Conclusion.

Let me enter a plea for raising the standard of this branch of surgery, by making it an operation of precision, and removing some of the reproach of doubtful value and inefficiency attached to it. In this connexion I should like to quote the following extracts from Dr. Still's excellent book on *Common Disorders of Childhood*:

"I would lay stress upon the importance of complete removal of adenoids and tonsils by whatever method is found to be most practicable." "I will venture to insist that the operation for removal of adenoids and tonsils is not so simple that anybody and everybody who happens to have a surgical qualification and a guillotine can do it as it ought to be done; it is one which, if done, ought to be done by the most expert skill attainable."

A CASE OF VAQUEZ'S DISEASE

(POLYCYTHAEMIA WITH PLETHORA, AND
SPLENOMEGALY).

BY

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It is now just over twenty years since Vaquez first described the syndrome of polycythaemia with true plethora, cyanosis, and splenomegaly, with which his name is associated. A full description of the condition, with the literature, was given by Parkes Weber¹ in 1908, and by myself² in 1911, while Senator's³ monograph published in the latter year contains much of the most recent work on the subject. This observer then paid special attention to the condition of the gaseous exchange in the lungs. He found in several cases not only a greatly increased exchange of both oxygen and carbon dioxide, but also a great increase in the volume of air respired. Further observations are required with regard to these points. Since that date considerable additions have been made to the literature, and cases have been recorded by Hale White,⁴ Emanuel,⁵ Isaacs Coke,⁶ and Parkinson⁷ in this country, by Kuttner⁸ in Germany, while Hamilton and Morse⁹ have published a case in America with a full report of the *post-mortem* findings.

The fact that so many fresh cases have been published in so short a period shows that the condition is by no means so rare as was at one time believed. But while so much advance has been made in the recognition of the disease, it cannot be said that equal advance has been made in the elucidation of its etiology. The case which it is the purpose of the present paper to record merely confirms previous observations; it is, perhaps, of special interest because the bone-marrow was examined during life, a procedure which, so far as I am aware, has only been adopted before on one occasion, namely, in the case described by Gibson¹⁰ and later published by myself.

A man aged 52, a gamekeeper, was admitted to the Royal Infirmary in August, 1912, under the care of the late Dr. G. A. Gibson. He complained of pain in the upper part of the abdomen. The family history is of little importance, his mother having reached the age of 92, while his father was the victim of an accident at the age of 54. He is married and has three children living, three others dying in infancy. With the exception of a slight attack of influenza fifteen years ago he has never had a day's illness. He is a non-smoker and practically a teetotaler, and from the nature of his occupation he leads a healthy open-air life. The pain of which he now complains first troubled him a month before admission. It is sharp and lancinating in character, is almost constantly present, and is felt in the left hypochondriac region. For some months his wife has told him that his face was becoming very florid. The patient states that he has had several attacks of epistaxis. He has lost fully a stone in weight during the last two or three years.

General Appearance.—His height is 5 ft. 8½ in., and his weight is 9 st. 2½ lb. The face, lips, and ears show a striking degree of cyanosis. The tongue and mucous membranes are of a dark bluish-red tinge. The conjunctivae are markedly injected. He is thin, but not emaciated.

Alimentary System.—The tongue is clean and moist. The teeth in the upper jaw are artificial, the others having become loose and dropped out; those in the lower jaw are fairly good. He complains of some loss of appetite, and he also suffers to a slight extent from a sensation of distension and discomfort after meals. There is no sickness, thirst, or constipation. His breath is rather foul. The stomach is not dilated, and the vertical dullness of the liver is not greater than normal.

Abdomen.—The most striking feature of the examination of the abdomen is the presence of an enlarged spleen, which

extends downwards and forwards three fingerbreadths beyond the left costal margin. It is firm, and very slightly tender to the touch. On auscultation distinct friction is heard over it.

Circulatory System.—The heart is not enlarged; the apex beat is in the fifth interspace, 3½ in. from mid-sternum. The sounds are closed and pure. The vessels are healthy and the systolic pressure 108 mm. Hg.

The examination of the respiratory system was negative.

Urine.—Acid; specific gravity 1016; deposit of urates and uric acid; no albumen or sugar. The centrifugalized deposit shows no tube-casts.

Nervous System.—The patient has occasionally slight headache. He states that he is unable to read for long at a time. The pupils react briskly to light and on convergence. The examination of the fundus oculi shows that the vessels are engorged with very dark blood.

The Blood.

