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THE NEW REFECTORY

SINCE the beginning of January, the refectory has been closed whilst extensive renovations were carried out. This has resulted in some inconvenience to students, and in a previous editorial some worthy eating places around Bart's were suggested, but anyone who has seen the new refectory will agree that the end product amply justifies the trouble. The actual work occupied twelve weeks, the decorating of the entrance taking a short additional time, and the refectory was officially opened by Professor Christie on April 12.

The refectory has now been completely transformed from its former dark and gloomy appearance. By the judicious use of lighter colours in redecoration, and skilful reorganisation of the furniture, it is now bright and spacious, although the window space has not been altered. The colour scheme was selected by Miss Smith, of the College Office, and shows excellent taste.

The floor consists of one foot squares of red and beige tiled linoleum. The old hexagonal pillars have been cut down as much as possible, and are now square in shape and grey in colour. Three of the walls are painted in Victoria Grey, but the wall furthest from the entrance is very effectively painted in a Salting Green, with fleur de lys motif. As one enters the refectory, this wall stands out in a most attractive manner. It was regretted that the Bart's crest could not be used as the motif on this wall, but it was felt that black and white would not

harmonise with the other colours. The roof has been lined with acoustic panels painted white, and the diminution in noise due to this is remarkable. The occasional crash of falling crockery in the kitchen is now scarcely audible from the far end of the room. The windows are now flanked by green curtains of contemporary design. To remove the familiar refectory odour, a Ventaxia air extraction unit has been installed above the servery, and this had been screened by Reed-light glass, with primrose vitrolite enamelling.

The furniture has been entirely replaced. The tables are in light oak, and are Formica topped. They seat four to six people. The shelves under the tables have been so designed that it is almost impossible to place a tray in them. Small tables are provided at intervals on which trays should be stacked. It is hoped that this will considerably speed clearance by the waitresses. The chairs are also of light oak, with red seats. As a result of rearrangement, the seating capacity has been increased from 112 to 125. Shortly, three tables will be introduced at which it will be possible for anyone to have individual service for a fee of sixpence.

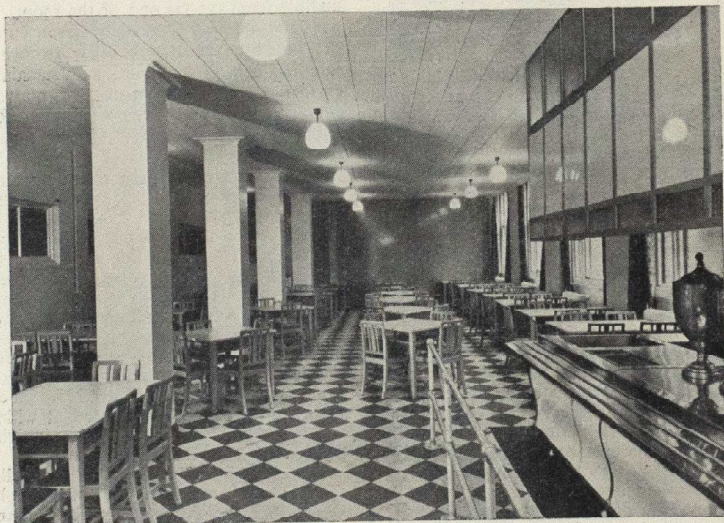
A sink will be installed by one wall, so that students can obtain their own supply of water. The lighting has now been changed to alternating current and tungsten bulbs installed. This has also helped to brighten the refectory considerably. It was felt that

fluorescent lighting tended to give the food a sickly colour, and that this might be attributed to the cooking by uninitiated consumers! All crockery, cutlery, and glassware have been replaced. The salt cellars and pepper pots are also new. Plastic trays have been introduced, and these cut down noise considerably.

The entire renovation has come to a considerable sum. The redecorations cost about £4,000, the acoustic ceiling alone amounting to £500. In addition, the new furnishings cost £1,150 and the china and cutlery £500.

To meet this, the Hospital is making a substantial contribution. The Medical College, which has been conscious of the need to re-equip the refectory for several years, has been setting aside the necessary funds. The share capital of the now defunct Catering Company has also been utilised.

Students have been asked to co-operate as much as possible in keeping the refectory in its present unspoilt state. It would be



The New Refectory

appreciated if there were no smoking whilst obtaining food. The racks under the tables should be used only for books, and not for dirty plates. Finally, as cuspidors are not provided, please do not spit on the floor!

It is hoped to maintain the standard of the food, and, if turnover is eventually great enough, to lower its price. It seems a pity, that a more ambitious menu is not produced, but one supposes that this would lead to an impossible raising of prices. Still, one cannot but feel somewhat envious of the daily menu of a man admitted to this Hospital for cholera, as quoted in the *Journal* for November, 1893:—

September 16.—Breakfast, bloater; Mid-day, whelks; Tea, eggs and bacon; Supper,

September 17.—Breakfast, eggs and bacon; Midday, hot roast pickled pork, Tea, winkles; Supper, cold pork and greens.

It is indeed sad that the robust diet of earlier times has been replaced by a sober admixture of carbohydrates in a supposedly progressive community.

Professor Christie opens the Refectory



Before . . .



. . . and After

LETTERS TO THE EDITOR

The British Student Tuberculosis Foundation

Dear Sir,

We should like to draw the attention of all Barts students, past and present, to an appeal sponsored by the Council of the Barts Students Union on behalf of the British Student Tuberculosis Foundation. A short account of the work of the Foundation appears on another page of this issue.

In 1950 an appeal was made for funds for the purchase, conversion and equipping of a permanent centre for students convalescing from tuberculosis. As a result the Foundation now has a capital of £26,000 for this purpose and it is hoped that negotiations will soon be completed for the purchase of Motttingham Hall in the grounds of Grove Park Sanatorium.

Last year expenditure was met by income from donations and interest on capital, but it is estimated that in the present financial year the Foundation will have a deficit of over £500, largely due to the establishing of the centre for women students at High Wood, and such a deficit could only be met by draw-

ing from the capital reserved for the main centre.

This is the first appeal sponsored by the Bart's Students Union to aid the Tuberculosis Foundation and we hope at least to equal the amount raised by other London Medical schools; the record is at present held by the London Hospital with a total of £391.

It is intended to have a collection on Thursday and Friday, May 12 and 13, 1955, in the refectories and other student premises in the Hospital and at Charterhouse. It is also intended to organise a raffle, the draw to take place at the Student Union Ball at the Royal Festival Hall on Friday, May 13, 1955.

In addition the Financial Secretary would be very pleased to receive donations sent direct to him and for this purpose a subscription form is enclosed in this issue of the *Journal*. All donations, large or small, will be gratefully received and acknowledged.

We hope this appeal will receive the sympathetic support of all students.

Yours sincerely,

A. J. E. CAVE, Pres., Bart's Students Union
JOHN NICHOLSON, Senior Secretary.

MORE POPULAR FALLACIES

by P. F. LUCAS

The comments which followed publication of my first collection of Popular Fallacies (*Sr. Bartholomew's Hospital Journal*, 1953) suggested that they had at least supplied grist to some mental mills. This paper is an attempt to explain a further series some of which were brought to me by students to whom I am duly grateful.

Cardiac Oedema : It used to be taught that cardiac oedema results from a combination of increased hydrostatic pressure and capillary damage from anoxia. It has now been shown that it results from salt and water retention (Brod and Fejfar 1950). In cardiac failure the renal blood flow, and consequently the glomerular filtration rate, falls so that more salt than normal is absorbed in the tubules. The sodium accumulates in the extracellular fluid and takes water with it to maintain osmotic relations. Digitalis causes diuresis by increasing cardiac output and thus renal blood flow, merely by interfering with tubular absorption of sodium. It is thus clear why these drugs are more effective in cardiac than in other types of oedema.

Digitalis and auricular fibrillation : The dramatic effects of digitalis on the circulation of patients with auricular fibrillation leads many to assume that it has some effect on the fibrillation itself. The fibrillation, so far from being cured by digitalis, is perpetuated by it as a result of shortening of the refractory period. The electrocardiogram shows the auricular "f" waves identical before and after digitalis. Digitalis induces a partial block in the conducting tissues so that the ventricle responds to fewer of the impulses with which it is bombarded; the ventricular rate then slows, allowing a longer diastolic pause, better filling and higher output. The only drugs capable of correcting the underlying disorder of rhythm are those of the quinidine group.

High output failure and digitalis : In cardiac failure the cardiac output is usually low. There is a group of states in which the output increases as a compensatory mechanism—either by tachycardia, or by raised venous pressure through Starling's law—because the myocardium itself is healthy. Chief amongst these are chronic cor pulmonale and

the heart failures of anaemia, thyrotoxicosis, fever and arteriovenous aneurysm. Clinically, there are peripheral vasodilation with warm extremities, collapsing pulse and capillary pulsation. If the compensatory mechanism breaks down, frank congestive failure occurs and the output falls, although it may remain higher than normal (see Friedberg 1949). Digitalis has little effect upon the output of normal hearts, and may similarly fail in "high output" states. It is however always wise to try its effect in congestive failure of whatever type.

Diagnosis of aortic stenosis : Recent research has shown that aortic stenosis is commoner than was thought, although students will do well to remember that the first thing to say about a murmur at the aortic base is that this is not a case of aortic stenosis (Horder 1921). Autopsy studies show that it occurs, not uncommonly, without the classical physical signs (Parkinson 1949). A systolic murmur, usually loud, long and harsh, and left ventricular hypertrophy are essential for the diagnosis; an aortic systolic thrill will be felt in many cases if the patient leans well forward and exhales; a soft aortic second sound, pulsus tardus and low pulse pressure occur. The murmur may be maximal at the apex. Prognosis is good until symptoms occur; a rapidly downhill course to death within two years is then usual (see Lewes, 1951).

Prognosis of subacute bacterial endocarditis : The use of penicillin has so altered the prognosis of this universally fatal disease that there is a tendency to assume the sequence diagnosis-treatment-cure. The mortality in the first six months after diagnosis is still in the region of 45%, and thereafter about 4% per year (Cates and Christie 1951). This is partly a result of damage to vital organs before treatment is started, particularly heart and kidneys, by multiple small emboli; partly of fatal major emboli—renal, cerebral, cardiac and mesenteric; and partly because the organism may be resistant to penicillin, other chemotherapy being much less effective in eradicating the infection.

Venesection in polycythaemia : Blood loss is the most powerful stimulus known for red

blood cell formation. It seems illogical thus to treat a disorder of which the main feature is excessive red cell formation. The benefit conferred is at best temporary. Repeated venesection results in increasing hypochromia of more and more red cells, until symptoms of anaemia occur at a red cell count of 10 millions per cmm. The logical treatment is to prevent red cell formation with radio-active phosphorus, perhaps combined with initial venesection to procure immediate relief (see Scott 1953).

Iron absorption and achlorhydria : The absence of acid from the gastric juice provides a facile explanation of hypochromic anaemia. There seems to be no doubt that the presence of hydrochloric acid assists the absorption of iron, but it is much less certain that a clear cause and effect relationship exists between achlorhydria and iron deficiency. Achlorhydria is constantly present in Addisonian anaemia, is common in certain other disorders and may occur as a congenital abnormality, yet iron deficiency is by no means invariable in these conditions. It is as common in men as in women and is common in old age; iron deficiency is rare in men and relatively uncommon in old age. These facts suggest that achlorhydria is never more than a contributory factor in iron deficiency and its discovery must not distract attention from more important causes.

Mediastinal shift : It is commonly stated that pleural effusion or collapse cannot be present because the mediastinum is central. The mediastinum is liable to become fixed by adhesions, particularly in older people who have suffered much pulmonary infection, and in such circumstances large effusions or areas of collapse may fail to shift it. This is much less common in children in whom the mediastinum is free. Mediastinal shift is a most valuable indication of the nature of pulmonary and pleural lesions, but its absence, particularly after middle age, must not weigh heavily in diagnosis.

Signs of collapse and fibrosis : There are two explanations for the confusion over these signs. One is that the signs vary from base to apex, the other that they depend on the degree of tracheal displacement. Bronchial breath sounds are heard over the normal trachea. If the trachea is displaced by collapse or fibrosis of the upper lobe, bronchial breath sounds are heard over the lesion. In addition, since the lung is of

relatively homogeneous consistency from collapse or fibrosis, it will conduct the tracheal, or bronchial, breath sounds over a still wider area. It is clear that these conditions do not obtain at the base; bronchial breathing is thus less common over basal collapse or fibrosis. The importance of localised wheezing, rhonchi and quietness of breath sounds in diagnosis of bronchial obstruction, have recently been stressed (Johnston et al. 1954).

Inhaled foreign body : Enquiry for this potent cause of bronchiectasis and lung abscess is all too often limited to asking if the patient has "inhaled anything." It has been shown that material may be inhaled into the lungs without the patient being aware of it, but enquiry for choking attacks may be fruitful. Glennie et al. (1952) reported recovery of long-forgotten foreign bodies inhaled as many as 14 years previously. Aspiration is particularly liable to occur during sleep, coma or anaesthesia, especially if there is infection in the upper respiratory tract, and is an ever-present danger when there is oesophageal obstruction.

Tubercle bacilli in sputum : The importance of early diagnosis of tuberculosis increases with advances in treatment. If plenty of sputum is being raised and thorough examination of three early morning sweats show no acid-fast bacilli, it is unlikely that pulmonary tuberculosis is present; this is especially so if there is a cavity with a fluid level, abscess or neoplasm is more likely. In any event repeated direct smears are of little value. 24-hour specimens should then be collected for smear and culture after dissolving of mucus and centrifuging. Culture remains the most effective method, its only disadvantage being a delay of 4-6 weeks. If there is no sputum being raised, direct smears and culture of laryngeal swabs, or culture and guinea-pig inoculation of early morning gastric lavage, are equally effective. With modern techniques culture on Loewenstein-Jensen medium is reckoned as effective and at least as rapid as the much more expensive and troublesome guinea-pig inoculation.

Pleurisy : Pleurisy is no more a diagnosis than are peritonitis, pericarditis or sciatica. It is most often a result of spread of intrapulmonary disease to affect the pleura, but the pleura may be primarily affected without evidence of parenchymatous lung disease. This primary pleurisy may remain dry—a

short, sharp illness with recovery in a few days—or fluid may form; very rarely primary empyema may occur from blood stream infection. The probability of a tuberculous aetiology increases greatly if fluid forms. The popular fallacy in this respect is “No demonstrable lung disease—no tuberculosis.” The tuberculous aetiology is based on the frequency with which tubercle bacilli can be found in the fluid if careful search is made (about 60%), the commonness of frank pulmonary tuberculosis (at least 25%) within 5 years, of recent exposure to infection, of Mantoux conversion, and of demonstration of subpleural tubercles in some of the few autopsies carried out. The majority of these cases do not have productive cough, haemoptysis or tubercle bacilli in the sputum, the condition arising as a result of allergy to the primary infection or of small subpleural foci. Many of these patients recover completely, especially those that remain dry, but the only safe policy is a five-year radiological follow-up (see Nicholson 1953).

Distinction between pulmonary embolism and infarction: The fallacy that pulmonary infarction is commoner in “surgical” than “medical” patients results from failure to distinguish infarction and embolism. Pulmonary embolism is a condition in which an embolus from the systemic venous system, usually the leg veins, lodges in the pulmonary circulation. If the embolus is small, it will lodge in a peripheral pulmonary vessel resulting in infarction—this situation is commoner in “medical” patients. If the embolus is large, it may obstruct a main pulmonary vessel resulting in such a degree of shock and acute cor pulmonale that death follows before infarction occurs—this is the classical pulmonary embolism which occurs on the 12th-14th post-operative or post-partum day. Pulmonary infarction is often less dramatic than the classical major embolus but it remains a highly dangerous condition—a small infarct may be the harbinger of a large embolus, multiple small infarcts result in acute cor pulmonale, and severe repeated haemoptysis, pleural effusion and infection may occur.

