indeed, as to its precise type, without the aid of the microscope. Whatever the microscopic character may be, the clinical characters must always be taken into full consideration. If of slow growth, whatever its cells may be, there is not infrequently a fairly well-marked capsule, perhaps more often in India than in England. Then the growth may have been towards the surface of the body so as to have but a narrow base. In such cases an absolute cure may be expected.

Even when there is a capsule the tumour should never be shelled out from inside it, but should be removed with the capsule, and, if practicable, some of the surrounding tissue, and this needs to be scrutinized with the keenest suspicion, lest at some point it may have become infiltrated. If the growth is in the substance of a muscle there can be no assurance of safety unless the muscle be removed far beyond the apparent limits of the tumour, and it is good practice to extirpate the muscle in its entire length. In a limb it often becomes a critical question whether an amputation should be performed or not. In two cases we amputated the arm, and in three the leg or thigh, on account of the extent to which the bones were affected. In several other patients we should have amputated at the hip-joint had it been possible to get their consent; some came too late, with secondary tumours in the pelvis or elsewhere.

In a country which is so isolated, and where the people are so ignorant, it is little surprising that many allow the tumours to attain a size inconvenient by their bulk before applying to us for their removal. Of those excised from the parotid region, some were as large as a coconut. Such required an incision from the temporal region to near the sternum, the facial nerve has always to be sacrificed, and often the common carotid, or perhaps also the jugular vein, ligatured. For many years past we have deliberately ligatured the common or the external carotid as a preliminary to excision of any malignant tumours of the parotid or upper jaw, not merely for the sake of facilitating the operation and diminishing the bleeding, but also with the view of cutting off the blood supply, and so tending to cause degeneration or atrophy of any portion of the tumour which may have escaped removal. The known recurrence in these cases was only about 20 per cent., and in at least two patients, in whom the removal was incomplete, the growth was quite arrested, and the patients were in good health years after.

In extensive operations about the face it is impossible to avoid a certain amount of sepsis, and it may be that in some of these incomplete removals the benefit that undoubtedly followed was due, not to the interference with the blood supply, but to the action of a mixed sepsis with its toxins on the embryonic cells, in the same way as Coley's fluid acts. I consider that it is worth while to give a patient the chance, even when the extent of the disease precludes any hope of making a clean sweep of the disease with the knife. In many cases one may hope to alleviate the pain of pressure and the distress of bulk, and in others to prune off foul and fungating portions which are a dangerous source of haemorrhage, and render the patient a trial to his friends.

In two cases the whole scapula was excised. In one, a young woman, the sarcoma had not infiltrated the surrounding tissues widely, and cure was complete; in the other I assisted Dr. Gaster to remove a widely-diffused tumour. All visible disease was excised, including all muscles down to the ribs, and from the spine to the upper part of the humerus; but six weeks later I had to excise a growth in the arm, and then there was further recurrence in the back of the neck.

Many of the tumours from the flank, abdominal wall, or lumbar region were very extensive, and of these few appeared to have recurred; perhaps we may have dealt with fewer of the really inoperable cases in this region. In one man I was drawn into an operation which cleared away all tissue from the tenth rib to the iliac crest back to the spine and down to the peritoneum, and in one place the pleura, which was buttonholed. I put in large skin grafts, and for a time all went well, but there was inoperable recurrence originating from the pelvis.

It is well to make a careful exploration before committing oneself to an excision, deciding by a microscopic examination of a scraping, and by the relations of the tumour to vital structures, whether to push the matter to a final issue. Thus, in one case, Dr. E. F. Neve found that

the phrenic nerve was involved, and hiccup was set up when exploring the lower roots of a neck tumour, so he closed the wound. So, too, in several of the abdominal cases the operation was merely exploratory.

Altogether, 11 exploratory operations were done, in 12 others the removal was incomplete, in 16 there was recurrence, and in 10 others it was doubtful whether extirpation was complete. Three cases died in hospital or soon after leaving, the remaining 132 are regarded as probably cured, which gives a percentage of about 70 of success.

THE COLOUR OF THE HAIR IN OVARIAN DERMoids.

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In a philosophical letter upon the colour of the hair in ovarian dermoids (February 10th, 1906), Mr. C. J. Bond puts a series of questions on which he asks for information, and in the course of these makes the interesting statement that in one case of bilateral ovarian dermoid, he had found the hair in one cyst dark and in the other light.

