proportion to the severity of their affection, and fall into a clinical group called "rheumatic tachycardia." There were 6 (3 per cent.) such cases in our series. Their characteristic symptom is sustained rapidity of the heart, which is not affected to any extent by treatment, whether this be rest in the prone position, sedatives, salicylates, or digitalis. It is possible that the tachycardia is less an indication of myocardial involvement than of a derangement of the nervous control of the sino-auricular node, for we have been surprised at the unexpectedly benign course of these cases, and, unless there is evidence of valvular or myocardial damage apart from the tachycardia, we take an optimistic view about them. Subsequent damage to the valves has not occurred in our cases during the period they have been under our care, but further observation will be maintained.

Incidence of Exanthemata.

There was a history of the various exanthemata in approximately the expected proportion of the children. Measles, the most frequent, had occurred in 88 per cent. of 189 children; diphtheria (16 per cent. of 190), and scarlet fever (15 per cent. of 189) were the least frequent. A history of rheumatism beginning after attacks of measles, diphtheria, and scarlet fever was obtained in various cases, and though it is possible that in a disease as common as rheumatism coincidence may be a sufficient explanation, the debilitating effect of the exanthemata must not be overlooked.

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THE SURGERY OF ACCESS TO THE PLEURAL CAVITY.

WITH ILLUSTRATIVE CASES.

BY

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THE three cases in this paper are reported in order to show that the pleural cavity of one side may be freely opened with impunity under the ordinary arrangements of general anaesthesia. The opening made is large enough to see and feel the whole of the contents easily. This is not a new observation; I learned the lesson in the war whilst removing shrapnel and bullets from the lung. Those patients were all young men, and it was usually possible to reflect and subsequently replace a rib. Two of the patients whose cases are reported here were over 60; their ribs were brittle and were removed, as they fractured during the process of elevation. I was not sure what would be the effect on the circulation and respiration of widely opening the pleura at this age; apparently this was no more disturbing than in the younger men, and that is to say nothing beyond a little quickening of both pulse and respiration, which gave rise to no anxiety whatever. There were no adhesions to separate, and so no bleeding, and there was no infection. It was a combination of these two things in the war cases which sometimes caused the development of an empyema, for the foreign body was almost always infected in some degree, and adhesions were cohesions and extensive.

Surgery has still to find its legitimate place in dealing with conditions in the chest. Widely opening the pleura in the presence of a suppurative lesion in the lung is often made difficult by adhesions, and must of necessity put the patient to the grave risk of an empyema. In some degree in such an operation as lobectomy—for example, in carcinoma of the lung—the same risk is run by infection from the bronchi. At the best it is only rarely, and then in specially selected cases, that this line of treatment is possible, though experience may show us that the present limitations may be exceeded. However, it is as a means of access for radium applications that I wish particularly to use these three cases as illustrations. It may happen from time to time that a radium needle inserted for

carcinoma of the breast will work through into the chest, as happened in the third of these three cases, and it is comforting to know that it may be recovered without any undue risk to the patient; but the radium applications to which I particularly want to allude are in cases of primary carcinoma within the chest, and especially of the lung.

I have seen no reports of any work being done on these lines, but it seems to me well worth giving the method a trial when the opportunity arises. The large opening in the pleura with its attendant complete collapse of the lung—so dreaded in the past—would be a great advantage, for it would enable the growth to be palpated with ease, and the access afforded would allow of the application of the radium needles with precision. Adhesions, if present in this disease, are not particularly baffling, and so the separation of them would be unlikely to be attended with troublesome haemorrhage, and the risk of infection would only be that of any other "clean" operation. It is up to the physicians, who see these cases, to take the initiative: a reasonable proposition of this kind should be welcomed by them, for the mortality at present is 100 per cent.

CASE I.