Carcinoma of the stomach and achlorhydria: It is often stated that the presence of acid in the gastric juice is incompatible with a diagnosis of gastric carcinoma. Achlorhydria is a late and inconstant finding in this

disease. Swynnerton and Truelove (1952) found normal or excessive acid secretion in 26% of 183 cases.

Mortality of haematemesis and melaena: It is a curious fallacy to regard the latter as less serious than the former. The mortality is as nearly identical as might be expected from their common causes (Thompson et al. 1946, Jones 1947). It may be fair to say that the larger the haemorrhage the more likely is haematemesis to occur and that the drama of haematemesis may occasion more shock. But occult melaena may soon become dangerous haematemesis and the very absence of a dramatic episode may delay diagnosis and treatment. Patients may bleed to haemoglobin of 30% quite rapidly without haematemesis, even from the oesophagus.

Dietary restriction during tests for occult blood in stools: This test finds its most useful place in the investigation of hypochromic anaemia and of obscure abdominal pain. It is positive in about 90% of intestinal neoplasms (Dahl-Iversen and Nissen 1930) and a persistently positive result in the absence of obvious cause is regarded by many as an indication for laparotomy (Hughes 1952). Simple modifications of the sensitive benzidine test have been designed which make it unnecessary to stop iron administration or to insist on the unpalatable “white diet,” but which are sufficiently accurate for clinical purposes provided that three specimens are examined (Hughes 1952, Needham and Simpson 1952).

Collateral circulation in portal obstruction: Students suffer a fascination for the caput medusae only slightly less fatal than that of the ancient Greeks. Concentration on this rare form of collateral circulation only distracts attention from the much more common dilated superficial veins passing up the abdominal wall which are second in importance only to oesophageal varices as a sign of raised portal pressure. Contrary to popular opinion, rectal piles are so inconstant a feature of raised portal pressure and so common without it that they are valueless in its diagnosis.

Albumin/Globulin ratio: This ratio must be condemned on the same ground as its expression of the differential white blood cell count in percentages. The proportion of albumin to globulin matters no more than the proportion of neutrophils to lymphocytes.

Such expressions serve only to distract attention from the important absolute figures. An A/G ratio of 1/1 may mean normal albumin with high globulin, or low albumin with normal globulin.

Van den Bergh's reaction in the differential diagnosis of jaundice: Clinical experience has shown that the differential Van den Bergh reaction is valueless in the distinction of hepatic from obstructive jaundice. The reason is that in hepatitis the bile canaliculi swell and produce, in effect, intrahepatic obstruction. It is true that in haemolytic jaundice the bilirubin in the blood is of “indirect” type, i.e., the colour is obtained with the diazo reagent only after the protein has been precipitated, but we must be poor clinicians to depend on this for diagnosis of haemolytic jaundice. The total serum bilirubin may be used to spot sub-clinical jaundice or to follow the progress of a jaundiced patient. At least it has not been suggested that “direct” and “indirect” bilirubin be expressed as a ratio.

Tests of liver function: It is still not clearly understood that the commonly used tests for liver function are not tests of liver function at all but indications of abnormalities of plasma globulin. Such abnormalities are common in hepatic damage but are not specific and the tests may be found positive in other disorders in which globulin changes occur. Their value is that they may be abnormal when direct measurement of globulin is normal. The brom-sulph-thalein excretion test does not come into this category. The measurement of alkaline phosphatase is only a test of liver function in so far as the capacity to excrete bile is concerned. Values higher than 35 KA units per 100ml. suggest extrahepatic obstruction, but the test is of little value as a test of liver function in the absence of jaundice.

Too many “Fs”: The description of sufferers from gall-bladder disease as fair, fat, fertile, flatulent, female and forty is guaranteed to raise a laugh from every generation of medical students, and like much humorously acquired knowledge it tends to stick. Unfortunately, it seems that as many as 40% of sufferers may be male (Waugh and Cain 1954), as many as 30% may occur under the age of forty (Griffin and Smith 1954) and that pregnancy has little influence on its incidence (Gross 1929);

also that the oft-repeated “flatulent dyspepsia” is of little value in diagnosis (Littler and Ellis 1952). However, most sufferers are overweight.

Renal lesions in shock: The arterial pressure required to form the glomerular filtrate is in the region of 60 mm mercury. If the systolic pressure falls below this level, the formation of urine will cease for purely mechanical reasons. This is a common state of affairs, particularly in haemorrhagic shock. Restoration of blood volume is an urgent matter and will restore urine flow in most cases. If the blood volume is not promptly restored, the renal tubular epithelium may undergo necrosis (acute tubular, or lower nephron, necrosis or nephrosis) by a mechanism not entirely understood but probably from anoxia. In this much more serious situation urine flow cannot recommence until epithelial regeneration occurs—a matter of 1-4 weeks or more—even if the blood volume is immediately restored (see Bull 1953). Since nothing can be done to hasten epithelial regeneration, treatment is directed to maintaining the status quo by the regime popularly known as the Hammersmith cocktail, until re-epithelialization takes place, and the urine flow recommences (Bull et al. 1949). Tremendous diuresis may then occur and the electrolytes lost in the dilute urine passed through the still damaged tubules must be replaced if deficiency is to be prevented. It is said that there are no sequelae if recovery occurs, although the period of follow-up is still short and some doubt has already been cast on this (Kinkensstaedt et al. 1953). Candidates for higher degrees will be horrified to find that over 72 causes of acute tubular necrosis are now on record (Darmady 1953).

Pupillary abnormalities: It may be considered pedantry, but is certainly more accurate, to replace the deeply laid reflex “Argyll-Robertson pupils - tabes” with “Argyll-Robertson pupils - neurosyphilis.” Horner's syndrome is a common and important “gap” with a depressingly long list of causes; the enophthalmos which, for some curious reason, usually heads its features, is rarely seen and is certainly far less important than ptosis and myosis—surely a convenient rhyme. These two usually exhaust enquiries for causes of unequal pupils. Trauma and iritis are common and both inequality and

failure to react may result. Most clinicians will have been had by the effect of homatropine instilled into one eye by an enthusiastic resident.

Fat boys and girls: Fat boys whose genitalia are engulfed in fat run serious danger of being labelled Frolich's syndrome, and fat girls with slight hypertension, Cushing's syndrome. Both syndromes are exceedingly rare. The majority of those with Frolich's syndrome have a serious lesion of their hypothalamic-pituitary system; those with Cushing's syndrome will mostly be dead within 5 years. Such serious prognosis demands careful diagnosis.

Diagnosis of thyrotoxicosis: Students are taught that the blood cholesterol is raised in myxoedema, lowered in thyrotoxicosis. The general conclusion is that the test is of no value in thyrotoxicosis but of considerable value in myxoedema (Fraser 1954). It seems time that this finicky test was put on the black list for thyrotoxicosis. It seems also that, despite the latest contributions of the atomic pile and the increasingly esoteric chemical investigations, the diagnosis of thyrotoxicosis is essentially a matter of clinical judgment. Experienced clinicians will rarely alter their opinions after such tests, although they may be gratified to find their diagnosis upheld. There seems to be little doubt that the radio-iodine tests are the most accurate and that they have their greatest value in those cases with predominantly cardiac manifestations (see Wayne 1954).

Two neglected symptoms: Patients rarely take their temperature even in these scientific days and *sweating* is a useful indication of fever, being especially marked in rheumatic fever, brucellosis, bacterial endocarditis, tuberculosis and Hodgkin's disease. The profuse sweat which follows rigor helps to distinguish the latter from mere shivering. Sweating is excessive in thyrotoxicosis and acromegaly, diminished in myxoedema, Addison's and Simmond's diseases. The seeker after rarities will know that profuse sweats assist the diagnosis of islet cell tumour and phaeochromocytoma.

It is well known that *nocturia* is a prominent feature of enlarged prostate but less well known that it is almost invariable in renal and cardiac failure. It has been shown

that in cardiac failure the renal blood flow and urine formation increase at night (Brod and Fejfar 1950); oedema is often mobilised at night which also increases urine flow. In early renal failure, the kidneys cannot concentrate the urine to excrete all waste products by day but can still pass large volumes of dilute urine; urine formation therefore continues evenly, day and night, with passage of large quantities of urine of fixed specific gravity—osmotic diuresis (Platt 1952). In Addison's disease, too, there is loss of power to excrete a sudden load of fluid and nocturia is common.

Suppression of defence mechanisms: Cough, vomiting and diarrhoea are three physiological mechanisms for rejection of noxious substances. Therapeutic suppression of these defences is often meddlesome and may have serious consequences. Productive cough should never be suppressed except, occasionally, to procure sleep; morphine should never be used for this because sputum retention plus respiratory depression is extremely dangerous, particularly in infancy and old age and when respiration is strained to the utmost. Acute vomiting and diarrhoea caused by ingestion of toxins, chemical or bacterial, is best treated by stomach washout and purgation with castor oil, unless the patient is severely collapsed from dehydration.

"Functional," "Hysterical" and "Malingering": Improper use of these terms causes much confusion. Functional, in particular, is often used to imply either neurosis or malingering. Organic dyspepsia results from abnormal structure. Functional dyspepsia results from abnormal function (anatomical structure being normal), e.g., abnormal motility or secretion—it is a descriptive term, not a diagnosis. Neurosis, through the mediation of the autonomic nervous system, may be the cause of functional dyspepsia—the diagnosis is then neurosis. Hysteria may also form the basis of functional dyspepsia, the patient having a conscious or subconscious desire to have symptoms. All these types of dyspepsia cause suffering and all require treatment, each in a different way. The malingerer has no symptoms and does not suffer, but consciously and deliberately "puts it on" for his own ends.

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ROYAL HOSPITAL OF ST. BARTHOLOMEW ANNUAL BALL

ROYAL FESTIVAL HALL

Friday, May 13th. 11 p.m.—5 a.m.

Dancing to the Curzon Orchestra

Cabaret:— "THE NIGHTLIGHTS"

Tickets and Table Reservations from the Ball Secretaries, Abernethian Room.

AN ABNORMAL FIRST RIB

by M. A. NEWTON

THE fairly common condition of "thoracic inlet syndrome" is nearly always traceable to the presence of a cervical rib, and it is therefore of interest to note a case in which abnormal development of the first rib is responsible.

Clinical Note.

Last January, a 25 year old Leading Patrolman (R.N.) was admitted to the Hospital, complaining of tingling in the left hand and forearm.

Two years previously, he had first noticed that when his arm hung at his side, he became conscious of a tingling on the medial side of his forearm and hand, and the medial two fingers. The tingling would come on after 10-15 minutes, and could be relieved by elevating the limb. He said that his father had had "some abnormality in the development of his bones."

On the left side of his neck, there was a hard, immovable swelling just behind the mid point of the clavicle, and the subclavian artery could easily be felt pulsating over this structure. The clavicle on this side had no anterior bow, but was displaced downwards and backwards in its middle portion.

The patient stood with his hands at his sides, and, after about five minutes, the left hand and forearm assumed a blue and blotchy appearance and became colder, while no change was observed on the right side. The patient noticed tingling in the affected limb after another five minutes. Both radial pulses were palpable, but when he squared his shoulders, the left one was obliterated. Subsequent elevation of the left arm restored its normal colour.

X-Ray Examination.

The skiagram (Fig. ...) shows no abnormality on the right side; but on the left, the first rib passes forward below the clavicle, and is then seen to be lacking an anterior part, by which a normal first rib would be attached to the sternum. There is no evidence

of a cervical rib, and this fact was all that was reported by two radiologists.

Operation.

These observations were confirmed at operation, and the first rib was found to be connected anteriorly with the second rib by a fibrous cord. The scalenus anterior and phrenic nerve were rather more medially situated than usual. The subclavian artery and trunks of the brachial plexus were confined in a narrow gap between the abnormal rib and clavicle, and the rib was considerably grooved where the artery passed over it. The first thoracic nerve root could be felt ascending over the posterior part of the first rib.

The fibrous connection with the second rib was severed anteriorly, and, by using bone-cutting forceps on the visible part of the first rib, a large portion of it was removed. Bone-nibbling forceps removed a further portion posteriorly, until the first thoracic nerve was free, and just a small stump of the rib was left attached to the first thoracic vertebra.

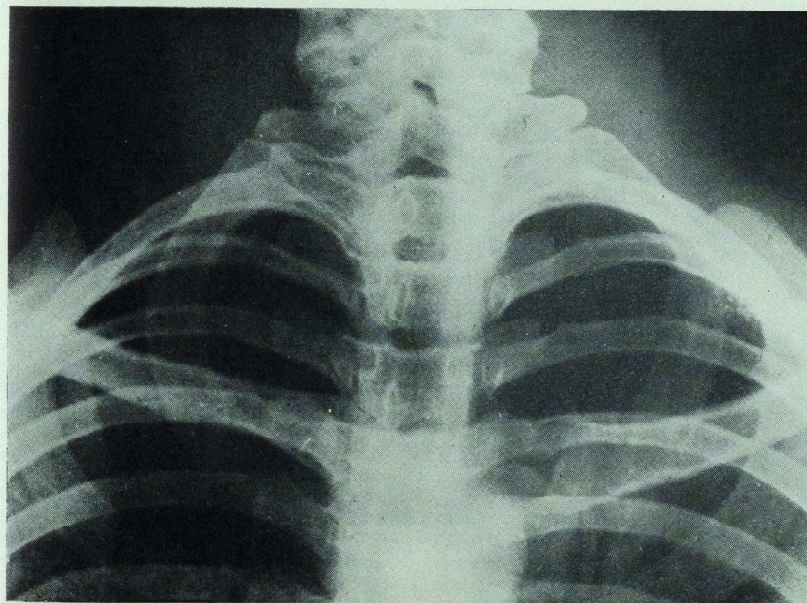
Results.

The patient made a rapid and successful recovery, and was discharged five days after the operation. He had some numbness in the left thumb, which started recovering from the proximal end, until only the tip was affected when he left hospital. This was probably a result of the necessary retraction of the brachial plexus during the operation.

Commentary.

Of forty-eight cases of thoracic inlet syndrome reviewed by K. C. Eden in 1939, forty-two arose from the presence of a cervical rib. Two were due to exostoses from the first rib, and of the remaining four cases, only one was at all comparable with the case under consideration, and was not due to any gross deformity.

The case reviewed above is peculiar in that the abnormality is not restricted to the first rib, but also involves the clavicle.



Like the cervical rib conditions, however, this one may go unnoticed until its secondary effects present, when the inconvenience they produce is usually sufficient to warrant surgical treatment.

This record has been made to draw attention to the importance of scrutinizing the first and second ribs and the clavicle, as well as looking for a cervical rib, when there is

evidence of pressure upon the nerves and vessels of the thoracic inlet.

Acknowledgement

Professor Sir James Paterson Ross, who treated the above case, and assisted in the production of the article.

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THE BEST LAID SCHEMES O' MICE AND MEN . . .

by RONALD McGRIGOR

JANUARY is not the best time for ski-touring in the High Alps, but for various reasons, not unconnected with the "exigencies of the (Health) Service," we had to plan our tour then rather than later. On the other hand if you do happen to be lucky with the weather you have these remoter parts of Europe to yourself, instead of sharing them in the Spring with numerous other parties. And perhaps the joy of being "far from the madding crowd" is not the least of the pleasures ski-touring has to offer.