Red blood corpuscles	...	...	8,420,000
Haemoglobin	...	...	100% + (Tallqvist)
White blood corpuscles	...	...	39,000

Differential count of 400 leucocytes:

Polymorphs	...	...	87%
Lymphocytes	...	...	6%
Large mononuclears	...	...	3%
Eosinophiles	...	...	2.5%
Mast cells	...	...	1.5%

Further observations:

(1) Red blood corpuscles	...	...	9,248,000
Haemoglobin	...	...	100% + (Tallqvist)
White blood corpuscles	...	...	24,000
Polymorphs	...	...	81%
Lymphocytes	...	...	8%
Large mononuclears	...	...	2%
Eosinophiles	...	...	4%
Mast cells	...	...	5%
(2) Red blood corpuscles	...	...	9,240,000
Haemoglobin	...	...	110% (Haldane)
White blood corpuscles	...	...	28,200
Polymorphs	...	...	77%
Lymphocytes	...	...	12%
Large mononuclears	...	...	1%
Eosinophiles	...	...	6%
Mast cells	...	...	4%
(3) Red blood corpuscles	...	...	9,760,000
Haemoglobin	...	...	110% (Haldane)
White blood corpuscles	...	...	31,600
Polymorphs	...	...	81%
Lymphocytes	...	...	9%
Large mononuclears	...	...	3%
Eosinophiles	...	...	5%
Mast cells	...	...	2%

The specific gravity of the blood, estimated by Hammerschlag's method, was 1062. The viscosity, estimated by Denning and Watson's clinical viscosimeter, was 26.4, that is, 2½ times the normal.

The coagulation time, estimated by Wright's coagulometer, was slow, 6 min. 25 sec. This is in accordance with the observations of Bence¹¹ and Pethybridge.¹²

The red cells were unaltered in size and shape; abnormal cells were exceedingly scanty, for though a large number of films were examined only two megaloblasts, one neutrophilic myelocyte, and one eosinophilic myelocyte were seen.

On September 20th Mr. Alexis Thomson kindly trephined the right tibia, and from the bone marrow thus obtained films and sections were made. Two days after the operation there was considerable bleeding from the wound, necessitating frequent dressing, and a haematoma formed. In order to determine whether the haemorrhage had caused any marked change in the blood count, the following observations were made:

Red blood corpuscles	...	...	9,216,000
Haemoglobin	...	...	110% (Haldane)
White blood corpuscles	...	...	40,000
Polymorphs	...	...	86%
Lymphocytes	...	...	4%
Large mononuclears	...	...	6%
Eosinophiles	...	...	3%
Mast cells	...	...	1%

It was also noted that the spleen had become much smaller since the previous day, and now only just reached below the costal margin, a fact which tends to confirm the usual view that, while the spleen in this condition enlarges partly on account of increased functional activity, it also acts partly as a reservoir to compensate for the greatly increased total volume of the blood.

The bone marrow from the centre of the shaft of the tibia was deep red in colour. The microscopical appearances were not nearly so well marked as in the case published two years ago. There was marked congestion, a few small haemorrhages were present, and the blood vessels were crowded with non-nucleated erythrocytes. The films did not show any great departure from the normal, but the sections revealed distinct though slight evidence both of erythroblastic and leucoblastic reaction. The fatty tissue of the marrow was encroached upon only to a slight extent; but when one remembers that all the long bones share in the erythroblastic and leucoblastic reaction, although it is only slight in degree, there is no difficulty in explaining the high counts of the red and white corpuscles.

Judging from the appearances of the bone marrow, the case must be considered a fairly early one. The patient was also singularly free from many of the usual symptoms associated with the condition. Pain in the left hypo-

chondrium due to perisplenitis (of which the patient complained) is, apart from cyanosis and splenomegaly, one of the commonest symptoms of the disease. Three years ago I investigated¹³ the relative frequency of the signs and symptoms of erythraemia in 58 cases, and found pain in the left side present in 50 per cent. Albuminuria, which I found in 60.3 per cent. of cases, was never present in the patient under consideration. Vertigo and obstinate constipation are usually marked features, yet this patient was free from them.

The blood in this case was extremely typical. Notable features were the high degree of leucocytosis and the high percentage of mast cells. The absolute increase in the polynuclears and in the eosinophiles is, of course, present in nearly all cases. The great increase in the blood viscosity in the presence of what is, after all, when we consider the extremely high counts found in this condition, only a moderate polycythaemia, must be partly explained by the large number of white cells present. I have found in a case of myelogenous leukaemia with a red count of 3,300,000, and a leucocyte count of 388,000, a viscosity value which, if the leucocytes were normal in number, would be equivalent to about five and a half million erythrocytes. An analogous case is reported by Denning and Watson¹⁴ which makes it clear that the leucocytes have relatively a greater effect on the viscosity than on the erythrocytes.

No factor could be ascertained in the case here described which seemed to throw any light on the etiology of the condition.

The occurrence of influenza (which Saundby¹⁵ considers important) was, even if one accepts his views, too remote to have any bearing on the case. Symptoms referable to the intestinal tract were vague and ill-defined, and were only mentioned by the patient when leading questions were asked. It certainly cannot be said that there was any definite evidence of the absorption of toxins from the bowel, although this possibility cannot be ignored. From the experience gained in this case, it would appear that operation in order to obtain bone marrow ought not to be lightly undertaken. True, moderate haemorrhage may be actually beneficial; but it seems that, as occurred in this case, the healing of the wound may be greatly delayed, owing perhaps to the sluggish circulation in the peripheral vessels.