The patient was a man, aged 65. A lump had been noticed on the chest wall of the right side for six months. During this time it had steadily increased in size. There was no pain. He was seen by me in April, 1928, when the tumour was about the size of a duck's egg and fixed to the sixth rib in the anterior axillary line. The tumour was hard, rather elastic, and nodular. No abnormal signs were detected in the chest. A diagnosis of chondromyxosarcoma was made. On April 18th, 1928, the tumour was exposed and found fixed to the sixth rib; this bone was divided an inch beyond the growth at both ends, and it was then found that there was a mass projecting into the pleural cavity, covered with pleura, of course, but intimately adherent to it. The mass of growth on the inner side of the chest wall was slightly larger than the part projecting beneath the skin. The pleura was opened and the adherent part cut away with the growth. On opening the pleura the lung collapsed at once and completely, but this did not appear to inconvenience the patient in the least. After removing the piece of rib with the growth and adherent pleura a hole in the pleura was left through which one's hand could pass easily, and it was found impossible to close the gap except by drawing together the split pectoral muscles.

The patient made a perfectly smooth recovery, and within a week the lung appeared to be fully expanded. Sixteen months later the patient does not present any evidence of local recurrence.

Microscopic examination of the tumour proved it to be a chondromyxosarcoma of very malignant aspect, showing numerous mitotic figures and great irregularity of cell structure.

CASE II.

A woman, aged 63, who had had her right breast removed for carcinoma—verified by histology—noticed, five years later, a small nodule over the sterno-clavicular joint region, which gradually increased in size. There was very little pain. She was seen by me in May, 1928. There was a hard, ill-defined tumour at the inner end of the first intercostal space on the right side; this was obviously a recurrence, and was firmly fixed to the bone. There was no cough or other sign to suggest intrathoracic extension.

On May 6th, 1928, I removed a part of the clavicle and the inner ends of the first and second ribs, together with the growth, which was adherent to the pleura; extending outwards from the adherent part a few plaques of hard growth were seen reaching away to about one inch beyond the point of adhesion. The pleural cavity was opened and the involved pleura removed with the rest of the growth. The lung collapsed, causing no obvious inconvenience to the patient, and she made an uninterrupted recovery. There was no evidence of recurrence a year later. Histologically the tumour was proved to be carcinoma.

CASE III.

A woman, aged 46, was admitted to hospital recently with carcinoma of the left breast, which was treated with radium needles. One of these, which had been inserted into the third intercostal space, worked through into the pleural cavity, and could not be recovered by the use of a pair of forceps. She was not a patient of mine, but I was asked to help to recover the needle. Under the x rays it was seen to move with the lung, under the inner end of the third rib, and could be touched with the forceps but not held. After some considerable time spent in these efforts I decided that the only way to extract the needle was to open the chest. This was done, the lung of course collapsing, and with it the needle, which was found to have fallen into the costo-phrenic sulcus, and was picked up from there by the fingers after inserting my hand into the pleural cavity. The

patient was not inconvenienced during the operation, but suffered from cyanosis and dyspnoea for a day or two afterwards. However, she made a perfect recovery and the lung was fully expanded by the end of a week.

The principles of the technique of the operation were the same in the three cases; minor differences consisted in the removal of different ribs according to the one to which the growth adhered.

In performing the operation as a means of access to the pleural cavity it was found in the war cases most convenient to reflect the fourth rib; this seemed to give the most direct approach to the pleural cavity as a whole. An incision is made in the axis of this rib, the pectoral muscles split, and the rib reflected subperiosteally. In older patients it seems wiser to remove the rib. The pleura is divided in the same direction as the skin incision and to such an extent that the hand may be passed into the chest. If a rib spreader be inserted and opened widely the whole of the pleural cavity can be easily inspected. The most difficult part of the operation is the closure of the pleural membrane. This tears rather easily, and owing to the rigid structures overlying it will not pull together as the peritoneum does. Fortunately it does not seem to matter very much if a close approximation is not effected. Some slight temporary surgical emphysema sometimes follows, but by no means always. If the rib has been reflected it is stitched back into place by passing one or more sutures through the cartilaginous end into the cartilaginous piece left at the sternum, for the division should be made when possible through the cartilage in the first place. The muscles are drawn together with sutures, and finally the skin wound closed; no drainage is necessary unless there has been much bleeding and some risk of infection. In these circumstances it was found in the war cases that it was much better to drain from the back after completely closing the wound in front.

The anaesthetic used was ether in every case, given by the ordinary method of inhalation; any contrivance used to prevent the lung from collapsing would be a disadvantage, and the ordinary method seems to be quite safe.