My companion, also a Bart's man, was Michael Mason, and together we had planned to cross the Silvretta Alps on a four-day tour which would take us from St. Anton in Austria to Klosters in Switzerland. This range, which forms the frontier between the Arlberg district of Austria and the Swiss Grisons canton, is one of the finest Alpine ski-touring areas, and includes such peaks as Piz Buin (11,000 ft.), the Dreiländerspizze, the Augstenberg, the Fluchthorn and the Silvrettahorn. Moreover, it is one of the safest since its glaciers and their crevasses are exceptionally constant and therefore well known to local guides.

The area also possesses about half a dozen mountain huts, supported by the O.A.V. (Austrian Alpine Club) but mostly privately and locally owned, which can be used by members of the above, or other ski clubs, on tour. They are situated, more or less strategically, on an average about 4 hours trek on skis from the nearest village, and much the same distance from one another. It is worth noting, though, that the 4 hours stated in the village means in reasonable weather and snow conditions, and that in poor conditions it can take twice that time.

These huts are generally unoccupied in the early part of the winter, but can of course be used as shelter by skiers prepared to carry their own food. After mid-February most of them have a resident caretaker, who also cooks, in the shape of a local, usually retired, guide.

We had with us as our own guide Johann Bombardelli, qualified Berg- und Ski-führer,

an Austrian of Italian descent personally recommended to us by a mutual friend. In addition to being an excellent mountaineering guide, Johnnie, as he soon became known to us, was stated to be a first class "crevasse-puller." Fortunately we had no opportunity of putting this latter qualification to the test, though his fine physique and obvious toughness gave one considerable confidence.

Johnny had, like many Austrian Alpine guides, served on the Russian front in the War, and though he didn't talk of it unless questioned, we gathered something of the appalling conditions in which much of that campaign was fought. We learnt, too, that in the German Army a mark of distinction was issued to soldiers who had taken part in hand-to-hand fighting with the Russians on 15 occasions. Johnny, we heard from another source, had earned 4 such badges.

Our plan was roughly as follows. We had already spent the best part of a week at St. Anton finding our ski-ing legs and getting, we hoped, fit for several arduous days in the mountains. The remainder of our holiday was to be spent in Klosters whither our respective wives were to proceed by road. Our actual starting point on skis was Galtür, reached from St. Anton by a surprisingly exciting journey of 3 hours, done in an antiquated bus at top speed, presumably in order to surmount the dangers more quickly, on a narrow and precipitous icebound mountain road. For a considerable part of the journey the dozen or so locals with whom we shared this rattletrap would jump to their feet as we skidded around each blind corner, though what good this would have done them, if the insecure-looking roadside had given way to the depths below, it was difficult to see. Being British, we made silly jokes to one another and tried to look as though we weren't worried. We did, however, decide that whatever the rigours of the journey ahead, we certainly weren't coming back that way.

At Galtür we stayed at a pleasant little inn owned by one Albert Lorenz, who on hearing of our plans promptly offered to come with us, at least to the Jamtal-hütte which he also owned. This we gratefully accepted since it meant having someone who knew the hut, how to get the stove going to warm it, and provide the many other little comforts which otherwise we weren't expecting, and of course an unoccupied hut at 8,000 ft. in mid-winter in the Alps is little more than an icebox.

With regard to our kit and equipment, a great deal of thought and planning had been expended thereon. The main problem in a trip of this sort is how to take sufficient food, spare clothing and equipment, together with other essential items in a rucksack which when full should weigh not more than 15 lbs., or approximately the weight which can be easily supported at shoulder level by an outstretched arm. This comparatively small weight is because there are times when it may be necessary to carry one's skis on one's back as well, at least a further 15 lbs. In our case we had planned to have enough food for 5 days, since it is wise to have at least one day's spare rations in hand in case

of being weather-bound in a hut. The majority of huts, even when empty, have emergency food supplies, but this by general understanding is reserved for emergencies, which do not include simply feeling hungry because you didn't carry an adequate amount of food!

One must of course be reasonably self-supporting also with regard to accidents, in fact one's survival may depend on being able to get out of any difficulties one gets into—there is no other help available. One therefore plans, proceeds, and skis, with due regard to weather, snow and terrain, exercising vastly more caution than one ever does on the piste. An enforced night in the open at 8,000-10,000 ft., especially if injured, may well be fatal. Essential items of equipment include, of course, large-scale local ski maps, a compass, an aneroid barometer cum altimeter, a torch, spare tip for wooden ski, a good all-purpose pocket knife and matches. A sedative, such as Seconal gr.3, is invaluable because most people find it difficult to sleep, however tired, at unaccustomed heights; and an adequate supply of reading matter is important since there may be long periods of inactivity, particularly in poor



The Augstenberg, 10,700 ft.

weather. It should be light, in both senses of the word!

The next morning we were off by 7 a.m. All ski tours start early in the day since it is essential to plan to reach your objective with 2-3 hours in hand. You never know how badly you may need those hours. However this particular morning was fine and cold, just the right combination, and as we climbed higher into the Jamtal valley our spirits rose in proportion. The last signs of civilisation soon disappeared as we climbed on above the tree line; signs of life, too, were few—a pair of dippers flying low above the frozen stream, and some chamois high on the mountain-side above us, their only food the moss and lichen not covered by snow or ice. By midday we were in the Jamtal-hütte, where Albert promptly poured us each a stiff schnapps from what appeared to be a Winchester of the stuff. In no time there was a fire going and he had a welcome meal ready as if by magic. In the afternoon we decided to cut tracks towards the Augstenberg (10,700 ft.), a 4.5 hour climb, which we hoped to do next day, since the snow was very deep and soft and if no more fell our tracks would give us a good start on the morrow. We climbed for about 2 hours, but conditions were deteriorating rapidly, snow falling and the light failing, and not altogether reluctantly we turned and skied back to the hut in glorious deep, soft, billowy snow. Track-cutting in deep snow is hard work for the leader, so the three of us took 10-minute turns and it is amazing how long your 10 minutes in front appears compared with how short your 20 minutes behind.

That evening, by the flickering oil-lamp, we learnt much of interest from Albert and Johnnie. The Jamtal-hütte was built by Albert's grandfather, who must have been a man of considerable foresight, in 1882, and enlarged by his father in 1911. During these 73 years many thousands of walkers and climbers in summer, and more recently ski-mountaineers in winter, must have enjoyed its crude but warm hospitality. During the war it was occupied by German troops, presumably guarding the Swiss frontier, and we couldn't help thinking that it must have been regarded as a fairly "cushy" billet, remote from the fighting. It wouldn't have done of course to show too much proficiency on skis while any inspecting officers were about, for fear of being posted to a ski battalion on the Eastern front.

We looked at the hut books, too, and Michael was thrilled to find his own name entered exactly 20 years before when he first visited the hut as a schoolboy. Careful search, however, revealed the surprising fact that in spite of the large and ever increasing number of British Summer and Winter tourists who now visit the Alps, the average visiting the Jamtal-hütte was less than 5 per year. Incidentally the flowers around are said to be quite wonderful in July, by which time the snow has gone, but do not last long once the cows arrive in their summer pastures.

We slept in our clothes in bunks with a plentiful supply of blankets, which incidentally were not marked "Füsse" to tell you which end not to pull up round your neck, as in some huts. But even so we were none too warm and there was no great tendency to linger in bed.

Next day the barometer was falling sharply, the temperature had risen to barely freezing, and the visibility was poor owing to driving snow. We waited. The climb to the Augstenberg was clearly off. The next day's plan had been a 4-hour climb to the Ochsenscharte pass, and thence a short run down to the Wiesbadener-hütte, or if the going was good to climb Piz Buin first, a further 3 hours or so. Finally, probably after a night at the Wiesbadener-hütte, we would make for another pass, the Fuercela del Confin (10,000 ft), about 3 hours, and from there ski down the long wide Silvretta glacier, past the Silvretta hut near its lower end, one of the few huts in telephonic communication with the outside world, and so after a longish trek down the valley to Klosters, our long-suffering wives, and the fleshpots.

Unfortunately it wasn't to be. The weather worsened and Johnnie and Albert said nothing. You cannot press an Alpine guide to a decision, he makes it in due course, and once made you cannot change it. About 2 p.m. Johnnie gave his verdict, and how right he proved to be, though I think we had all reached the same conclusion in our minds. The recent snow and unduly high temperature spelt avalanche danger, and the falling barometer meant more to come. We had best get out, back to Galtür, before we were snowed in. Reluctantly we did so, but were glad afterwards when it snowed heavily for several days and many avalanches were occurring in the area.



The Wiesbadener Hut and Piz Buin, 11,000 ft.

Of the rest of our trip there is little to be said, the object being to get to Klosters as soon as possible. An hour on a sledge in the freezing dawn, 4 hours on skis in a blizzard to Partennen; thence by car to Bludenz, on the railway, driven by a little elderly tweedy woman in a Tyrolean hat, quite obviously the Austrian counterpart of the president of the Women's Institute in any English country village. At Bludenz we took our leave of Johnnie, very sorry not to have got us across the way we had hoped, but there was always next year as he said. Suddenly his train arrived and with several Schnapps inside him he nearly went without his rucksack. For us, Bludenz to Feldkirch by train, a half-hour drive across Liechtenstein in the dark with a little man who continually pointed out the sights we couldn't see. "That's where the landlord lives," he announced proudly as we skirted Vaduz, referring, we presumed, to the mediæval castle of the Prince of Liechtenstein! He talked so busily in fact that we were unable to tell him that his right-hand direction in-

dicator was out, and we wondered idly whether we were the first people to cross an entire country in this way!

And so, by the skin of our teeth, we caught the last train to Klosters, weary and a little frustrated, but feeling the richer in experience for our 4 days' wanderings; and feeling, too, that we knew now just exactly what to take and how to plan for next year, the only difficulty being which of the many wonderful ski touring areas in the Alps to explore next.

You need not be an expert skier to go ski-touring, though you should be a competent one. You must, however, be reasonably fit, you must have sound equipment, and last but not least you should choose your companions carefully. Disappointments are common, and as Michael remarked at the time, probably at least 50% of all ski tours which are planned have to be abandoned at some point or other owing to the weather. Most of them finish up instead in a night club in the nearest town, and after all that's not such a bad alternative!

THE SIMPLE LIFE

by J. D. PARKER

Give me the stars on a frosty night
 Give me the warming sun,
 The verdant hills and the swallow's flight
 Across the vales where rivers run ;
 A land divorced from sin and strife,
 Give me the simple life.

Give me a field of swaying wheat
 Where the keen wind tans the skin,
 A hard day's work in the summer heat
 Away from the city's din ;
 Thus says the peasant to his wife :
 Give me the simple life.

Nay, give me the way of leisured bliss
 Of perfumed breath and garments fine,
 A soft couch and a woman's kiss —
 Of roasted flesh and flowing wine,
 With opiates and orgies rife ;
 Give me the simple life.



THE BRITISH STUDENT TUBERCULOSIS FOUNDATION

It is estimated that every year in Great Britain 250 students contract tuberculosis requiring sanatorium treatment. This is equivalent to two out of every thousand students, but the incidence amongst medical students is considerably higher, being about nine out of every thousand.

After the active phase of treatment for tuberculosis there follows many months of convalescence in hospital or at home. It has been recognised for many years that unless a student is able to continue his studies during the convalescent period he becomes intellectually "rusty" and often demoralised about his prospects on returning to his University. Most students find that studying on their own in the ordinary sanatorium wards, where there are patients of very mixed interests, is not only difficult, but almost impossible. Yet for the student, study is in itself the best form of occupational therapy.

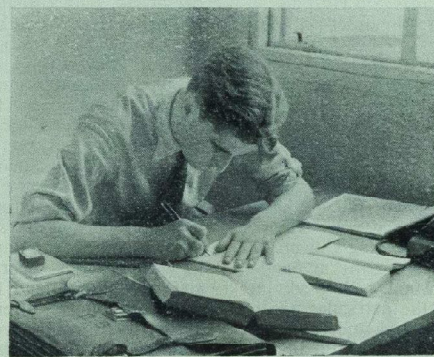
In November, 1949, the main student organisations (the National Union of Students, the British Medical Students Association and the Scottish Union of Students) formed a committee to consider the establishing of a sanatorium where students in Great Britain could receive treatment, while at the same time continuing their studies assisted by visiting tutors from nearby academic centres.

In France there are several student

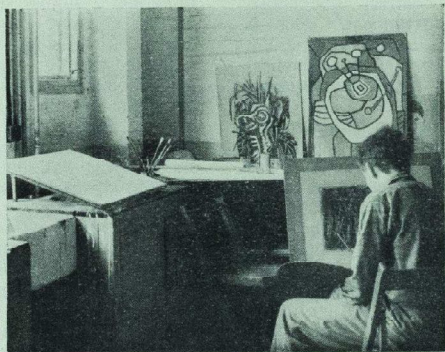
sanatoria and "post-cure" rehabilitation units and a similar scheme was considered for this country. However, because of the demand for existing sanatorium beds it was suggested that the sanatorium phase of treatment should remain as it was, under the control of the Regional Hospital Boards. Instead it was proposed to establish a national rehabilitation centre where the convalescent student (who was sputum-negative) could be transferred when he was up and about for a few hours each day.

In 1950 an appeal was launched for money to provide such a centre and during the next two years over £20,000 was raised. In June, 1952, the British Student Tuberculosis Foundation was established, to be governed by a council consisting of two representatives from each of the following organisations:—The British Tuberculosis Association, The Joint Tuberculosis Council, The British Medical Association, The National Association for the Prevention of Tuberculosis, The National Union of Students, World University Service, The Scottish Union of Students, The British Medical Students' Association, The British Student Health Officers' Association, The Association of University Teachers, The Association of Teachers in Colleges and Departments of Education.

The aims of the Foundation, as laid down in the Trust Deed, are "to give assistance to



A student at work



The art studio at Pinewood

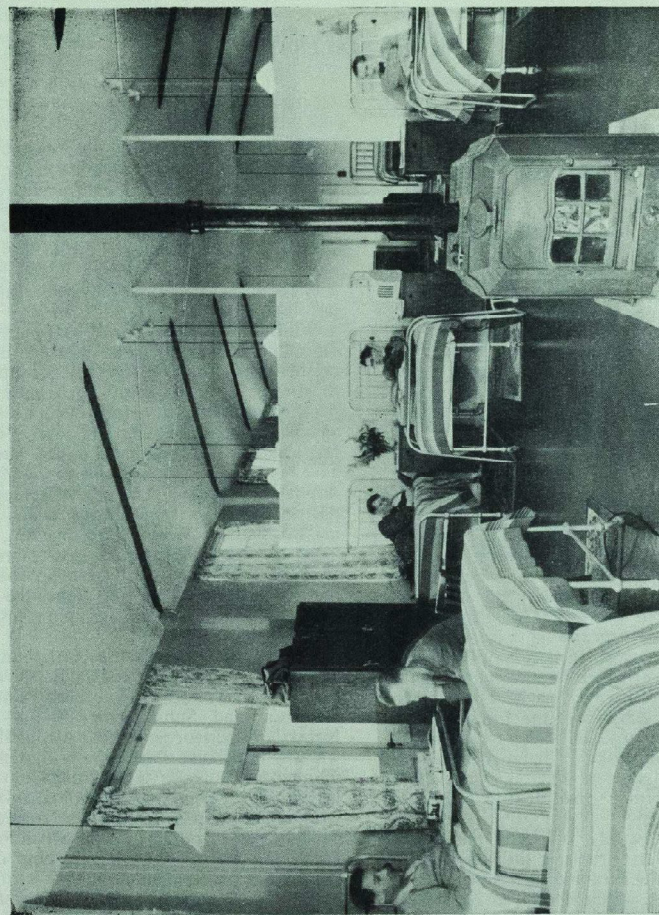
any and every kind to students who are suffering from tuberculosis," and in particular "to establish sanatoria or other curative centres, wherein students may continue their studies while under medical supervision."

