seen to have a golden brown material deposited around them. Many, especially the bodies that have slender spicules as central cores, present the double and single bulbous ends and the annular arrangement of the deposit so frequently seen in the bodies in asbestosis. In asbestosis these bodies are present in myriads, and are of all sizes and shapes, from minute forms resembling streptococci to bodies 130 μ or more in length, as in Fig. 1 on Plate. Their size depends upon the length of the fibre and the size of the particles of asbestos dust which act as nuclei. In chrysotile dust there are black angular particles of biotite and magnetite, and in asbestosis some of these particles have the same appearance as those found in this case, and shown in Figs. 7, 8, 9, and 10. The particles in powdered iron pyrites closely resemble the large spicules. The curious bodies are not nearly so numerous or so varied in form as in asbestosis.

Tylecote and Dunn⁴ have recently published the finding of similar bodies in a case of a coal miner who had worked in Alabama as well as in English coal mines. According to the Geological Survey of Alabama, the iron ores are associated with the coal measures in an area of over 2,000 square miles, and these haematites contain silica in amounts up to 43 per cent. In the present case no iron ore except pyrites (FeS_2), or any strata containing large amounts of silica, were encountered during the course of the man's working life.

CHEMICAL ANALYSIS OF THE LUNGS

The analysis was as follows:

	Per cent.	
Mineral matter	11.5	of dried lung.
Insoluble silica	15.6	of ash
Soluble silica	24.6	"
Total silica	40.2	"
Ferric oxide	7.2	"
Phosphoric acid	0.66	"
Alumina	28.7	"
Calcium oxide	0.2	"
Magnesium oxide	0.3	"
Total sulphur (probably organic) ...	0.45	"
Alkalis	22.25	"

The silica figure is as high as the average analysis of the lungs of six quartz miners in South Africa given by McCrae⁵—namely, 39.7 per cent.—and approximates the highest figure in Cummins and Sladden's series of coal miners' lungs—42.1 per cent. The iron content is also high, but further analyses showed that the sulphur present was organic and therefore neither the iron nor the sulphur was due to the presence of unaltered iron pyrites. In this connexion it must be remembered that the total amount of the large black spicules seen in certain sections and in the digested deposit was infinitesimal compared with the bulk of the ash.

DISCUSSION

Curious Bodies.—The presence of silica and altered haemoglobin may be important in the ultimate solution of the problem of the curious bodies. The mode of formation of these bodies in asbestosis was discussed at the Annual Meeting of the British Medical Association in 1929.⁶ The bodies consist of slender cores of asbestos fibre, upon which colloidal aggregates of blood proteins plus a soluble fraction of asbestos are adsorbed. Syneuresis occurs, and with the loss of water the adsorption is rendered irreversible, and the fibre becomes permanently ensheathed. It was then suggested that the bodies were not peculiar to asbestosis, but that any spicule of insoluble material might have colloid deposited around it and become moulded into a curious body. The point is illustrated by Figs. 4, 5, and 6, which are of bodies having cores of biotite spicules. The constancy of the bodies in asbestosis has led them to be called "asbestosis" or "asbestos bodies," but in view of the case described by Tylecote and Dunn, and the present one, any title which implies pathognomicity would appear inaccurate. Schuster⁷ has reported a case of asbestosis in a wire-haired terrier that lived in an asbestos factory nearly all its life of 10 years. Although asbestos fibres were present in large numbers in the lung sections, not a single curious body was found.

Coal-miners' Lung.—The work of Cummins and Sladden, and of Jousset, has given us a new conception of anthracosis. The cases described by Cummins and Sladden were in anthracite workers, but the present case shows that the same conditions obtain in soft-coal miners. The present view of the pathology of anthracosis would appear to necessitate a readjustment, not only of the accepted radiological interpretation of silicosis and the pneumoconioses in general, but also of the clinical and industrial aspects of the disease. As an aid to the new conception the title "silico-anthracosis" has been suggested independently by Cummins and myself.