THE RHEUMATIC TYPE.

BY

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THE belief that a certain type of individual is particularly susceptible to certain diseases was at one time widely held, and, although this view is not generally accepted at the present day, references to the rheumatic type of child are still far from uncommon. It is believed by many that fair children, those having red, sandy, or auburn hair, are especially prone to develop rheumatic fever. Shrubsall examined 133 rheumatic patients, and, taking the colour of the hair as a criterion, found that 75.19 per cent. of these cases came under the heading of fair and 24.81 per cent. dark. Llewellyn and others have supported this theory, but have not given such exact figures. Shrubsall compared his findings with those of Beddoe, who examined 6,000 Londoners, of whom 58.4 per cent. were fair and 41.6 per cent. dark, and with his own records of patients suffering from non-rheumatic diseases, and his conclusions were that "the blonde traits are associated with acute rheumatism, heart disease, and tonsillitis."

For the purpose of comparison the characteristics of 562 rheumatic children, patients at either Queen Mary's Hospital, Carshalton, or the Downs Hospital, Sutton, have been recorded and are set out in Table I, together with Shrubsall's and Beddoe's findings. To make the investigation still more complete similar records have been kept relating to 536 other patients at Queen Mary's Hospital, all London children of the same age group as the rheumatics, but admitted on account of various orthopaedic and other non-rheumatic conditions.

TABLE I.—Comparison of Rheumatic and Control Cases: Colour of the Hair (expressed as Percentages).

	Fair Hair.			Dark Hair.		Total Fair.	Total Dark.
	Red.	Fair.	Light Brown.	Dark Brown.	Black.		
Rheumatic cases:							
Shrubsall's 133 cases ...	21.05	21.05	33.09	23.31	1.5	75.19	24.81
Q.M.H. & D.H. 532 cases	6.4	15.9	27.9	48.6	0.18	51.2	48.78
Controls:							
Beddoe's 6,000 ...	4.4	12.1	41.6	37.4	4.4	58.4	41.6
Q.M.H. 535 ...	3.1	20.2	43.1	33.6	—	66.4	33.6

In this table it will be seen that there is no very significant difference between the findings for the two control groups and those for the rheumatic cases at Queen Mary's and the Downs Hospitals, but there is a very marked difference between these latter and those for Shrubsall's cases. This difference is brought out in a more striking manner in Table II.

In Table II the cases from Queen Mary's and the Downs Hospitals have been subdivided into the distribution adopted by Shrubsall, and it shows that while out of his 133 cases 47 had either red or fair hair and blue or light-coloured eyes, among our 562 cases there are only 60 in this category.

The theory has also been advanced that a large proportion of rheumatic children are non-pigmenters, and that unusual dryness of the skin is commonly met with among them. It is difficult to record in any simple table the various types of skin or degrees of pigmentation obtained, but the rheumatic patients at Carshalton are exposed to natural sunlight during the summer, and many of them have artificial heliotherapy during the darker months, and they seem to respond to it very much as do the other patients. All degrees of pigmentation are obtained and non-pigmenters are met with, but there seems to be no constant deviation from the ordinary response to light among the rheumatics. In a certain number of cases the skin has been found to be dry, but this condition is not more commonly met with among the rheumatic than among the non-rheumatic patients.

Conclusion.

A general survey of the patients or a special investigation of any particular characteristics leads to the conclusion that there is no type that can fairly be described as the rheumatic type of child.

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TABLE II.—Rheumatic Cases: Colour of the Hair and Eyes (Actual Numbers).

Hair:	Red.				Fair.				Light Brown.				Dark Brown.				Black.			
	L.	N.	D.	Total.	L.	N.	D.	Total.	L.	N.	D.	Total.	L.	N.	D.	Total.	L.	N.	D.	Total.
Shrubsall's 133 cases ...	22	2	4	28	25	1	2	28	21	4	16	41	7	4	20	31	2	0	0	2
Q.M.H. & D.H. 532 cases ...	17	15	4	36	43	47	5	95	62	70	25	157	53	123	97	273	0	1	0	1

L = The light-coloured eye. N = The neutral eye. D = The dark eye.