In September, 1952, a small rehabilitation unit was established at Pinewood Hospital at Wokingham in Berkshire, in order to offer immediate help to convalescent students pending the establishment of the main centre. The unit has sixteen beds and since then more than eighty students have been in residence, including a clinical student from Bart's who described life at Pinewood in an article in the January, 1953, issue of the *Journal*. The average length of stay at the unit is four months, although one or two students have been in residence for almost a year. Tutors from London University, Reading University and the Royal Military Academy at Sandhurst have visited Pinewood each week or fortnight, depending on the particular needs of their students. For medical students there is an excellent medical library (with many of the books donated by publishers) and thanks to the generosity of the Cambridge University

Medical Society there is even a half-skeleton! In addition ward-rounds are arranged at the nearby Royal Berkshire Hospital.

It has always been the intention of the Foundation that there should be facilities for both men and women students and in November of last year a small unit for women was opened at High Wood Hospital at Brentwood in Essex, with tutorial assistance from London University.

Since the establishment of B.S.T.F. negotiations have been taking place for a permanent main centre and it is hoped that arrangements will soon be completed for the purchase of Mottingham Hall, a mansion in the grounds of Grove Park Sanatorium in south London. Mottingham Hall was built in more spacious days as the residence of the Superintendent Physician and stands in its own grounds separated by sports fields and agricultural land from the main sanatorium buildings. After conversion, approximately fifty men and women students will be accommodated and provision can be made for more residents if there is sufficient demand in future years.



Pinewood Sanatorium

It has been possible to give only a short account of the activities of the Foundation in this article, but Mr. Donald Bell, the Secretary/Administrator, will gladly supply

further information about the work and plans of the British Student Tuberculosis Foundation. His address is 59, Gloucester Place, Portman Square, London W.1.

THE LIFE AND WORKS OF LOUIS PASTEUR

PART I

by J. S. MALPAS

Introduction

It is the fate of great men that posterity weaves about them a golden legend, failing to regard their lives as similar to any other story composed of error, difficulty and even tragedy. Such a legend neglects the truth which is more interesting than imagined glorious journeys through life.

For many years a legend has been growing about the person of Louis Pasteur. It is hoped in this essay that by recounting the way in which he lived through the years of "The Wonderful Century" it will be a little easier to see, despite omissions and the lapse of time, the truth of his greatness.

Louis Pasteur was born on December 27, 1822, at the town of Dôle in the Franche Comté. His father, Jean Joseph Pasteur, was a tanner who was just beginning to make a good living for his wife and daughter. Jean Joseph had returned seven years before from Napoleon's service in which he had received the cross of the Legion of Honour. In the France to which he had returned, the royalist supporters of Louis XVIII antagonised the loyal servants of the Emperor and, consequently, many old soldiers had had to take up humble tasks, to hand their swords to the local magistrate and take in return a spade or a scythe. Jean Joseph became a tanner.

Shortly afterwards in 1827 the whole family moved to Arbois, a little town lying at the foot of the Jura and surrounded by the vineyards from which it derived its wealth. Their new home was a pleasant house in the Rue de Courcelles which leads to a bridge over the river Cuisance. It was in this house that many years later Pasteur fitted out the first floor as a laboratory for his studies on the fermentation of grapes, and it was in this house also that he returned in times of holiday or tragedy in the next sixty-eight years.

not see how that made his science any the better." Even at the close of his life Pasteur remained interested in fundamental problems and would either write to Chappuis or invite him to visit Paris.

How slowly the tempo of success mounted in Pasteur's life and from what meagre beginnings is notable.

After leaving the College at Arbois he was sent in the October of 1838 to the Institution Barbet in Paris run by an old Franc Comtois, a M. Barbet. He intended to study for the entrance examination to the Ecole Normale. This had not been with his parents' approval, it was at the urging of the principal of Arbois College that he went so far away from home.

In Paris he became very homesick. He returned home to Arbois and the following October he went to the College of Besançon not far away where he could often meet his father on the days when he came to buy the hides by the gate of the old Granvelle Chateau.

All through their letters from January 26, 1840, to August 17, 1842, there runs a constant report on his work:

"I manage to sustain a place amongst the best in my class but I hope that my rank there will be better in a few months."

This and other evidence shows how Pasteur planned his life, this habit grew with maturity and he became expert in calculating risks and following a predetermined course of action. He certainly planned a personal life lacking in comfort and even necessities: that he maintained his health so long was probably the achievement of Madame Pasteur.

In 1842 he passed his examination for baccalauréat of sciences and mathematics and was declared admissible on August 26, fourteenth in his year. He was not satisfied with this and in the October after abandoning his place at the Ecole Normale he returned to the Institution Barbet to study hard for a year.

This time he was not homesick, for besides studying at the Lycée St. Louis he paid for part of his expenses by giving mathematics instruction to Barbet's pupils. He also went to hear the lectures at the Sorbonne.

The lectures were not only for students but were attended by fashionable people of the City. Though this tended to produce the idea in some lecturers' minds that they

should amuse rather than instruct, it was probably by this means that most of scientific knowledge reached educated people in the days of few scientific periodicals and no film or radio dissemination of knowledge.

At the end of 1843 he was admitted fourth on the list to the Ecole Normale and so achieved the first of his ambitions. He continued to give lessons at the Institute Barbet but his work took up more and more time and now he added to his own studies work that he was doing on his own account.

When Pasteur was studying at the Ecole Normale Jean Baptiste Dumas was in his late forties, a member of the Academy of Sciences and a Professor at the Sorbonne. He was eventually to be made a minister of agriculture and commerce and a Senator. He was famous as a chemist for his determination of atomic weights and the law of substitutions. He had started work as an apothecary and eventually attained the honour of becoming a member of the Academie Française. His counsel was listened to with attention by Pasteur except on one occasion when Dumas advised him not to enter the field of controversy on spontaneous generation. What a disastrous effect it might have had on the course of events if Pasteur had not chosen on this occasion to ignore Dumas' advice in view of the fact that his researches led directly to the germ theory.

Many young men owe their advancement to the timely help and advice of an established professional man and Pasteur was no exception. Jean Baptiste Biot was a hard, sceptical man, but some guide to the affection in which he held the young Pasteur is to be found in a letter to Pasteur's father on receipt of a basket of fruit from the countryman's garden. This was the only return that Joseph Pasteur could make for hospitality received at Biot's hands.

Towards the end of his life Biot gave Pasteur a portrait of himself. "If," he said, "you place that next to the portrait of your father you will be looking at two men who have loved you very much."

Pasteur was also influenced greatly by Antoine Balard. He came into contact with this exuberant southerner when he went to work as an assistant in M. Balard's laboratory. M. Balard had discovered bromine at the age of twenty-four, he had been made a member of the Academy of Sciences and was made an Inspector General of higher



Pasteur and his friend Bertin. This delightful informal picture of the two is seldom seen. Bertin became Director of the Ecole Normale after Pasteur gave up that post.

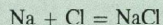
education. He was a man of many enthusiasms often more interested in seeing what was going on in other workers' laboratories than in managing his own. Pasteur said years later that nothing could be hidden from M. Balard's intelligent questioning, his ideas were given freely and were often of great value. It was Balard who suggested to Pasteur the use of the swan-neck flask which was used in the studies on spontaneous generation.

At an early phase of his career Pasteur was taught to use the microscope. The instrument in the 1840s was employed almost entirely in the Geological and Mineralogical departments of Universities. Botanists and Zoologists still relied on the simple microscope to help them produce the wonderfully detailed drawings to be seen in any book on biological subjects of that time.

After two years as assistant to Balard, Pasteur felt justified in attempting his first experimental problem. It was concerned with the crystalline structure of the tartrates, but

the manner in which it attracted Pasteur is a fine demonstration of the analytical qualities of his mind.

Knowledge of molecular structure in the early part of the nineteenth century was limited. They knew molecules were formed by a grouping of quite stable atoms, the number, weight and nature of which are ordinarily well defined. For instance, they knew that:



but they did not know of what the arrangement consisted. Haüy attempted to explain it on the concept of the "integral crystal molecule," this simply means that if you have a cubic crystal of sodium chloride and go on dividing it into cubes you would at last get the integral molecule which might be a cube but not necessarily so. What the geometric form was did not matter, it was the grouping in the crystal that mattered. Thus a cube can be formed of sixty-four billiard balls or sixty-four cubes. Not only this but a billiard ball may be replaced by

a cube without disturbing the overall appearance of a cube. A chemical example of this analogy occurs in the alums.

Mitscherlich quite correctly showed that certain atoms must be very similar for substitution yields similar crystals, thus zinc, magnesium and calcium all give similar crystals when converted to the carbonate.

The concept broke down when crystals other than those having perfect geometrical shapes were considered. What happens when a cubic crystal appears but with its corners truncated? In particular what happens if hemihedral facets appear?

In quartz these hemihedral facets are inclined in one direction and sometimes in the opposite direction.

Biot made the discovery that quartz affects the plane of polarised light (that is, light whose waves vibrate along one plane) in opposite ways. The plane is twisted to the right by some crystals and to the left by others.

It was left to John Herschel the English Astronomer Royal to show that the quartz crystal with the hemihedral facet inclined to the right, rotated the plane of polarised light to the right and the crystal with the plane inclined to the left did the opposite. If the quartz crystal is melted this ability disappears. It must be noted, however, that in the case of the quartz crystal the polarised light must strike the crystal in its long axis.

Biot had shown that certain substances such as sugars and tartaric acid had no effect on polarised light when in the crystalline state, but on dissolving they immediately had an effect. The logical conclusion is that action on polarised light does not depend on crystalline structure, but on molecular structure. The effect on polarised light was different from substance to substance, not only was constitution different, but it seemed likely that the arrangement of the atoms in the molecule was different.

Pasteur now enters the story making the most fortunate choice of the tartrates for his researches. He remembered that this substance had the ability the change the plane of polarised light. His old teachers, Messrs. Provostage and Mitscherlich had studied it and indeed one of the reasons for Pasteur renewing the study was to follow step by step the procedures of these experienced scientists. He knew that there should be an hemihedral facet on the crystal and this

proved to be true in all the nineteen salts he prepared.

Mitscherlich had gone on to show that a new form of tartrate found in certain wine residues had a unique property. It had the same specific gravity in solution, the same index of refraction when in equal concentration, but whereas the tartrates previously studied rotated the plane of polarised light, solutions of the new crystals did not. Mitscherlich called the new crystals paratartrates.

Pasteur investigated various samples of these crystals. In one sample he discovered that two hemihedral facets were present. This suggested to him that the two facets had cancelled out each others effect on polarised light. However, in one sample he found that not only had the crystals no effect on polarised light, but they had only one hemihedral facet. Faced with this apparent contradiction only two courses were open, either to abandon a fruitful concept, or to conduct further researches. Pasteur chose the latter course. In a later lecture he described how he went on:

"In spite of all that was unexpected in this result I none the less followed my idea. I separated the crystals into two groups for I had observed that they had hemihedral facets arranged in the manner of mirror images. I made them into solution and then with no less surprise than joy, I saw the right-handed hemihedral crystals turned to the right and the left-handed ones to the left of the plane of polarisation, and when I took equal weights of each kinds of crystal the mixed solution was neutral to polarised light because of the neutralisation of the two equal and opposite deviations."

The ripple of excitement, which this discovery caused, spread and eventually disturbed the not unruffled waters of the Academie. Biot and Balard were not always on good terms and it seems as if Biot could not be with Balard for very long without being rude to him. Balard that day was being even more exuberant than usual over a discovery made by a young man in his laboratory called Pasteur. Biot's only remark to Balard was, "Are you quite sure he has done what you have said?"

Biot made certain for himself. Pasteur met Biot at the College de France, a grey, cheerless building next to the Sorbonne. Here Pasteur demonstrated his discovery

from beginning to end. Biot insisted on performing the final stages himself, he made the crystals up into solution and found the effect on polarised light to be just that predicted. Biot took Pasteur's arm and said, "I have loved science so much during my life that this touches my very heart."

Shortly after making this discovery he was given an appointment as Professor of Chemistry at Strasbourg where he met his old friend Bertin who was Professor of Physics. Before he had been in Strasbourg very long he was invited to the home of the new Rector of the University, a Monsieur Laurent. There he met one of M. Laurent's daughters, a bright and attractive girl called Marie, who later became Madame Pasteur.

When Madame Pasteur died in 1910 Roux had this to say:

"The death of Madame Pasteur saddens not only her children, relatives and friends but also those Pastorians who know what an excellent wife she was to her renowned husband."

Stories are still told of Madame Pasteur's great sympathy and understanding. As a widow she lived in the Pasteur Institute and she never failed to enquire into the well-being of all those who worked there. Roux himself must have been one of her greatest trials for he was convinced that he had tuberculosis although this has never been proved. He lived in a little retreat over the part of the Institute devoted to chemistry and his ascetic life must have been the cause of much concern.

In so brief a summary it is impossible to describe Pasteur's discovery of internal compensation or of his journey through Europe to discover the source of racemic acid salts which won him the prize of the Pharmaceutical society for its rediscovery and synthesis.

In September, 1854, he was made Professor and Dean of the new Faculty of Sciences at Lille, and in December of the same year he gave his memorable inaugural address to students of technical science at the Faculty. This speech marks the end of a phase of Pasteur's life, no longer was he able to remain entirely in his laboratory contemplating the logical consequences of his discoveries. From now on the path of his work was to follow the solution of practical problems and the theories were to be incidental.

One day a Monsieur Bigo, who was finding difficulties in the manufacture of alcohol from

beet sugar was prompted by his son to seek Pasteur's help in discovering the cause of the faulty production.

The misfortunes in manufacture of alcohol which led past the oxidation to alcohol and on to the stage of production of acetic acid had been the cause of loss of money for some time. Simply by giving the manufacturer a microscope and showing him that globules in the fermenting liquid were round when alcohol was produced and lengthened when fermentation was going wrong he solved the immediate problem. This was typical; he found the practical solution as if inspired and then followed up his results. Later in the elucidation of the diseases of silkworms he had a practical solution in twenty days, although its full investigation took him another five years. The clue is to be found in the first speech he made at Lille when he said "in the fields of observation, chance only favours the mind which is prepared."

What was known about fermentative processes that might have influenced Pasteur?

The Hon. Robert Boyle said in an essay published in 1663:

"He that thoroughly understands the nature of ferments and fermentations, shall probably be much better able than he that ignores them to give a fair account of divers phenomena of several diseases (as well fevers as others) which will perhaps be never thoroughly understood, without an insight into the doctrine of fermentation."

Antoine Lavoisier, whose works crowded Pasteur's bookshelves, showed with the aid of the balance that "nothing could be created or destroyed." In particular he showed that a given weight of sugar in water with a little yeast underwent transformation into alcohol and carbon dioxide, the weight of the sugar being equal to that of the alcohol and carbon dioxide formed.

Gay-Lussac and Thénard evolved a method of organic analysis by which they determined exactly the molecular formula of cane sugar.

