervous system may be necessary and beneficial.

Manipulations Splints, etc. Walking instruments Tenotomy Tenoplasty Tenectomy Tendon lengthening Myorrhesis Myotomy Arthrodesis Osteotomy	}	Proceedings intended to counteract effects of disordered nervous influence.
Neurotomy (complete) Neurotomy (partial) Alcohol injection of nerves Nerve transplantation Rhizotomy		
Re-education	}	Intended to develop and improve latent powers.

SELECTION OF METHODS AND CLASSIFICATION OF CASES.

The treatment to be adopted must vary with the degree of severity of the case, and in estimating this I have found it necessary to classify cases from a clinical point of view, leaving out of consideration whether the disease is a spinal paraplegia, a cerebral diplegia, or a hemiplegia.

Cases may be tabulated according to the muscle groups affected, roughly, as follow:

Where there is—

1. Foot contracture,
2. Foot contracture and knee contracture,
3. Foot contracture and knee contracture and hip contracture.

These are the three main groups, any one of which, or any combination of which, may be affected, but as a rule the more peripheral the group the more easily it is affected.

In Group 1, talipes equinus, from contracture of the great calf muscles, and varus from the contracture of the adductors of the foot, form the commonest deformity. If structural shortening has not taken place, by persistent steady pressure of the hands the deformity may be overcome and the foot forced into dorsiflexion. It will then generally be found that the sole has become flat, and that the varus deformity has been converted temporarily into valgus. In such a case, if the child is not idiotic, it can generally get about in a digitigrade manner, with some help, but the knees are generally flexed by the action of the gastrocnemii, even though there be no spasm of the hamstring muscles. The long-continued use of right-angled splints, if they can be borne, may result in the cessation of spasm of the calf muscles, or in its diminution to such an extent as to enable the heels to be placed on the ground. But such a result is rare, and it is hardly worth while to undertake tedious treatment on the chance of success, when the end can be well attained by other means. The objection offered by some surgeons to tenotomy is that talipes calcaneus is likely to ensue. For instance, Shaffer abandoned tenotomy on this account. Should calcaneus occur it can be remedied best by arthrodesis. It is, however, preferable to lengthen the tendon by open operation after the method of Anderson (so-called Z method), by which the amount of elongation can be regulated better than by the subcutaneous method. The limb, including the knee, should be maintained in the corrected position for weeks, by gypsum or other retentive apparatus.

In Group 2, in addition to the treatment of the ankle deformity, the spastic knee flexors have to be dealt with. Subcutaneous tenotomy is here out of place on account of the neighbourhood of nerve trunks, but we have the choice of open section, or lengthening, or tendon transfer, or myorrhesis, any of which will give a good result. In my personal experience I have found lengthening of the semitendinosus and semimembranosus and simple section of the biceps satisfactory, and I have never known genu

recurvatum to follow the operation. This deformity is, however, regarded by Lorenz (who favours myorrhesis here as elsewhere) as a desirable result.

Tendon transplantation is, in my opinion, an unnecessary refinement, but some surgeons (for example, Lange) have preferred it. Whitman, with whom I agree, attributes its good effects "in a far greater degree to the removal of the deforming force than to the extending action of the flexor muscles."

In Group 3, in addition to the foregoing procedures, the deforming muscles around the hip have to be dealt with, and these are chiefly the adductor group, which produce that most disabling deformity, when severe, which causes scissor-gait. Simple tenotomy, myorrhesis, or partial excision of one or more of the group, will all give good results. My personal preference is for excision of an inch or more of the upper ends of the adductores longus and brevis, the gracilis, and even the pectineus and part of adductor magnus. There is remarkably little bleeding from spastic muscles, and the wound can be closed and sealed with collodion. As above mentioned, Delbet has performed osteotomy for internal rotation after operations on the adductors, but this proceeding can seldom be necessary. The tensor fasciae femoris can be divided if it causes fixed flexion of the hip. Gibney has excised the whole muscle and tendon.

Whatever particular way of overcoming the spasm of the adductors is followed, all authors are agreed on the paramount necessity of immediate correction and fixation in a position of full abduction; for instance, Sherman in 1899 fixed the thighs in abduction at 180 degrees.

When by the abrogation of the power of action of a muscle for a long time the centres in the cord have been given a rest, it often happens that with judicious care of the patient the spasm will not return, or not to an unmanageable extent, so that it can be controlled by appropriate portable instruments, and the patient may have fair use of his limbs.

OPERATIONS ON THE NERVOUS SYSTEM.