I should like to express my gratitude to Mr. T. H. Byrom for undertaking the analyses in this case.

The photomicrographs reproduced on the plate are by C. F. Hill and W. E. Cooke. Magnification 400 diameters.

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PAROXYSMAL TACHYCARDIA ASSOCIATED WITH PREGNANCY

BY

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In a recent issue of the *British Medical Journal*, James¹ records a case of asthma in which the attacks were in abeyance during pregnancy, only to recur shortly after delivery. The following notes of a case of a different nature may prove of interest, as here also there is illustrated the beneficial effect exercised by the pregnant state—possibly by the stimulation of the endocrine system which is thereby induced.

A woman, aged 22, pregnant for the first time, was admitted in labour to the Glasgow Royal Maternity and Women's Hospital on the evening of October 30th, 1931. On general examination the only points of note were that the skin was very pale, although the mucous membranes were of fairly good colour, and that there was a supernumerary breast on the left side. The heart sounds were pure and of good quality: there was no oedema. The patient had been a regular attender at the ante-natal dispensary, and, during these months, the progress was uneventful. She would not admit any ill-health, and the only item of interest gleaned from the family history was that her father was classed C3 during the war on account of a weak heart.

At 1.40 a.m. on October 31st a healthy female mature child was delivered spontaneously. The puerperium was uneventful until 5 a.m. on November 6th, when the heart suddenly began to beat rapidly. It was impossible to count the pulse at the wrist. The apical rate was ascertained to be 220 per minute. The heart continued beating at this rate until about 5.45 p.m. on November 11th, when the patient saw everything suddenly becoming black; she had a feeling as if the heart stopped for a couple of seconds, and as if something in the praecordial region snapped, whereupon the heart commenced to beat at about half its previous rate. The pulse and apical rate were then found to be 104 per minute. Breast-feeding was discontinued at the onset of the paroxysm, when the patient was seen by the consulting physician to the hospital, Dr. Wm. MacLennan.

Throughout this attack, lasting just over five and a half days, the cardiac rhythm was perfectly regular; this was confirmed, as was also the rate, by polygraphic tracings.

The blood pressure did not exceed 106/78 mm. Hg, and the patient did not suffer from breathlessness. She ate her food normally. In fact, her sole complaint was of the rapid beating of her heart and of drowsiness. The medicinal measures adopted during the attack consisted in the administration of different preparations of digitalis, but mainly the tincture: the importance of the part played by the drug is difficult to assess. Venous thrombosis (without pyrexia) developed in the right leg, necessitating a prolongation of the period of her confinement to bed, but this cleared up satisfactorily. During the interval November 11th to December 11th there was no further tachycardia, the pulse being regular in rhythm, and varying in rate between 80 and 90 per minute. The thyroid appeared to be slightly enlarged. On dismissal exactly six weeks after delivery the pulse rate was running at about 60 per minute, the cardiac dullness was within normal limits, and the heart sounds were pure and of good quality. The pallor of the patient's skin still remained a noticeable feature, although the mucous membranes were fairly well coloured.

The following history was elicited from the patient. The first bout of "palpitation" occurred when she was six years of age, a few months after an attack of measles. Every two or three months thereafter there was a recurrence of these bouts, during which she was sick, and vomited; while the attack lasted, she would neither eat nor drink, and was very drowsy. Menstruation commenced when she was 10½ years old; the periods have never been regular, occurring as a rule every two to six weeks, and the flow lasting seven to ten days. Quite frequently, but not invariably, a bout of palpitation was associated with the period—often on the third or fourth day of the period.

There has never been any warning of an impending attack; at no time has she suffered from breathlessness or oedema, and she has never fainted. She has had an occasional frontal headache.

On December 24th, 1931, the fourth day of the first period which occurred after delivery, the patient had a paroxysm which lasted about ten hours. Again she felt drowsy, and, after vomiting, the heart suddenly began beating at its normal rate. When seen on January 10th, 1932, the thyroid was definitely enlarged, the pallor of the skin was striking, but otherwise physical examination proved negative.