Armed with this knowledge and strong in the belief that Lavoisier was right Gay-Lussac confirmed every finding that Lavoisier had made. True, he found he had to modify his results a little. The discrepancy was admittedly only two or three per cent, but truth can be locked in smaller fractions than this as Cavendish's discovery of the

rare gases illustrates. The equation for the reaction was:

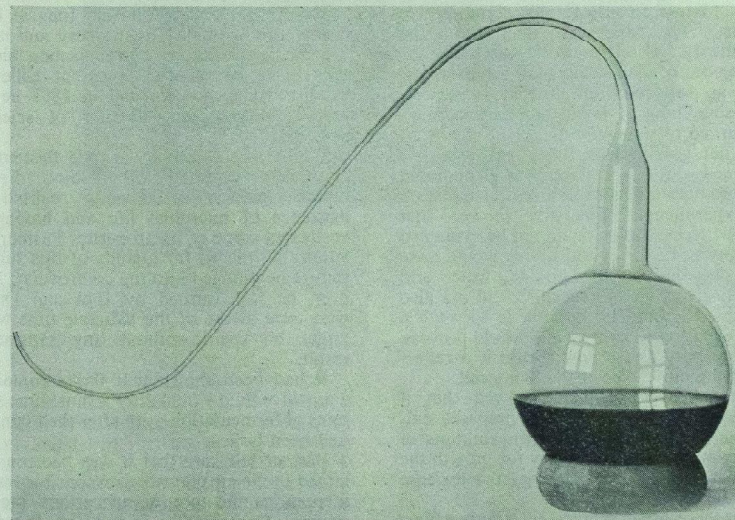
$$C_{12}H_{22}O_{11} + H_2O = 4C_2H_5OH + 4CO_2$$

It will be noticed that nowhere does yeast enter the equation. If yeast is so necessary for the experiment why does it disappear in its interpretation?

Gay-Lussac performed an experiment which started Pasteur thinking. Some grapes were washed and then all the air was removed from their surface by means of hydrogen. The grapes were passed to the top of a test tube containing mercury where they were crushed by means of a rod. No fermentation occurred, but if oxygen was added fermentation began not long afterwards.

Attention had immediately been focused on the oxygen in the experiment. This gas had just been found to have many properties taking part in many reactions and notably those occurring in industry. Oxygen

therefore ruled much scientific thought and just as carbon and its compounds were thought later in the century to hold the very secret of life, so oxygen, the more that was known about it, the more was tacitly attributed to it. This seems a common feature of scientific activity. The conclusion of most people was that fermentation was due to oxygen. The final clearing of the scientific stage of all vitalistic phenomena was hailed by the champion of the mechanistic theory Baron Justus von Liebig with great joy. This great German organic and agricultural chemist, discoverer of chloroform and chloral, admitted that yeast was present in alcoholic fermentation but, as he so rightly said, whereas oxygen seems always to be present in processes of fermentation yeast is present in only one; that is, the production of alcohol. He went further and said that yeast was an effect of fermentation, it was the result of precipitation of albuminoid sub-



The swan necked flask used by Pasteur in his experiments on spontaneous generation. The idea was suggested by Balard.

stances by oxidation. Thus he denied any vital rôle in fermentation to yeast. Defended with vigour, the mechanistic theory of fermentation became successfully entrenched behind alcoholic fermentation.

It was necessary, therefore, that Pasteur should choose an entirely new "champ clos," namely that of Lactic acid fermentation. What the yeast in alcoholic fermentation could do, the greyish deposit in the flasks where lactic fermentation was progressing could do also. There were experimental advantages, for the debris that always accompanied the yeast was not present with the lactic acid ferment, it could be easily observed and recognised as an "organised being." Given the right conditions, it accomplished the rapid transformations over which it presided. The quotation "given the right conditions" comes from Pasteur's own notebook and in this he goes on to state that the essential oil of onion was harmful to infusoria; perhaps the first logical use of an antiseptic substance.

He brought together his ideas on the subject of lactic acid fermentation in 1857 in a paper "Memoire sur la fermentation appelée lactique." This paper was a manifesto of the germ theory. His later work was really the carrying out of ideas expressed in that paper.

Having satisfied himself that he understood something of lactic acid fermentation he returned to the study of yeast. His argument that yeast was a living entity closely concerned with the production of alcohol and not a product of decomposition was based on two experiments. The first showed that alcoholic fermentation could not be explained as simply as Lavosier and Liebig would have it, for besides carbon dioxide, water and alcohol, glycerine and succinic acid are also formed. It would be impossible to write a single equation to express the whole process, its complexity as we now realise is a reflection of the intricacies of the living cell.

The second experiment showed that if yeast was put into a carefully prepared culture medium containing known amounts of the sugars and salts necessary for growth the yeast actually gained weight at the expense of the surrounding medium.

Both these experiments dealt a severe blow to Liebig's theories. With them Pasteur entered the world of the infinitely small, not a world of death and decay as Liebig believed but a world of abundant life.

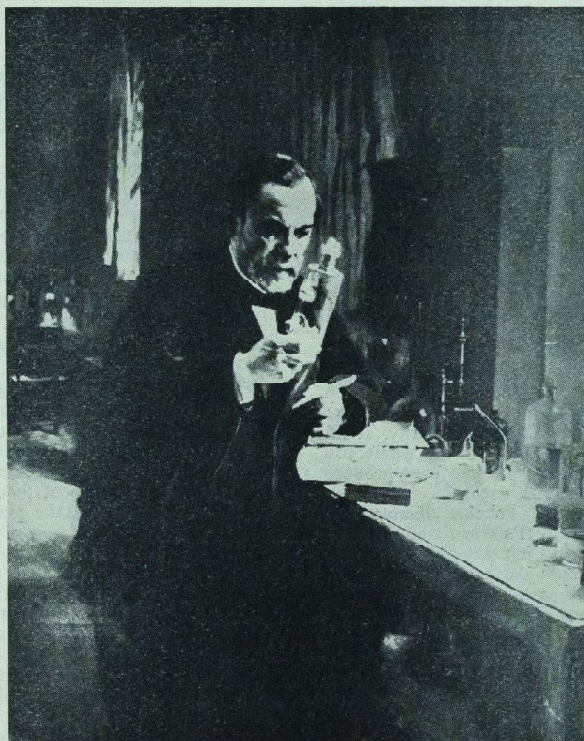
This life manifested itself in many strange ways, not only could these organisms live in atmospheric oxygen but some, particularly the organisms of butyric fermentation, could live without oxygen of the air by living on oxygen bound up in the chemical molecule. Pasteur called those kinds of organisms anaerobes. It is concerning the discovery of anaerobic life that one of Pasteur's most remarkable pieces of observation and insight occurred. Whilst studying butyric acid fermentation he isolated the organism causing it. He put a drop of liquid with the organism on a microscope slide, placed a coverslip over it and was surprised to find that organisms at the edges of the coverslip became non-motile, whilst those at the centre still continued their movement. Pasteur saw that this could only mean that the organisms were inhibited by oxygen. To confirm this, oxygen was bubbled through butyric fermentations; in all cases fermentation was arrested or retarded. Not only this, but he showed that a symbiosis occurs in which aerobes, living on the surface of a medium, prevent the penetration of oxygen and allow anaerobes to live beneath the surface.

He did not remain for very long at Lille. The Ecole Normale was in decay and it was urgent that vigorous reorganisation should take place. Pasteur's success at Lille had become widely known and in 1857 he was made manager and director of scientific studies.

Whilst at the Ecole Normale Pasteur became very interested in the subject of spontaneous generation. Having realised the existence of microbial life and having investigated some of its properties Pasteur was admirably placed for a study of this subject. Before he plunged into the controversy, however, he was warned by Biot and Dumas who were aware of the valuable time which might be spent without any satisfactory result.

It had been shown that flasks containing a nutritive fluid would after a short time show signs of fermentation even after their contents had been boiled.

Pasteur felt sure that it was bacteria contained in the air that were responsible for fermentation and not a mysterious creative power. Occasionally, in spite of all precautions, a flask would later show fermentation. The exponents of the theory of spontaneous generation would quote the experiment and say:



Portrait by Edelfelt the Finnish painter. This shows Pasteur examining the flasks in which the desiccated cord of a rabitic rabbit was dried in order to provide a vaccine against rabies. This was after an attack of hemiplegia. His left hand is almost useless and his arm has to be supported by a thick volume of the "Compte Rendus de l'Academie des Sciences."

"Life is a delicate thing. With your experiment M. Pasteur you clumsily destroy it except in this one instance, in this case you did not destroy the creative power by your heating of the fluids or the air."

It was to Balard that Pasteur owed the most telling demonstration in his defeat of the theory of spontaneous generation. If a flask containing fermentable material could

be boiled and then left so that the liquid was open to the air and to the influence of the "creative power" then it was a crucial experiment. Balard suggested making the neck of the flask like the neck of a swan.

Surely, thought Pasteur, as day by day the flask remained clear, the "creative power" is not awaiting the removal of the swan neck before it manifests itself? If after a certain time the neck of the flask was broken the

contents commenced to ferment. This showed that the medium was still capable of supporting life. The logical conclusion was that the fermentation was caused by germs entering the flask from the air. If the air did not contain germs then it would not cause fermentation. The supporters of spontaneous generation maintained that if a flask was opened anywhere it would start to ferment.

In 1860 the famous experiments of opening flasks with aseptic precautions commenced. Flasks were opened on mountains and glaciers, in the cellars of the University, in fact, anywhere that Pasteur could go.

Meanwhile his rival Pouchet was performing similar experiments in Italy for, as he said:

"Air is equally favourable to organic genesis, whether surcharged with detritus in the midst of our populous cities or taken from the summit of a mountain, or on the sea, where it affects extreme purity. With a cubic decimetre of air taken where you like, I affirm that you can ever produce legions of microzoa."

Both Pasteur and Pouchet obtained the results they desired. Pasteur found that few, if any, of the flasks fermented when opened on mountains and glaciers, whilst Pouchet showed that at a height greater than Pasteur had ever reached all his flasks gave rise to bacteria. These experiments received considerable publicity, and they had a great influence on Lister who was commencing his studies in anti- and sepsis. It was probably as a result of their experiments that Lister introduced the carbolic spray into his operating theatre.

Two such incompatible results provoked Pasteur to demand an enquiry by a commission appointed by the French Academy of Science. This would appear distinctly unfair to Pouchet for a little earlier in 1862 the Academy had given Pasteur the Prix d'Alhumbert for his researches which were embodied in "Memoire sur les corpuscles organises qui existent dans l'atmosphere." To give any other verdict than a decision in favour of Pasteur would have admitted that Claude Bernard and the other members who awarded the prize did not know their business. Indeed, it was this vast weight of opinion combined with an unexpected lapse in confidence by Pouchet, normally so self-assured, that won the day for Pasteur.

In fact both Pouchet and Pasteur had been entirely honest in their observations, but

whereas Pasteur had used yeast juice which is easily sterilised, Pouchet had used an infusion of hay which is not. Many years later it was shown that an infusion of hay contains spores of bacillus subtilis which are extremely difficult to kill. Consequently Pouchet's flasks without exception produced alteration.

Pasteur's overwhelming victory robbed him, and the scientific world, of the knowledge of spores until ten years later, when, in attempting to confound Henry Charlton Bastian's reassertion of spontaneous generation, they were rediscovered. Truth is no function of the strength of public opinion, as the antagonists of Galileo and Harvey and, in this case, the supporters of Pasteur discovered.

Bastian, an English physiologist, published an enormous book on spontaneous generation, the whole of his argument based on the fact that urine which had been heated would remain sterile until it was made alkaline. He returned to the argument that spontaneous generation would not take place until conditions favoured the action of a mysterious creative power.

Pasteur admitted that at first he was puzzled. In this case he did not question the technique of the experiment which seemed perfect. The urine was boiled in the usual way and kept, but if potassium hydroxide was added, even in the form of a fused lump, there was a rapid commencement of fermentation.

Two factors may have contributed to Pasteur's difficulties. Firstly, too much importance was attached to airborne dissemination of germs. To give an example of this, Pasteur and Claude Bernard were asked to carry out investigations into the outbreak of cholera which was raging in the Paris hospitals. They extracted air from the wards and passed it through filter plugs. Unfortunately the debris on the plugs never gave rise to clinical cholera when injected into animals. Cholera was not recognised as a water borne infection. If water looked pure it was supposed not to contain germs and so it was that Pasteur did not notice the germs in the water with which he prepared the broth or the potash.

The second factor was that if Pasteur had been more interested in bacterial morphology he might have identified spores at a much earlier stage. He freely admitted that "the

structure of the infinitely small did not interest him."

Nevertheless the practical result was satisfactory in that it was conclusively demonstrated after much research that the addition of alkali gave opportunity for the development of spores which had not been killed by raising the temperature of the acid solution to 100° C.

If the solution was made alkaline from the beginning and if the temperature was raised to 120° C. then the experiment was entirely secure, no fermentation took place. Furthermore, Chamberland in conjunction with Pasteur showed that spores could withstand dry heat more successfully than moist heat and that it was necessary to heat rods, etc., used for transferring cultures to at least 180° C. in order to make them sterile.

Temperatures above 100° C. were achieved

by heating in a pressurised container, the first autoclave used by Pasteur is still preserved at the Institute Pasteur.

His friends warned him against making long excursions from his work in order to confound his critics. However, many important discoveries resulted from these arguments which, in most cases, were fruitful. A debt is owed to Bastian for the fact that he provoked the discovery of the spore and the use of sounder bacteriological methods. The recognition of the spore and the demonstration of its properties by Koch served to advance Lister's work for it explained some of the difficulties which he met; for instance his suture material often caused sepsis and it was not until he realised that the intestine of sheep from which catgut was prepared probably contained spores, that it was thoroughly treated with carbolic oil.

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This article will be concluded in the June issue.

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SO TO SPEAK . . .

In Children's Out Patients :

"The patient was a Full Term Natural Delivery."

Tea Time in Casualty :

"I once had a pleural infusion." Brewing again ?

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EXAMINATION RESULTS

UNIVERSITY OF OXFORD

2nd B.M. EXAMINATION

HILARY TERM 1955

Pharmacology and Principles of Therapeutics

O'Sullivan, D.

General Pathology and Bacteriology

Barnes, J. M.

Forensic Medicine and Public Health

Darquier, A. F. Edwards, J. G. Ferguson, A. D.

Special and Clinical Pathology

Darquier, A. F. Edwards, J. G. Ferguson, A. D. Pearson, J. M. H

THE RAHERE CHOIR

A CONCERT of music for Easter was given by the Rahere choir in the Church of St. Batholomew-the-Great on Tuesday, March 29. This was the choir's second concert since its formation last autumn; and it was to a choir much more musically poised and sure of itself that we listened.

The programme opened with a Fantasia in Four Parts by Orlando Gibbons, played on the organ by Mr. Martin Ball. It was a good performance though perhaps played a little too brilliantly for early seventeenth century music.

Next followed a group of pieces for the choir. It was in the first of these, Palestrina's O Bone Jesu, that they gave quite their best performance. They sang sensitively; and responded, it seemed almost by instinct, to their conductor's every whim.

The following item was Bach's Prelude and Fugue in C minor. This alas was not such a happy performance. Your scribe is no organist and therefore will not presume to embark upon a lengthy description of Mr. Ball's performance. Suffice it to say that the work was made to sound uninteresting and that the attention was distracted too often by the sound produced when the finger strikes the space between two notes and depresses both.

The main work was Handel's Passion. This was written about 1716 and is an earlier work than Bach's great St. Matthew Passion. The version given by the Rahere choir is an abridgement of the original to about one-

quarter of its length, much of the omitted material being recitative. On the whole it is a dull work, though there are some quite exciting choruses and one really lovely soprano aria.