If, however, the proceedings briefly above described, of which the objectives are the muscles, tendons, and bones, followed by careful training and manipulation, fail to diminish spasm permanently, recourse may be had to operations on the nervous system. Of these, neurotomy, partial or complete, alcohol injection of nerve, and nerve transplantation, have for their aim the cutting off temporarily or even permanently the spastic muscles from their nerve supply or sensory connexion with the spinal cord. Nutt's operation, and Allison and Schwab's, cause degeneration of the whole mixed nerve, including afferent and efferent fibres below the point of section, and, as regeneration will take at least a year, during that time the hitherto spastic muscles are at rest, as well as their cord centres, and the antagonistic muscles get a chance to develop.

Although Lorenz, who was one of the first to advise and perform neurotomy, no longer favours it, Allison and Schwab have reported some very good results, and the operation is certainly deserving of a more extended trial. In some situations, however, there may be a great difficulty in finding the nerve. Thus these authors reported that in one case the search for the obturator nerve was abandoned after one and a half hour's trial, and subsequently a second operation was necessary to locate it.

Partial neurotomy has been advocated, as before mentioned, by Stoffel, who attempts to divide the motor fibres only of the nerves, such as the crural, sciatic, and obturator in the nerve trunk before its division, and after electrical test of the exposed nerve. But he finds it difficult to do enough and not too much. Lange, Vulpius, Biesalski, and Lorenz have criticized the method adversely as uncertain and difficult. Vulpius is strongly in favour of nerve transplantation, a method which in his hands has given good results—namely, 50 per cent. successes. The operation is not an easy one, and has not yet been much practised except by its author.

FOERSTER'S OPERATION.

There remains to be considered the brilliant advance made by Professor Otfried Foerster in 1908, which I have already mentioned. I shall deal with it briefly, because the Section will have the advantage of a report upon it by

* I have used the word *Rhizotomy*—derived from two Greek words—in preference to *Radicotomy*, which some German writers use. The latter is a hybrid, and I know of no argument in its favour.

Professor Küttner, who has had a large operative experience of the method.

The operation aims at breaking through or much weakening the sensory arc of the reflex circle on whose integrity the spasm depends. Unlike most of the other proceedings, it leaves the motor impulses and their paths and the muscles themselves untouched. This is an advantage in itself if the excitability of the cord can be reduced to normal.

The operation may be performed in two stages or in one, and the nerve roots may be identified and located either near their exit from the canal or at their origin from the conus medullaris. In favour of the two-stage operation, the avoidance of bleeding into the dural sac, and of the additional shock of manipulating the cord and nerve roots on the same occasion as the laminectomy, are cited, but if the use of adrenalin by injection before and swabbing during the operation is adopted, as advised by Hey Groves, there is, as it seems to me, no advantage in doing the operation in two stages, but the contrary.

As to the site of the section, I have found that although it is easier to identify the roots near their exit from the canal, it is by no means easy to distinguish the posterior from the anterior roots, although this might be facilitated by electrical tests; on the other hand, if the section be made near the origins of the nerves from the conus, while it is easier to tell posterior from anterior roots, it is less easy to identify the individual roots; but as the mistaking, say, the fifth lumbar for the first sacral is less serious than the mistaking an anterior for a posterior root, and as, moreover, the requisite number of roots can be divided near the conus, with less extensive removal of laminae than lower down (for the whole lumbar enlargement can be exposed by removal of three vertebral arches), there appears to be a considerable balance of advantage in favour of the higher operation, in which, too, the incision is better placed for avoidance of sepsis.

It is not to be denied that the operation is a serious one, but having regard to the hopeless nature of the very severe cases—those for which alone Foerster would advise it—under other treatment, it is quite justifiable. Not only is the operation severe and a good deal of shock to be expected, but for some days after the operation the patients suffer acute pain and hyperaesthesia, which, however, passes off as the central ends of the nerve roots degenerate. Spasm may in some cases return, even when a large number of roots has been divided. Whether the fears expressed by some of secondary degeneration of the cord are justified, time will alone show. So far not much evidence of it is to hand.

As yet very few cases have, as far as I have been able to ascertain, been submitted to rhizotomy for spastic palsy out of Germany. Professor Foerster last summer recorded fifty-nine operations for Little's disease with eight deaths.

In a case operated on by myself in September, 1912, the results are very encouraging, and the child is beginning to walk, but the case is not yet ready for publication.

Foerster and all others are practically agreed that the operation is only justifiable in the worst cases, where the patient is not idiotic, there is not much athetosis or epilepsy, and where other treatment is hopeless.