Meyer, Lackner, and Schochet² report two cases of paroxysmal tachycardia in pregnancy. In one, the paroxysm commenced two days after a normal delivery and lasted for six days, with a remission of eight hours. These authors, in a critical review of the literature, discovered only four or five case reports of true paroxysmal tachycardia associated with pregnancy.

COMMENTARY

The outstanding feature of this case of paroxysmal tachycardia is that throughout the entire period of gestation not a single attack occurred. Apart from some sickness after meals, especially at night, she was perfectly well during pregnancy. The last menstrual period and the first after delivery were each associated with a paroxysm. The attack described, lasting over five and a half days, and the worst from which the patient has suffered, far surpassed in duration her previous record, which was thirty-six hours. One cannot fail to be impressed with the absence of tachycardia during the period of pregnancy, when many organs are over-taxed. One naturally wonders to what extent endocrine activity (known to be so pronounced in pregnancy) was concerned. This, however, is but a simple record of a case, and no generalizations are offered.

I am indebted to Professor Munro Kerr, to whose unit the patient was admitted, for permission to publish the notes of this case.

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Memoranda

MEDICAL, SURGICAL, OBSTETRICAL

HAEMOSTASIS AND THE RADICAL OPERATION FOR HYDROCELE

In the radical operation for hydrocele of the tunica vaginalis difficulty in obtaining complete haemostasis is, I think, a common experience. This may be true of the operation, whether complete dissection of the sac is carried out or if the testis is merely evaginated. In hospital practice I have been struck by the number of troublesome scrotal haematomas which result from either type of operation in old-standing cases. This experience is due partly no doubt to the difficulty of applying proper compression to the operation area, but is also associated with the structure of the sac wall. In old-standing hydroceles this consists of firm fibrous tissue, which holds open and opposes the retraction and clotting of the small arteries after section. The tendency to bleed is particularly in evidence in old-standing cases in which both the vascularity of a part and fibrosis of the tunica are increased.

For the past few years I have overcome this difficulty by employing some form of cautery to the cut margin of the tunica vaginalis. No doubt similar procedures are adopted by other surgeons, but the practice is by no means general. In my experience the most satisfactory haemostatic agent to use is the diathermy current. The testicle is exposed by the inguinal route and the sac stripped of its outer coverings. The hydrocele is opened and evacuated, the sac is split in the long axis of the testicle, and then cut away with a diathermy needle to within about 1/8 inch of the testis. The current employed should be of the type usually classified as "cutting." If this does not produce complete haemostasis on the line of section more coagulation is produced by altering the character of the current. An absolutely dry wound can be produced in this way.

If the diathermy cautery is not available a Paquelin or electric cautery can be employed in a similar way for the same purpose, though they are not so easily controlled. After the operation there is a little reactionary swelling of the testicle, but not greater than is common in the operation by the older method; I have in no case seen any serious haematoma or observed any other complication. For those cases in which the radical operation is considered advisable I think this slight modification in technique ensures a certain and uncomplicated convalescence.

London, W.1.

C. MAX PAGE.

UNUSUAL BONE INJURY IN A CHILD

(With Special Plate)

It may be of interest to record a rather curious case which came under my care a short time ago.

A child, aged 2 years and 9 months, spending a holiday on the coast at Sunderland, was swinging his left arm with a spade in his hand. He suddenly began to cry, and was noticed to be holding his left arm away from his side. The mother picked up the child by the elbows, and was rather alarmed when the arm "gave a click," after which the child was able to approximate the elbow to the chest wall.

When I saw him some hours later the arm was held rigidly to the side in full pronation, and showed a slight puffiness from the root of the neck to the wrist, but no discoloration. At first the child resented any movement at the affected shoulder-joint, but allowed free movement of the opposite arm. With coaxing, the full range of passive movements, with the exception of abduction beyond about 60 degrees, were obtained at the shoulder-joint, but the child would not attempt active abduction. Full flexion could be obtained at