The soprano, Miss Sheila Mugridge, has a beautiful voice and her solo (with chorus) "Haste, ye souls" was sheer joy to listen to. The other two soloists, Mr. John Brookman and Mr. Rowland Collier, both sang well and made the most of their parts. Mr. Martin Ball obviously (and quite rightly) believes that the function of an accompanist is not merely to accompany but to add something more, and this he certainly did. The chorus was well rehearsed and sang well though perhaps we could have been treated to more fire and energy in such choruses as "Condemn to death this evil-doer" and "Keep this Man bound."

One criticism of the programme as a whole must be made. In a concert progressing from Orlando Gibbons via Palestrina, Bach, and traditional carols to Handel, was it really necessary to include such hymns as "When I survey the Wondrous Cross" and "All glory, laud and honour?" These were certainly out of context musically and the second one also in sentiment.

This, however, is a small criticism and does not detract from the main point that this was an excellent and much enjoyed concert.

J. SHAW.

BIRTHS, DEATHS AND MARRIAGES

Births

ABRAHAM.—On March 12, to Beryl, wife of Dr. Ross Abraham, a sister for Lindsay.

BAKER.—On February 25, at Kampala, Uganda, to Dr. and Mrs. Murray Baker, a daughter, a sister for Jonathan Nigel.

HANBURY.—On March 8, to Heather, wife of Dr. William Hanbury, a son.

HUNT.—On March 20, to Joan, wife of Dr. M. F. Hunt, a sister for Timothy and Christopher.

PAGE.—On March 1, to Alma, wife of Dr. Graham W. Page, a son (Nigel Graham).

ROGERS.—On March 11, to Mary, wife of Dr. David Rogers, a sister for Susan (Janet Wendy).

TAYLOR.—On March 11, to Jose and Dr. G. B. Taylor, a son.

TAYLOR.—On March 6, to Gay, wife of Gerard W. Taylor, F.R.C.S., a son (Mark), brother for Jan.

WELLS.—On March 20, to Rachel, wife of Dr. A. L. Wells, a daughter.

Engagements

DOWIE—LINDOP. The engagement is announced between Dr. L. N. Dowie and Dr. P. J. Lindop.

MUNRO-FAURE—BAMBRIDGE. The engagement is announced between Dr. A. D. Munro-Faure and Miss H. E. Bambridge.

SIMMONS—ROWBERRY. The engagement is announced between Dr. P. H. Simmons and Miss M. J. Rowberry.

Marriage

CASSON—SEMMELE. On March 5, Dr. Frederick Ronald Christopher Casson to Mrs. Luise Semmel.

Deaths

BROWN.—On February 26, Edward Vipont Brown, aged 92. Qualified 1886.

GOODCHILD.—On March 7, Nathaniel John Goodchild, aged 89. Qualified 1887.

PANK.—On March 13, Harold William Pank, aged 80. Qualified 1902.

SCOTSON.—On March 23, Frederick Hector Scotson, aged 55. Qualified 1922.

WHITEHEAD.—On February 10, Brian Whitehead. Qualified 1915.

British Society for Research on Ageing

DR. G. H. BOURNE has been elected Secretary of the Society, and PROFESSOR K. J. FRANKLIN a member of the Committee.

McGill University, Montreal

PROFESSOR R. V. CHRISTIE has been appointed Professor of Medicine, and Chairman of the Department of Medicine at the McGill University, Montreal. He has also been appointed Physician-in-Chief of the Royal Victoria Hospital, Montreal.

Polar Medal

The Queen has conferred this medal on DR. G. W. MARSH, who was base leader and medical officer at Hope Bay in 1952-53 during the Falklands Islands Dependencies Survey.

Royal Army Medical Corps

NICHOLSON. Sir J. C. Nicholson, R.A.M.C.—Territorial Efficiency Decoration, and the First Clasp to the Territorial Efficiency Decoration.

CURTIS. Major E. S. Curtiss—Territorial Efficiency Decoration.

Royal Institute of Public Health and Hygiene

LORD ADRIAN has been awarded the Harben Medal of the Institute.

Royal Society

PROFESSOR K. J. FRANKLIN has been elected F.R.S.

University of Dublin

WITTS. The honorary degree of Sc.D. is to be conferred on Professor I. I. Witts.

University of Sheffield

ROBERTSON. Mr. D. J. Robertson has been appointed part-time clinical teacher in surgery.

SPORT

RUGBY

**St. Bartholomews Hospital XV—Oxford University Greyhounds. 5th February, 1955
Won: 15 pts.—13 pts.**

In view of the cup replay, the Hospital were represented by a side which contained only seven of the regular first fifteen.

Under good conditions the Greyhounds kicked off and were soon leading by eight points scored in as many minutes. After this setback, the Hospital settled down and the defence remained intact until half time. It was evident after the kick off for the second half that Bart's were going to give a better account of themselves than they had done earlier on in the game. With the forwards monopolising the line-outs many promising movements took place. The game swung in the Hospital's favour when L. Thomas kicked two good penalties both from a wide angle. Tries were added by Lammiman who ran strongly on the wing, L. Thomas and Rees-Davies after a fine run from his own "twenty-five" line. In the closing seconds of the game, the Greyhounds fought back and crossed the Bart's line for a try which was converted.

Team: B. W. Badley, J. Plant, J. K. Murphy, J. Neely, D. A. Lammiman, Rees-Davies, L. Cohen, J. Dobson, I. Cochrane, B. Lofts, K. E. A. Norbury, J. Creightmore, L. Thomas, M. Sleight, J. C. Mackenzie.

Bart's v. Streatham

**Played at Chislehurst on March 12, 1955.
Lost 6 pts.—12 pts.**

Streatham proved to be one of the best all-round sides this season, and it was unfortunate for Bart's they were forced to make so many changes in their teams. Six changes were made in the pack alone, and three in the backs made necessary by a combination of injuries, duties and feeble excuses, in addition to which those players of the original team seemed to be suffering from a cup hangover.

Streatham on the other hand were extremely lively and were soon pressing strongly, although they could not pierce the Bart's defence for about 20 minutes, when they did so with an unconverted try. Bart's replied with some strong forward rushes and gained ground enough to get a penalty awarded within range of the Streatham goal. This was kicked beautifully by Laurie Thomas. About 10 minutes later Bart's were awarded a further penalty, and again Thomas found the mark. Thus at half time Bart's were leading by 6 pts.—3 pts.

After the resumption Streatham gained complete ascendancy through the superior weight of their scrum, and Bart's spent almost the entire half defending their line, they were continually denied possession in the tight scrum, heeling only about eight times throughout the match. Only really first class defensive work by the backs as a whole kept the score down, in addition to which Badley struck form almost as good as his match in the second game with St. Thomas's Hospital. It was inevitable, however, that Streatham should break through and this they did in the shape of 2 tries and a penalty goal.

Beardwell and Rees-Davies, the former having played most of the season in the "B" team, deserve special mention for the able and courageous way they handled a most unenviable task.

Team: B. W. Badley, D. A. Lammiman, J. Neely, J. Plant, J. K. Murphy, R. Rees-Davies, C. Beardwell, D. W. Downham, F. I. Macadam, J. Dobson, J. S. T. Tallack, M. Sleight, L. Thomas, M. A. N. Graham, H. Thomas.

Bart's v Harlequin Wanderers

**Played at Chislehurst on March 26, 1955.
Result: Won 11 pts.—8 pts.**

Bart's lost the toss and kicked off uphill into a strong wind. As might be expected under these circumstances "Quins" were

soon pressing, and Bart's found it extremely difficult to get out of their own half.

After about 20 minutes' play Grimsdell kicked a superb penalty goal, followed 8 minutes later by a converted try which ended the scoring in this half as far as Harlequins were concerned. Bart's fought back strongly and Phillips dribbled over half the length of the field to touch down for an unconverted try. Half time: Bart's 3 pts., Harlequin Wanderers 8 pts.

In the second half fortunes were completely reversed and it was Bart's who did most of the attacking. They completely out-pushed the "Quins" in the set scrums and the backs were constantly on the attack within their opponents' "25." Scott-Brown had two shots at a penalty goal, the first being just wide of the posts and the second being a first class effort straight through the middle.

Bart's came back even more strongly from the kicks off, and from a set scrum Murphy gave a magnificent return pass to Scott-Brown who tore through the "Quins" defence to score a try near the posts which he converted.

Bart's continued to press until time, and looked as if they would continue to score many more points if the game continued.

Team: W. Walton, D. A. Lammiman, J. K. Murphy, R. M. Phillips, J. Plant, G. Scott-Brown, C. Beardwell, D. W. Downham, F. I. Macadam, B. Lofts, J. S. T. Tallack (Capt.), E. F. D. Gawne, P. D. Mulcahy, S. R. Costley, J. C. Mackenzie.

"A" XV Hospital Cup

**Played at Leytonstone on March 9, 1955.
Bart's v London Hospital
Lost 0 pts.—11 pts.**

The "A" team were considerably weakened for their match with London through injuries and the calls previously made upon its members by the 1st XV in previous cup games. They did make a creditable effort, however, in conditions which made good rugby almost impossible. The ground was soaked with water, and an icy wind blew fiercely down the pitch from one end to the other. It was into this wind that Bart's kicked off, soon to

be penned in their own half by the persistent long touch kicks of the London. They hung on gallantly until near half time, when London gained a penalty goal kicked from near the half-way line. It still looked, however, as if Bart's would win if they could only hold on until half time. It was unfortunate, however, that their opponents gained a try before the whistle.

Soon after the resumption it became clear that London were going to fight hard to keep their lead and Bart's could not finish well enough to cross the line. About 20 minutes from time play became confined to the middle of the field, and London, virtually in their last attack of the match, crossed near the posts for a converted try.

After this Bart's did all the attacking but could not cross the line. Outstanding for Bart's this day were Howard Thomas, who made many efforts to get the Bart's attack going, and Rees-Davies, who played his usual excellent game.

Team: W. Walton, J. Williams, J. Plant, M. Mackitt, J. Laurent, R. Rees-Davies, C. Beardwell, B. Burbidge, W. M. M. Jewell, D. W. Downham, K. E. A. Norbury, J. Creightmore, P. D. Mulcahy, M. Sleight (Capt.), M. Thomas.

Rugby Awards

The Students Union Committee have approved the awards of honours to the following players:—

J. K. Murphy, G. Scott-Brown, M. A. H. Graham, D. W. Roche, J. S. T. Tallack, D. A. Lammiman, L. Cohen.

The Rugby Club committee have awarded colours to the following players:—

J. Benedikz, J. Cochrane, D. W. Downham, R. Rees-Davies, W. H. M. Jewell, B. Lofts, J. C. Mackenzie, J. Neely, K. E. A. Norbury, J. Plant, M. Sleight, L. Thomas.

Colours for season 1954-55 were re-awarded to:—

B. W. Badley, L. Cohen, J. Dobson, E. F. D. Gawne, M. A. H. Graham, D. A. Lammiman, F. I. Macadam, J. K. Murphy, R. M. Phillips, D. W. Roche, G. Scott-Brown, J. S. T. Tallack.



Medical Mystery

Next to the weather we British like to discuss our health; or any low our ill-health. I don't suppose this is a uniquely British, or even a particularly modern, custom. It was followed in a big way, for instance, in ancient Babylon, where the sick were always carried straight to the market place so that any passer-by who had had a similar complaint could stop and give advice. Encouraging as it must have been for the sick man to swap symptoms with those who had had his disease and survived it, he may have experienced some awkward moments. What happened, for instance, when two or three of his advisers fell out about the diagnosis? He could not call in a medical referee, because there were no doctors in Babylon at the time; perhaps the amateur competition had been too keen for them. Fortunately the British medical profession is tougher; we can take

Space doesn't permit us to print the rest of this delightful medical essay—which appeared originally in The Times. But you can enjoy all of it—and half-a-dozen others from the same gifted pen—by asking for a copy of "The Proving of Podalirius". Send a p.c. to the address below.

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SAILING CLUB

The Sailing Club Regatta will be held at Burnham on Crouch on Wednesday, Thursday and Friday, May 25, 26 and 27. The Dean has very kindly excused those wanting to participate from lectures and classes. Sailing is not a spectator sport, so everyone will have ample opportunity to try their hand at the art of small boat handling.

BOAT CLUB

Head of the River Race, 1955

There was a somewhat unfortunate misunderstanding over the entry of the crew, which finally had to row as Molesey III, but with Bart's colours. Several of the club's better oarsmen were not available, and it was a relatively light and inexperienced crew which represented the hospital (and Molesey). Evening rowing is not possible in February and March, but the crew trained hard in the times available.

The race was rowed in the best of conditions. Bart's started as No. 105. It was perhaps a pity that the crew was never troubled by boats behind; by the finish one VIII had been overtaken and another caught up. The time taken for the course was 21 mins. 23 secs., and the final position of the crew on the river was 97th. This is 59 places higher than the Bart's crew last year, but there is still ample room for further improvement.



RUGBY CLUB—Results Season 1954-55

						Points			
		P	W	D	L	For	Against		
		29	13	5	11	219	200		
1954								Points	
September								For	Against
Wed. 22	Berks. Wanderers	...	...	...	...	Won	18	0	Away
Sat. 25	Stroud	...	...	...	...	Lost	6	15	Away
October									
Sat. 2	U.S. Chatham	...	...	...	...	Won	19	14	Home
Sat. 9	Woodford	...	...	...	...	Won	11	9	Away
Wed. 13	I.A.C.	...	...	...	...	Postponed			Away
Sat. 16	R.M.A. Sandhurst	...	...	...	...	Lost	0	6	Home
Wed. 20	Cambridge LX Club	...	...	...	...	Lost	0	15	Home
Sat. 23	Old Whitgiftians	...	...	...	...	Won	24	6	Home
Sat. 30	Sutton	...	...	...	...	Lost	3	8	Away
November									
Sat. 6	Penzance and Newlyn	...	...	...	...	Won	11	8	Away
Mon. 8	Devonport Services	...	...	...	...	Lost	0	6	Away
Wed. 10	Paignton	...	...	...	...	Drawn	3	3	Away
Sat. 13	Rugby	...	...	...	...	Lost	8	16	Away
Sat. 20	Old Alleynians	...	...	...	...	Drawn	6	6	Home
Sat. 27	Metropolitan Police	...	...	...	...	Lost	3	8	Home
December									
Sat. 4	Esher	...	...	...	...	Won	6	3	Home
Sat. 11	Saracens	...	...	...	...	Cancelled			Away
Sat. 18	Old Cranleighans	...	...	...	...	Won	6	0	Away
1955									
January									
Sat. 1	Civil Service	...	...	...	...	Lost	9	10	Away
Sat. 8	Old Rutlishians	...	...	...	...	Lost	6	8	Home
Sat. 15	Taunton	...	...	...	...	Cancelled			Away
Wed. 19	London University	...	...	...	...	Cancelled			Away
Sat. 22	Catford Bridge	...	...	...	...	Won	6	0	Away
Sat. 29	O.M.T.	...	...	...	...	Won	11	3	Home
February									
Tues. 1	Kings College Hospital (Cup 1st Round)	...	...	...	...	Drawn	3	3	Richmond
Sat. 5	Oxford U. Greyhounds	...	...	...	...	Won	15	13	Away
Wed. 9	Kings College Hospital (Cup Replay)	...	...	...	...	Won	13	3	Richmond
Sat. 12	Old Paulines	...	...	...	...	Won	9	8	Home
Tues. 15	St. Thomas's Hospital (Cup 2nd Round)	...	...	...	...	Drawn	0	0	Richmond
Sat. 19	Old Millhillians	...	...	...	...	Cancelled			Away
Sat. 26	Nottingham	...	...	...	...	Cancelled			Home
Mon. 28	St. Thomas's Hospital (Cup Replay)	...	...	...	...	Drawn	3	3	Richmond
March									
Fri. 4	St. Thomas's Hospital (Cup Replay)	...	...	...	...	Lost	3	6	Richmond
Sat. 5	Old Haberdashers	...	...	...	...	Cancelled			Away
Sat. 12	Streatham	...	...	...	...	Lost	6	12	Home
Sat. 19	Aldershot Services	...	...	...	...	Cancelled			Away
Sat. 26	Harlequin Wanderers	...	...	...	...	Won	11	8	Home

Comment

This is believed to be the first season for twenty years in which the Club have won more matches than they have lost.