In the *BRITISH MEDICAL JOURNAL*, November 5th, 1904 (Report of a meeting of the Pathological Society), I have pointed out that the ovarian dermoid does not bear classifying in the same group as that of the face or trunk. As long as the dermoid of the ovary was not differentiated from such, it was thought sufficient to point to the epiblastic origin of the Wolffian duct as the explanation of it. At the most, such a view can hold only for a simple parovarian dermoid or a simple dermoid of the hilum of the ovary, and is quite inadequate to explain the common complex ovarian cyst with its bone and teeth, or (as in the specimen I then described) with a distinct acephalous monster, provided with rudimentary limbs and a coil of intestine, projecting into the cavity of the cyst.

The theory I there advanced, and for which I ventured to revive the term (in a new sense) of epigenesis, was that the teratomatous or so-called dermoid cyst of the ovary resulted from the fertilization of the primordial ova in the embryo, so that the embryo furnished a second imperfect individual, the origin of which was not, therefore, synchronous with, but later than, itself. The actual impregnation I supposed to take place from surplus spermatozoa which perforated the investing membrane of the original ovum at its impregnation, and afterwards lay between the cells of the blastoderm ready to fertilize the primordial ova of the resulting embryo. This theory, like that of parthenogenesis, would involve a histological "maturation" of the ovum. The phenomenon of parthenogenesis is limited to forms so low in the animal series, however, that it is difficult to think it obtains with such great frequency in the human subject as the common occurrence of ovarian teratomata would necessitate.

The difference in the colour of the hair in bilateral ovarian cysts, noticed by Mr. Bond, would on this theory of epigenesis be an example only of the difference in colour so frequently witnessed in children born of the same parents, or still more closely, in heterologous twins, whose hair may be of different colours. In the case of homologous twins, which arise from a single ovum, are formed on a single blastodermic vesicle and enclosed within a single amniotic sac, the hair is of the same colour and the sexes alike, although the same concurrences are not, of course, excluded in the case where twins arise from two ova, whether discharged from the same or opposite ovaries. In double monsters the sex is always the same, the view generally held being that such monsters result from the misdevelopment of homologous twins. The colour of the hair in such is, I find, invariably alike.

Since reading Mr. Bond's letter, I have inquired into the colour of the hair of the patient (a single woman, 33 years of age) from whom the teratomatous cyst already referred to was removed.

Mr. Bell, the obstetric registrar at St. Thomas's Hospital, was good enough to trace the patient and obtain a sample of her hair. I placed this in the spirit in which the teratoma is preserved in order to institute a just comparison between the two. That of the teratoma consists of a tuft growing from the pubes, the parasite being

acephalous, and there being no teeth or bone in connexion with the cyst representative of a head; the hair is of the palest flaxen; the hair of the patient (? the mother of the parasite) is of a well-pronounced or medium brown. A sample of the hair of the father (aged 57) of the patient (? the father, too, of the ovarian parasite) is classifiable in anthropological terminology as darkest brown—that is, the division of black higher than jet. Both the patient's hair and that of her father have (as is so regularly the case) become darker since infancy. The hair of the patient's mother resembles her own.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF NECROSIS OF THE TESTICLE.

AN athletic youth, aged 17, noticed one day that the right side of the scrotum had suddenly become swollen and painful without obvious cause. There was no history of trauma or infection.

I saw him on the third day when his temperature was 101° and there was pain on movement. The scrotum was considerably enlarged and a mass the size of a small orange could be felt in the position of the right testicle, the individual parts not being distinguishable.

On the fourth day an exploratory incision was made in front. A collection of fresh blood was found in the tunica vaginalis; the body and epididymis were seen to be deeply engorged and the epididymis swollen to twice the normal size. There was no malposition of the testicle to be made out. The incision was left open.

On the ninth day as the testicle was evidently necrotic it was removed. The Clinical Research Association reported as follows:

"On section the body of the testis is in a state of necrosis with much blood extravasated into its stroma. The clinical history suggests that the condition is due to acute torsion of the testis, owing to an imperfect development of the mesorchium. The vessels of the cord thus become engorged and blood-stained effusion occurs into the tunica vaginalis."

Sidecup, Kent.

R. R. LAW, M.D.Cantab.

HETEROCHROMIA IRIDIS.

I HAVE read Dr. Allan's cases of heterochromia with much interest, as I have seen well-marked cases of a blue and a brown eye in a male adult of 40 and a girl child of about 5 years of age, between whom there was no blood relationship. In these two cases the whole of the iris was of one colour, whilst in Dr. Allan's portions of one iris were of different colouring.