My best thanks are due to Dr. John Eason, who was at the time in temporary charge of the ward, for giving me every facility for examining the patient and for permission to publish the case.

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A LABORATORY for cancer research is to be erected at Columbia University. The endowment is provided by the George Croker research fund of about £300,000, the income of which must be used solely for research.

THE personal estate of the late Dr. Edward Henderson, who died at his residence in Kensington on February 27th, has been declared at a net value of £44,241. Dr. Henderson, who became M.D. Edin. in 1864, passed most of his life in China, where he was medical officer of health and Surgeon-General of the European Hospital, and held an appointment also in connexion with the British Consulate.

THE Internationale Komitee für das aerztliche Fortbildungswesen (International Committee for Post-Graduate Medical Education) desires it to be known that it has no connexion with the Association Internationale de Perfectionnement Scientifique et Médical. The next meeting of the Internationale Komitee für das aerztliche Fortbildungswesen will be held during the International Medical Congress in London in August next. The International Committee is composed of delegates appointed by national organizations or by the Governments of the participating countries, and its object is the furtherance of medical education and mutual instruction based on experience reaped in different countries.

TUBERCULOMA OF THE LARYNX.

BY

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TUBERCULOUS growths in the larynx were suspected as far back as the Sixties of last century by Tobold, and again in the Seventies by Ariza and E. F. Ingals. J. N. Mackenzie, however, claims to have been the first to demonstrate, in 1882, the existence of tuberculous disease as a definite tumour occurring in the windpipe. His two first cases were observed *post mortem*, and were proved to be tuberculous by histological examination. A number of cases have been collected and published since then by Avellis, and Payson Clark, and others.

Mackenzie classifies tuberculous outgrowths in this region in three groups: (1) Granular hyperplasias in connexion with tuberculous ulcers; (2) papillomatous excrescences, vegetations, and tumours, probably papillomatous tissue infected with tubercle, and sometimes the only visible sign of tuberculosis for a considerable period; (3) true tuberculous tumours—extremely rare—composed of masses of closely aggregated miliary tuberculous nodules, and occurring independently of infiltration and ulceration of the mucous membrane. The majority of reported cases are considered to belong to the first two groups.

In an examination of recorded cases I find that true tuberculous tumours are situated as a rule in the larynx, the usual sites being the ventricular bands, vocal cords, and ventricles, but they may also be found on the arytenoids, aryepiglottic folds, epiglottis, and in the trachea.

An interesting case was shown a few years ago by P. H. Abercrombie of tuberculoma of the naso-pharynx in a man, which resembled clinically an adenoid mass or lympho-adenoma. Microscopic examination demonstrated its real nature. As a rule, lung changes are present or show themselves sooner or later; but in this case, as also in some of those in which the larynx has been involved, there were no other apparent symptoms of tuberculous disease. The fact, however, that such symptoms are not discoverable during life does not negative the existence of tuberculous lesions in the lungs, such being frequently found in a quiescent or healed state *post mortem*. One is therefore chary in regarding these growths as primary, and particularly so when it is known that they are usually covered with intact mucous membrane. Apart from the fact that tuberculoma of the larynx is rare, the following case is of interest in that the site was unusual and the disease had developed in a man of advanced years.

S. C., aged 69, was first seen by Mr. Bark and myself in September, 1908. He complained of a feeling of choking, especially on lying down at night, and of difficulty in swallowing food. These symptoms had lasted for a period of over three years and were becoming more aggravated in spite of the treatment that he had already undergone. There was nothing to note in his own or his family history with regard to tubercle. He was well nourished, had led a healthy outdoor life, and only of late years had been treated by his medical attendant for some "heart weakness." There was occasional cough but no expectoration. Owing to irritability of the throat examination was not easy, but the laryngoscope showed a pale greyish growth with a broad base and irregular surface extending from the posterior surface of the right arytenoid cartilage downwards into the hypopharynx towards the oesophagus. The right vocal cord and the right arytenoid cartilage were somewhat impeded in their movements. There was no ulceration in the larynx and no enlarged glands were to be felt in the neck. A portion of the growth was removed. Microscopical examination of a section showed a considerable number of giant cells, epithelioid cells, and lymphocytes, and a diagnosis of tuberculoma was made. This was confirmed by an opinion from Sir Felix Semon and Mr. Shattock, who later examined both the patient and the tumour section. There were no signs of tubercle elsewhere.

Removal of the growth was attempted with the wire snare, but the manipulation caused so severe and distressing a cough with spasms of the glottis that a more rapidly-acting instrument had to be used—namely, laryngeal cutting forceps. With this as much of the growth was removed as possible. Several remaining fragments were punctured with the galvano-cautery and the raw surface rubbed with lactic acid. The patient was practically relieved from his dysphagia for five months (October, 1908, to March, 1909), when there was some recurrence and the punch was again used, but, owing to the severe spasmodic cough, with less effect than on the first occasion. So acute was the distress from coughing caused by the introduction of the forceps that the attempt had to be abandoned. Two months later the tumour had grown to its former size and dysphagia