BOOK REVIEWS

Principles of Biochemistry, by A. White, P.andler, E. L. Smith and D. Stetten, Jr. McGraw-Hill Book Co. Inc., New York, Toronto and London, 1954, 1,117 pp. Illustrated. Price \$15.00.

This book is described as an integrated presentation of the fundamentals of biochemistry, and "an introduction to biochemistry for medical students and others who are concerned primarily with mammalian biochemistry." The suggestion that 1,066 pages of text are required to provide medical students with a mere introduction to biochemistry will probably surprise many teachers of the subject.

Scientific textbooks appear to grow steadily larger and more expensive, and this is understandable in view of the increasing amount of scientific knowledge which is becoming available. However, the temptation to include a large amount of detail should be strenuously avoided by authors who write for the ordinary or average student. The danger that present-day students will be overwhelmed with a mass of scientific detail which they cannot appreciate, and certainly will not remember, is very real.

Biochemistry undoubtedly plays a very important role in modern developments in medical science, and with the rapidly advancing front it is highly desirable that up-to-date accounts of the biochemistry of normal and abnormal body processes should be available. For this reason, and since it provides a valuable exposition of biochemistry approached with a special emphasis on medical applications, this new book will be welcomed by teachers and postgraduate students in biochemistry, and by those reading for a science degree in this subject or in physiology. It is to this group of individuals rather than to medical students in this country that this book will appeal and will prove extremely helpful, but the high price will undoubtedly militate against its widespread use in Great Britain.

It covers most aspects of biochemistry, and useful lists of suitable reference books, reviews, articles and journal articles are given. It is rather surprising, however, that valuable review articles in the *Biochemical Society Symposia* are not listed.

The team effort of the four authors of this book deserves high commendation, but more

drastic pruning in places would have improved the book. For example, does the medical student (or even his teacher) require to know the precise chemical rearrangements which glucose undergoes in alkaline solution, the step-wise degradation of glucose to arabinose, or the special methods of separating and identifying steroids? It would also have been more helpful if the textual cross-references had given page instead of chapter numbers.

A major criticism concerns the Index. It is inevitable that a book weighing 3½ lb. is more likely to be used for reference than for general reading, and many readers will undoubtedly experience considerable difficulty in deciding which of the whole string of page numbers given in the Index will lead to the required answer. For example, the reader who wants to know what happens to fructose in the body will find 13 page references under fructose metabolism, and even if he has the necessary patience to turn up all these pages he is still left with no clear picture of what happens to this important sugar after its absorption into the body.

A. WORMALL.

Artificial Respiration by T. O. Garland, M.A., M.D., D.P.H. Faber. 60 pp. 6s. 6d.

This book gives an interesting and instructive account of Artificial Respiration. It deals first with the Physiology, principles and History of the subject. There are descriptions of various methods, with more detailed accounts of the Holger Nielsen and Eve's rocking method, all illustrated with clear photographs. A summary of the experimental comparison of the methods gives the tidal air and arterial oxygen saturation of the unconscious, and the oxygen utilisation of the resuscitator. Finally the author describes suitable means to employ in particular situations where the standard methods are not practicable.

B. T.

An Introduction to Medical Laboratory Technology by Baker, F., J. et al. Butterworth. 330 pp. 30s.

The primary aim of this work is to provide a text-book covering the syllabus for the Intermediate Examination of the Institute of Medical Laboratory Technology. In the space of just over 300 pages the authors

have set out to provide general and in some cases detailed information for the laboratory worker in all branches of routine pathology. They are to be congratulated on the amount of useful information provided. The text is attractively presented, and the diagrams clearly represented. In addition a most useful appendix is provided which includes general hints as well as details of buffer solutions, saturated solutions, and stain solubility.

It is likely that this text will be constantly used as a bench book in most laboratories, and will be one of wide appeal. It is suggested that the book might also be of use to medical students, and that is so to a limited extent. In a general book of this kind one question of balance is always a difficult one, and will depend largely on personal preferences. This work is generally well balanced though occasional portions are sketchy, and one feels that such an important subject as blood-grouping needs more than three-quarters of a page, and might well have been aided by a diagram. Small details such as this need not detract from a work to which the authors have obviously given care, and on which they deserve much congratulation.

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ST. BARTHOLOMEW'S HOSPITAL JOURNAL

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CLIMATE AND DISEASE

It has often been said that the vagaries of the British climate have contributed greatly to the success of this race. Less kindly, it has been pointed out that the sheer awfulness of the weather has been the prime factor in driving the Union Jack to all corners of the earth. The doctor's life and work must be profoundly influenced by such conditions, and the illnesses they produce in his patients. An example, perhaps a little atypical, of the way in which he adapts himself to them may be seen in a little story told by Dr. Billy Graham. He met a Scottish lady who had a bad cold. On visiting her doctor, she was told that the best cure was to have a hot bath, and then stand in front of an open window for fifteen minutes. She asked her doctor why this should cure a cold, and he replied: "Well, I can't cure a cold, but doing this will give you pneumonia, and I do know how to cure that!"

It has always been a well established fact that the nature of the prevalent diseases varies from country to country. In the field of tropical medicine, this may be partly accounted for by the large number of diseases due to parasites which could not flourish in a temperate climate. The climate also seems to be capable of altering the nature of disease produced by what are apparently identical organisms, as in the case of the conditions caused by the treponema pallidum.

When one considers the case of Great Britain, the influence of the weather upon the nature of disease is easily apparent, but what is even more striking is its effect on the seasonal variation and epidemics. The

humidity of the climate has a great bearing on respiratory disease, and this is augmented by the contribution of man to the atmospheric conditions in the form of smoke and other polluting materials, producing the now well known "smog." Although the British climate has such an unfortunate effect upon respiratory disease, it must be remembered that the relatively short and cool summer has its advantages. Hay fever is much less of a problem than it might be, and weather conditions are unfavourable to a major epidemic of poliomyelitis.

The British weather has certainly produced a race which stands up well to all climatic conditions, and can equally well conquer Everest and colonise Equatorial Africa. This hardness must also be reflected in their doctors. It must be remembered that, up to the end of the last century, the common way for the doctor to visit his patients was on horseback. This constant exposure to the weather must have contributed greatly to the robustness of the doctor. It would be interesting to see, if figures could be obtained, in these days of the surgery and motor car visiting, whether the ability of the doctor to withstand the ills of his patients has been reduced.

Looking into the future, it seems likely that man will be able to control his weather conditions in time. Already, somewhat equivocal results have been obtained in the field of rain making by seeding clouds with dry ice. What effect will such control have upon the incidence of disease? Certainly the introduction of a few sunny spells into the English winter could not but have a

beneficial effect. Careful observations would have to be kept, however, to ensure that such conditions did not diminish the natural resistance to disease of the Englishman.

Finally, when man spreads to the other planets, he will be faced with unique disease problems in climates so different from that on earth. However, it may well be that the fresh conditions, both climatic and otherwise, will be favourable to the cure of various diseases. Smaller planets, where the influence of gravity is less, will presumably benefit cardiac cases. On the moon, of course, anyone suffering from pertussis will automatically receive decompression treatment on removing his space helmet. Perhaps it will only be when man moves into new worlds that the full influence of climate upon disease will be appreciated.

Vacancy

The post of Assistant Editor will become vacant in June. Applicants should apply in writing to the Editor. Previous experience is not essential.

Cambridge Graduates' Club

The 65th Dinner of the Cambridge Graduates Club of St. Bartholomew's Hospital was held at the Royal College of Surgeons on April 1, 1955, with 92 members and guests present. The President, Mr. Kenneth Walker, in proposing the toast of the Club referred to the death of eight members, including a past-President, Dr. A. C. Roxburgh. Honours during the year included the Barony conferred on Professor E. D. Adrian, Master of Trinity. Mr. Walker particularly welcomed the students present, and then read a letter from Lord Horder, who, as a frequent guest, had presented the Club with a 17th century Loving Cup. This was received with applause and appreciation, and, suitably charged, was used later in the evening.

The health of the guests was proposed by Mr. O. S. Tubbs and replied to by Dr. C. E. Nicol. Dr. A. W. Spence proposed the health of the Chairman recording some of the events in his varied and gallant career in peace and war. Mr. Walker replied graciously, and thanked the Secretaries, who made their customary brief acknowledgement,

The New Linear Accelerator

On April 27th, the new 15 million volt linear accelerator for radio therapy and radiobiological research was inaugurated by the Duke of Gloucester. The apparatus has been installed in a temporary building adjacent to the Physics Department in Charterhouse Square. It was started by pressing a button some distance away from the machine itself, in actual use, operation will be by remote control in much the same way.

A panel on the wall of the lecture theatre showed in illuminated figures the number of pulses (each slightly longer than a millionth of a second) which passed through the accelerator during the exposure for which it had been set. An electronic device terminates the exposure after any predetermined number of pulses.

The accelerator is a device to produce high intensity X-rays of an energy of 15 million volts. Its X-ray output is many times higher than that of any other radiotherapy machine. It is intended that the apparatus shall stay in its present position for approximately two years, and be employed solely for research. After that, it will be moved to the Hospital for the treatment of patients. The machine cost over £50,000 and is the only equipment of its kind in any hospital in Great Britain.

The primary purpose of the accelerator is the treatment of cancer with the high energy X-rays which it generates. However, it is planned to investigate two new techniques which the apparatus makes possible. These are tumour irradiation with electrons and neutrons. The accelerator will also be used for various radiobiological experiments, including an attempt to identify the short live chemical products formed as a result of irradiation; radiological research, and certain nuclear physics investigations.

LETTERS TO THE EDITOR

Dear Sir,

I must thank Dr. Burns for pointing out the transposed words in my article on General Practice; the visits and attendances have been reversed by some mistake. The ratio of attendances to visits remains approximately 4½:1.

Yours sincerely,

D. BERGEL.

JUSTICE FOR THE DOCTOR !

contributed by W. D. COLTART

The medical students of St. Bartholomew's Hospital have shown a degree of pluck of a far higher nature than that which is sometimes exhibited by candidates for the Apothecaries' diploma. A letter in the *Times* states that at a numerous meeting of those gentlemen, held at the Albion Tavern, Aldersgate Street, the following resolutions were carried, among others:—

"That this meeting views with deep regret the want of sufficient medical aid in the Naval service; that in the opinion of this meeting, such want is owing to the present Admiralty regulations, so unjust to the assistant-surgeons, and so derogatory to the medical profession.

"Though unwilling to throw any obstacle in the way of supplying that deficiency, this meeting resolves not to accept employment under the Admiralty while such regulations continue in force."

Is this the time for medical men to stand upon their dignity? Now, when the enemies of our country, etc.: when our brave defenders, etc. Yes, this is just the time; there is no time for asserting their just claims like the present, when the Government cannot do without them, and must either do them justice or do without them. And as

doing them justice is so very easy, whilst to do without them is so very difficult, it is to be hoped that the former alternative will be preferred to the latter.

Hospital surgeons are invited to relinquish their private practices and proceed on temporary service to the Crimea, with temporary pay, and a small gratuity on the expiration of that service, to help towards their maintenance pending the recovery of their position at home. As if the practice of a surgeon were as easily recoverable as a greengrocer's business, and rather less valuable! How deeply engrained, what a fixed idea in the official mind it is that medical men are snobs, in the aristocratic sense of the word snob; that is, tradesmen in a small way! The compensation proposed for loss of practice, would about suffice the surgeon for the purchase of a set of instruments to begin the world anew with. Had Government, by the way, to purchase the instruments itself, it would probably include amongst them a case of razors; for aristocracy still, to all appearance, associates the surgeon with the barber. Justice for the Doctor! The country sympathises with those who bleed for it; nor will it refuse its sympathy to those who blister for it also.

Punch, or the London Charivari, Vol. 28.
1855, p.94.

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SOCIAL PSYCHIATRY

by J. P. CRAWFORD

Non est vivere sed valere vita

TOWNS and cities, although themselves the outcome of improved communications (Grimes 1951) present internal problems of distance, and the larger the city the greater these difficulties, although technical advances may to some extent overcome them. In London and Rome* for example, where the urban spread has been horizontal rather than vertical, the Underground Railway has provided to a certain degree a solution. In New York doubtless it is more a question of rapid elevation. The concept of a Metro is perhaps common to all these cities, as well as to Paris.

This is all by the way of introduction however, for I wish partly to discuss how the practice of psychiatry is influenced by such factors. To begin with there is the debated question of mental observation wards. J. B. S. Lewis is against their perpetuation in London, whereas the L.C.C. (*Brit. med. J.* 1954, 2, 1158) favour the ideal that all patients of unsound mind should be admitted to such units first, before going to mental hospitals, thereby, amongst other things, often avoiding the need for certification.

To Bradlaw (1955) this problem resolves itself almost as much into questions of time and distance, both where admission and where discharge are concerned. To use Ling's (1954) analogy with battle stress, it is more economic to give as much adequate and quick treatment as possible near the front line, than evacuate far back immediately in every instance, a principle which the L.C.C. are putting into practice with regard to preventive welfare work with children (*Lancet*, 1954, 2, 1226). Certain conditions are thus prevented from becoming chronic so that more expensive and protracted rehabilitation (Bickford 1954) becomes less necessary.

* *Times*, Feb. 9, 1955.

Town and Country

For the purposes of this analogy the civil front line must be where industry—and I use the word in the wide sense—is most exacting. This has frequently, under our

present social organisation, to be in the centre of large concentrations of people. No under-estimation of country pursuits need be intended in this, it being simply the upshot of circumstances. Moreover, we all know that the country is indispensable to our welfare whether in terms of agriculture or of well earned respite from effort. Indeed the relationship with town must be interdependent, although socially perhaps there is room here for improvement as Bates (1943) has advocated.

Sir Stephen Tallents in his articles in the *Sunday Times* considers the possibilities of invasion of town by country, and vice versa, before he goes on to give an appreciation of the subtler cultural devices by which each can influence the other for the better and without violence. René Cutforth, showing an interest in matters social (akin to that other René in Brussels, *Lancet*, 1954, 1, 889) revealed in a series of broadcasts last summer how it is possible for the individual to have both a taste for such country domestic products as farm house cheese, and at the same time a leaning towards city taverns. Urban rather than rural living is of course preferred by many, but this too can be punctuated, from time to time, by a sampling of country Inns if nothing else. The Tudor country in particular, according to Trevelyan (1944), managed in their day to achieve a valuably balanced solution to this problem.

Psychiatric integration between Town and Country may be in need of as much improvement, so that psychiatric and social advance could go hand in hand. If it is accepted that the strain and tempo of life is at present more intense in cities, this provides a basis for such urban-rural co-operation, along the lines of the analogy with battle stress. The movement however is not simply backwards and forwards between town and country like the starlings in Trafalgar Square. There is also a spread outwards at each centre along the route. Such centres are many if account be taken of all the social and psychological units

there are or that are possible; but to simplify the picture perhaps the mental hospital may be taken to represent the country, the London hospital psychiatric department the town, and the mental observation ward intermediate steps.