I think the explanation is not difficult. The substantia propria, which is the ground substance of the iris, has many connective-tissue corpuscles found in it, many of which contain, except in albinos and blue eyes, yellowish-brown pigment granules. The colour of the iris varies according to the number of these pigmented connective tissue cells and to the amount of the pigment granules present in them. The posterior layer of the substantia propria is made up of polyhedral cells filled with dark pigment granules, except in albinos, where there are no pigment granules. Now, in blue eyes this posterior layer is the only pigmented part of the iris, and this is also the case in all newborn children; hence we are all born with blue eyes. Such iris appears blue because its dull tissue is viewed on dark ground—that is, on the pigmented epithelium of the posterior surface. It appears, therefore, that if no pigment is in the eye at all, then the child is born an albino; if the pigment is limited to the posterior layer of the epithelium, as it is at the birth of us all, it gives the blue eye; and finally, if pigment is ultimately deposited in the anterior layer, it changes the eye from a blue one to the various shades we see from day to day, depending upon the amount of pigment deposited here as in other parts of the body. In heterochromia iridis there is a local deposit of pigment instead of uniformity throughout the iris.

London, E.C.

R. HENSLOWE WELLINGTON.

THE following nine cases of heterochromia came under my notice last summer whilst I was assisting in the

medical out-patient department of the West Ham Hospital, Stratford, E. The patients, as will be seen, were of various ages and sexes, and none of them had any complaint of vision:

1. Woman, aged 34; on the right eye was a brown radiating sector upwards and inwards. The rest of the right iris, and all the left one, grey. Edges of the sector were slightly wavy.

2. Girl, aged 8; narrow brown area upwards and outwards on the left eye, its edges being parallel; the rest of the iris and the other iris were brownish-yellow.

3. Girl, aged 12; with a narrow, wavy-edged sector of yellowish-brown directly outwards in her left eye, edges parallel; the rest of the iris and the other eye, grey.

4. Lad, aged 19; with a narrow, yellowish-brown parallel-sided segment downwards and inwards in the right eye; the rest of iris and other eye, greyish-brown.

5. Man, aged 55; large, wavy-edged sector of yellow-brown, involving one-fourth of the left iris, in and pointing upwards and inwards on left; the rest of the iris and the right eye, grey.

6. Man, aged 47; medium-sized, straight-sided, sector of yellowish-brown pointing upwards and outwards; the rest of the iris and left eye, grey.

7. Boy, aged $7\frac{1}{2}$; with a curious double condition. More than half the right iris was pale brown, and the remaining tangential portion greyish-yellow. The left iris, on the other hand, was greyish-brown, with a narrow parallel side segment of pure pale brown.

8. Man, aged 26; the left iris showed a large area of dark brown involving the whole of its lower half, the upper limit being wavy. The rest was greyish-brown, and the right eye the same colour.

9. Woman, aged 27; in the left eye was a narrow parallel-sided segment of yellow-brown, leading upwards and outwards. The rest of the iris and the other eye, grey.

All the above were well-marked cases. Since coming here about nine months ago I have seen but one case of this condition in our ophthalmic out-patient department, which is a large one.

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RICKETS IN RELATION TO THE DURATION OF LACTATION.

DR. A. DINGWALL-FORDYCE's paper, which appeared in the BRITISH MEDICAL JOURNAL of April 28th, p. 971, seems to suggest that in this, like most other diseases, there may be an idiosyncrasy on the part of the patient. To those who come much in contact with children this must be at once apparent, when it is considered that one child if suckled for a few months longer than it should be may develop the most severe rickets, while another may be suckled for two years or more and not develop rickets at all. The following case, which first came under observation about three months ago and is still being carefully watched, is of great interest, as lactation was maintained for an unusually long time, and the child was suckled with far less detriment to his general health than one would have expected.

The mother brought the child, a boy 2 years and 4 months of age, with the complaint that for a few weeks he had been wasting and had lost flesh, and that he had no energy. Nothing very definite could be made out. He appeared to be a fairly well-developed child, but his muscles were soft and flabby. He could not walk, but the mother stated that he had been able to run about until a few weeks previously. He lacked energy and did not take much notice of what was going on. The mother stated that he appeared to have some pain in the left thigh and he certainly resented pressure on the left femur. There was no beading of the ribs, thickening of the epiphyses, bossing of the skull, or any of the other signs generally associated with rickets. It was ascertained that he was still having the breast, and that his nourishment consisted of nothing else, as he refused to take milk foods, bread, etc. His previous history was unimportant. He had always been a healthy child. Dentition began at 9 months, and was quite regular. He was the youngest of four, and two of these had died during childhood. The eldest, a girl of 11, was very delicate. The mother had suckled her first and third children for about two years. The second child was breast-fed for six weeks only, as milk ceased to be secreted then. Six weeks after the birth of this last child menstruation had returned and recurred regularly. Under treatment, which consisted of weaning the child, and ordering a diet more suited to his age, he improved greatly, and the symptoms gradually disappeared. He