Finally, but not of least importance, comes as a method of treatment re-education, without which good results are not to be obtained from any operation whatever. This re-education of muscles and will must be constant, patient, persevering, and measured in time more by years than by months.

After all has been done that man can do, there will be cases in which little improvement will be made, but, for all that, there is no need of pessimism, although it must always be remembered and impressed upon the friends that such cases may be improved but cannot be completely cured.

ACCORDING to a statistical report recently issued by the French Minister of the Interior, the total number of medical practitioners in France is 20,809. The departments in which the number of doctors is largest are the following: Seine, 4,393; Nord, 811; Gironde, 614; Rhône, 585; Bouches-du-Rhône, 575. The departments with the fewest doctors are the Hautes-Alpes, 29; Haut Rhin, 32; and La Lozère, 39. There are in France 2,848 dentists, 13,065 midwives, and 11,585 pharmacists.

HEREDITARY TRANSMISSION OF SARCOMA.

BY

J. S. MANSON, M.B., CH.B. EDIN.

LIKE many other diseases which have since been proved to be of environmental origin, malignant disease was long believed in a vague and indefinite manner to be hereditary. The success of modern research in discovering that the essential causes of many diseases hitherto believed to be hereditary were of an environmental nature, gave a gleam of hope that malignant disease would in due course fall into the same category. The present-day belief in the parasitic or at least environmental origin of cancer stimulates research workers to the discovery of its cause, and so to its prevention and cure.

The most recent addition to modern research has been the analytical study of heredity, and it is interesting to note that the question of heredity in malignant disease is again coming into prominence. Bashford¹ has discussed the relation of heredity to the frequency of cancer in man, and comes to the conclusion that the difficulties of the problem are too great to admit of a satisfactory result. He was hopeful, however, that numerous experiments with short-lived animals like mice would lead to some definite conclusion. His colleague Murray² states that it has been part of the original plan of the work of the Imperial Cancer Research Fund to study the hereditary factor in the problem of cancer, and he has already made an important contribution to the subject. He has shown that the incidence of spontaneous mammary cancer in mice of recent cancerous ancestry is nearly double that in mice of remote cancerous ancestry. The conclusion from this is that an acquired susceptibility to cancer has been transmitted, but no light is thrown on the origin of the disease itself.

As a small contribution to the study of malignant disease in man, I give the following account of the illness and deaths of a mother and two sons from sarcoma, which I venture to think justifies the title of this article.

CASE I.

The Mother.

S. P., the mother, was born in 1869, a native of Cheshire, the youngest of a family of one brother and four sisters. At the age of 22 she married E. P., who is still alive and well. Three sons were born: W. in March, 1892; T. in July, 1894; and C. in August, 1897. There was thus an interval of two years and four months between W. and T. and three years and one month between T. and C.

S. P. had always been a healthy woman. At the beginning of 1896 she noticed a small lump about the size of a bean on the left side of the neck. This grew slowly, until it reached the size of a marble. She consulted her doctor, who advised her to have several teeth extracted, and this was done. The swelling, however, continued to increase, and in August, 1897 (eighteen months after it was noticed), it had attained the size of a walnut.

On August 3rd, 1897, C. was born, and after this the tumour grew very rapidly.

On November 9th she was admitted to the Manchester Royal Infirmary. The following extract from the register of Manchester Royal Infirmary was kindly supplied by Mr. E. E. Hughes, the surgical registrar:

"S. P., admitted November 9th, 1897; discharged November 18th, 1897. Diagnosis: Lympho-sarcoma neck, left side. Result: Home *in statu quo*."

The growth continued to enlarge, and she died from exhaustion on February 21st, 1893, about two years after the growth was first observed.

CASE II.

The Sons.

C., the youngest son of the family, had always been a healthy lad. He consulted me in September, 1912, about a small growth on the left side of the neck. The growth was about the size of a walnut, movable and painless, the skin moving freely over it. I referred him to Mr. Roberts at the out-patient department of the Manchester Royal Infirmary, and he was admitted in November. A small piece of the growth, which had increased in size, was excised for microscopical examination. The report from the clinical laboratory stated that the section showed the structure of a round-celled sarcoma.

He was sent home, and the growth continued to enlarge, until it formed a fungating bleeding mass as large as a cauliflower on the left side of the neck. On February 17th, 1913, he died from exhaustion and haematemesis.

CASE III.

T., the second son in the family, consulted me in March, 1912, about some swellings on the right side of the neck. He had an enlarged right tonsil with some exudation on its inner surface. The swellings were evidently enlarged glands secondary to the