In mental hospitals there may be very little dividing some of the least handicapped patients from workers on surrounding farms. In psychiatric units in cities, the same sort of thing applies. Differences presumably depend largely on patients' occupations, and of course here the urban overlaps the suburban and the suburban the rural. There is no question of 'country cousins' in any derogatory sense here. Agriculture is no longer a haven for feeble minded labourers, if indeed it ever really was so. Moreover, with modern developments in communication, such as television and air transportation, it is possible that the density of populations may in the near future be deliberately decreased, particularly in view of the needs of civil defence in relation to possible atomic explosions.

Town

To return to present requirements however, I am more interested at present in the psychiatric difficulties encountered within great centres of population. As indicated in February last year (Crawford 1954) a positive orientation towards normal society may be valuable. In May, Dr. Ling brought us news of the similar approach adopted in Holland and this was followed in October by Dr. Querido's visit and his account of the Amsterdam Experiment (*Brit. med. J.* 1954, 2, 1043 and *Lancet*, 1954, 2, 912). To undertake this sort of service, however, although we may not require any new organisation, an adequate staff is essential. Freudenburg (1954) has given us an idea of the numbers of social workers for example, necessary to any very considerable saving in mental health in this way and teaching centres by their special influence may be indispensable, to achieving these numbers with quality. Psychiatric social work, however, particularly in big cities, encounters the problem of communication, especially where visits to the patients' normal surroundings are concerned, and such visits must surely play an indispensable part in training. It occurred to me therefore that it might be of interest to know more exactly whence the patients attending

a London psychiatric teaching clinic came. Survey before service as Laurie (1954) puts it.

In drawing the map in Fig. 1, patients in a consecutive series were taken. Their addresses were extracted from the records for me, so that I cannot personally vouch for their accuracy, although in fact subsequently charting them onto the map myself. If there has been some understandable human error therefore, such as occurred in American elections not long ago, when the electronic brain which was forecasting results was fed with incorrect information, it should be as immediately apparent as it then was, by the grotesque results. I think it may be considered however that in this instance, this is not so.

In Fig. 1, only the area where the density of the patients sampled proved highest has been reproduced. There are some 50 patients represented—a quarter of the sample. The remainder were fairly evenly spread out over the rest of London and the Home Counties, but eccentrically as it were, with the dense group charted in Fig. 1, acting as the hub, so that a greater number of patients came from Essex and Middlesex than from Kent and Surrey.

It will be seen that the dense area, where it corresponds with Chaucer's London (Chute, 1951) abuts on the Royal Free Hospital to the West and the London Hospital to the East. This does not imply encroachment necessarily, however, but probably simply considerable overlap. It seems likely that if all the London undergraduate teaching clinics charted their patients in the same way, onto one map, that this might give the appearance of a flower, with its petals overlapping each other to varying extents and their central attachment roughly represented by the Inner Circle Metropolitan line. Mental hospital catchment areas might then be considered as the sepals of the calyx.

This analogy with organic growth is a happy one, for in drawing such a map no attempt to regiment patients in any particular direction would be intended. Nor would any permanency or rigidity of pattern be implied except where the patients' choice over a number of years might show it. However society, although in a perpetual state of change as Tom Hopkinson showed in his 'Riverside Borough' broadcasts early last year, does, like the human skeleton, reveal some permanency of pattern throughout

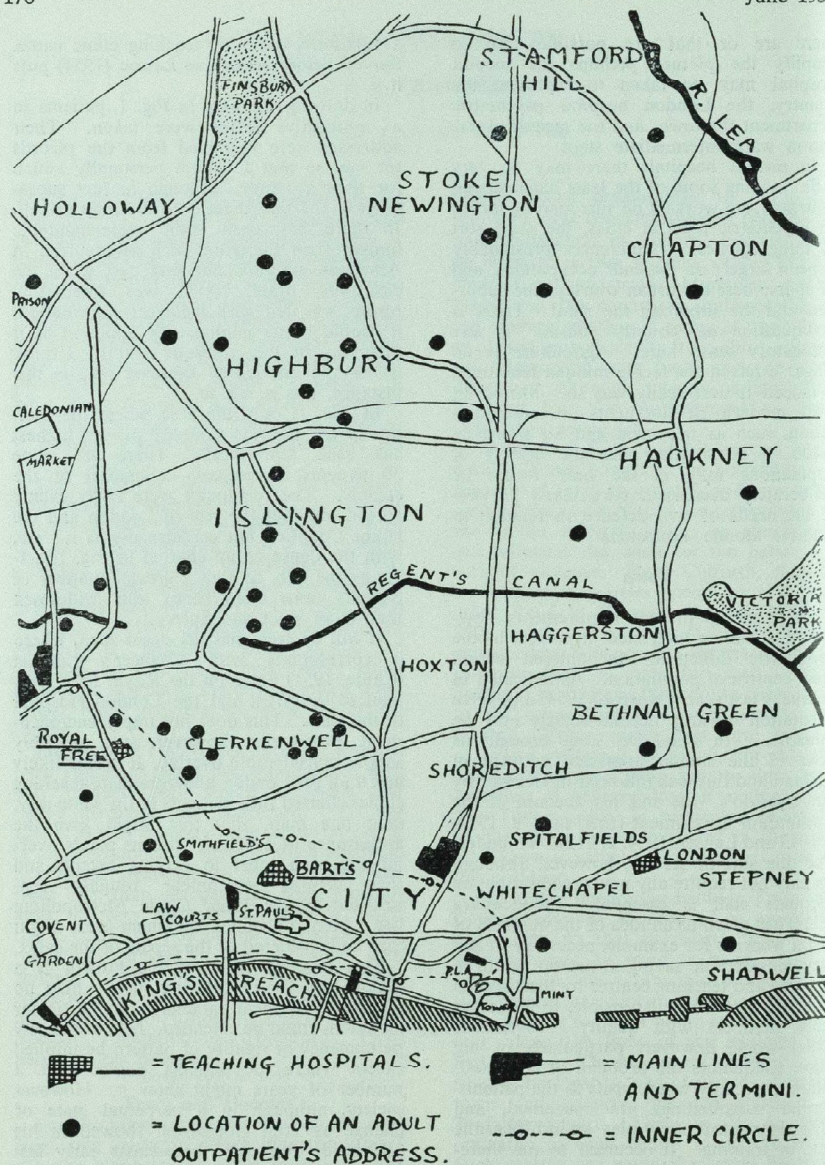


Fig. 1:—Immediate area of density of patients attending St. Bartholomew's Hospital between 1st June and 30th November, 1954.

evolutionary changes in response to circumstance. Similarly, such a map might provide a diagram of the social skeleton to which other structures (the flesh and blood as it were) essential to continuity of psychological management (Tylden 1954), or to which social sores (such as the reported dope-peddling in Archer St.*) could more readily be related, according to local medical requirements.

* *The People*, June 20, 1954 and *Reynolds News*, December 12, 1954.

Psychiatry and Society

Perhaps at this juncture, I had better stress again that it is medical requirements that we are after. There is no need to encroach upon the preserves of others, although an important role can be played in an advisory or 'educational' (Vickers 1954) capacity with regard to prophylaxis and mental health. For whilst not wishing to take over normal society, it is none the less important that mutual understanding exists if patients are to move out of and into our care without avoidable upset. It is necessary for us to appreciate, for example, how a housewife, in fitting herself and her family into society in as lively and interesting a way as possible plays an important role in social health; and since such social activities can be complex and call for the highest qualities of personality (especially if the techniques involved—rather than their results—are not to be too obvious) the therapist does not intrude lightly upon them.

Social skills of the sort indicated must provide as satisfying and valuable an occupation as a person could desire, one in which of course our royal family (Howard 1955) and aristocracy set a criterion when the urban becomes urbane. Their influence on mental health arises partly through the sense of social unity they engender. My aim, therefore, in drawing the map in Fig. 1, was not to encourage the subdivision of a probably unique metropolis into what might simply become small socially self-conscious groups; but rather to provide something which bore a more living relationship to the needs of medical social work (*Lancet*, 1955, I, 600), than already accepted subdivisions such as the metropolitan boroughs or districts with names of some antiquity, e.g.:—Mayfair or Bayswater. The customary division of the boroughs into wards, has, it is true, an almost medical ring to it, and a postal

address of Bloomsbury or Belgravia—possibly typed in capitals in the Pitman approved manner—a more human touch perhaps than a W.2. or a S.W.1 (Johnston 1955); but these subdivisions whilst no doubt adequately serving political and social requirements did not seem necessarily to serve medical ones.

It is better of course that we understand sufficiently such social and occupational groupings as these, for the reasons already stated, as well as understanding their higher integration into clubs, unions, affiliations and other organisations. The club at the Royal Society of Medicine provides opportunity for social liaison between the branches of our own profession, and the famous London clubs between our profession and those of others.

Culture

Perhaps the liaison most lacking, yet most relevant to the present discussion, is that between cultural anthropology on the one hand and both sociology and psychiatry on the other. In America, from Roth's (1954) account, the value of such a liaison may have suffered from a general overenthusiasm but in my view, we on the other hand, do not seem to have valued it nearly enough. I attended a lecture in November at the Royal Institute of Public Health and Hygiene on the subject of housing. What struck me most was the perplexity shown over the refusal of old people to move from houses in which they had remained healthy for many years, and over the drift back to their old haunts, of populations moved to new housing estates. Cultural anthropology might have something useful to say on such relatively new problems, although I do not know, since *Excerpta Medica* Section VIII has no subdivision akin to the physical anthropology of Section I. On common sense grounds, however, mental health is presumably at least as important as physical health in the design of living accommodation, and this must vary with the cultural group.

By design in living accommodation, I mean the setting as much as the habitation. Ideally, neither of these should be incongruous of course, but nor should travelling facilities where they are relevant. A fireman of irascible personality lost his job at Battersea Power Station one day following an

outburst of temper. Shortly afterwards he was moved to a new housing estate some distance away. A competent man apart from his irritability, he could have returned to his rather specialised employment had not the long journey to and from his new home proved too great a deterrent. Faced with the alternative of changing to less interesting work he was unable to reach a solution and developed a hysterical paralysis of the limbs. When he was referred to the out-patient department it became necessary not only to explore his personality, but also to determine whether possibilities of moving from the housing estate had been exhausted, as well as the extent to which his interests might be found sufficient outlet in another trade locally available.

Local cultural patterns of course also influence the *manifestations* of mental disorder (*Lancet* 1953, 2, 1344) and tend to produce a 'geographical pathology' (*Brit. med. J.*, 1954, 2, 981) although this, as Dean Inge (Rose 1954) pointed out, may have affinities with the separate cultures of other continents. The Irish Colony in the North West region of Central London may illustrate a local pattern and yet reveal principles which are more universally applicable. In the words of Hess and Macdonald (1954) this colony may be composed, mentally speaking, of "immunologically ill-equipped descendants of rural stock who migrate to the great centres of population where the risks of heavy infection are greater and the strain imposed by living conditions much intensified." Similarly the effects on owners of the faith healing of their animal pets (*Sunday Dispatch*, Feb. 20, 1955), whilst in this instance local phenomena presumably depend upon principles of more general importance, both to health and sickness.

The analogy between pathology and psychopathology is not of course new. William Cobbett in his "Rural Rides" in 1821 was constrained to refer to London as the Great Wen, and wens he regarded as "produced by *Corruption* and engendering crime, misery and slavery" . . . "increase of the wen produced an increase of thieves and prostitutes, an increase of all sorts of diseases, an increase of miseries of all sorts." He regarded "The dispersion of the wen" as "the only real difficulty that" he could "see in settling the affairs of the nation and restoring it to a happy state." But "Dis-

persed it *must be*" he wrote "and if half a million, or more, of people were to suffer, the consolation is, that the suffering will be divided into half a million parts."

Whilst we may not agree with Cobbett's anticipation of Wells (1933) in this, nor that London should disperse in this way, "the coagulated blood diluting and flowing back through the veins," it is as well to take note of recent accounts of social conditions such as those presented so ably to readers of *Empire News* by Jeanne Heal, and to consider whether they reflect, in Cobbett's words "a collecting together" of "all the materials for a dreadful explosion." The prevalence in society of prostitution may provide a barometer of mental health and reflect, in Laurie's concept, the "parasite load" and the state of mental "nutrition" in the community.

Immunity to intensity of living conditions may perhaps best be built up gradually and then maintained, if an individual is not to be overwhelmed. Social anonymity and isolation, which can take its toll of life when extreme (Sainsbury, 1952) may, when kept within reason, help in this by preventing close personal relationships from becoming excessive. Life under such conditions has its amusing compensations. Moreover, as in Ellis' (1952) account, or the Parisian equivalent by Adelson (1954).

Intensity must of course to an extent depend upon an individual's outer and inner resources. If outer resources are entirely local, apart from friends,* the press, radio, gardens, etc., such amenities as libraries, theatres, clubs, cinemas, dance halls, citizens' advice bureaux, playgrounds, parks, and what have you, must play their part, and these must vary from place to place. If a hospital psychiatric department is "integrated" in Gordon's (1954) sense, or "overlapping" in Parry's (1955) sense, with its local community, it is presumably aware to what extent such factors play a part in providing patients locally or in curing them.

* In the case of the sick rather than the potentially so, the equivalent here would be the National League of Hospital Friends (*Brit. Med. J.*, 1955, 1, 722, and *Lancet*, 1955, 1, 608).

Psychiatric Social Work

Doubtless there is fruitful liaison to be had, either directly by P.S.W.'s or through general practitioners, with health visitors (MacQueen 1954, 1955, Cameron 1955 and *Lancet* 1954, 2, 1015), district nurses, educational authorities, probation officers, housing departments

(Warren 1954), child welfare clinics (*Lancet*, 1954, 2, 1005), family service units (*Brit. Med. J.*, 1954, 2, 639), occupational health services (*Brit. Med. J.*, 1954, 2, 1214 and *Lancet* 1954, 2, 1082), and so on, and through such liaison, it may be possible to instil to a greater extent what Stalker (1954) calls "hospital technique in the home." Thus the specialist hands over (*Brit. Med. J.*, 1954, 1, 325, and *Lancet* 1954, 1, 255), many problems once they have been investigated whilst maintaining supervision or interest in a consulting capacity.

To give an example: A man of low intelligence had been for many years in equilibrium with society, maintaining his bachelor existence by shooting and selling pigeons within the metropolitan area. He had permits from several authorities to do so. One day, however, a journalist took up residence near one of his hunting grounds on the river, and was able to observe his technique. This horrified the journalist (who was, I think, a member of the R.S.P.C.A.) since it involved a blunderbuss method not unlike, I suppose, that used with puntguns. Inevitably a certain number of birds escaped wounded. The journalist reported the patient's activities to the authorities with the result that he was ordered to use one cartridge per pigeon, and this, for a number of reasons became no longer an economic proposition. The problem of readjusting himself after so many years, proved too much for the patient's intelligence and he presented at "out-patients" with affective disorder, which manifested itself to him mainly by its somatic accompaniments.

Once the sequence of events had been established in this man the problem resolved itself into a social one, and as such one for the P.S.W. to solve. Psychiatrists, it is my belief, often for a number of reasons, do too much of their own auxiliary work at present to allow the most efficient use to be made of their long training. Although this may be pleasant enough at times—as are most occupations, for example when they have to involve dinners and handsome company—I feel sure that most of us would rather as a rule prefer a more reasonable distribution of

labour, which is only possible of course when there is an adequate staff at all levels.

Lay Therapy

In my view the term psychiatric social work could with advantage become synonymous with lay therapy, for how otherwise can lay therapists obtain the guidance they require to avoid "organic" pitfalls such as the degree of unrecognised mental deficiency and cerebellar ataxia (following neonatal asphyxia) with which a child was presented to me at the out-patient department. Impressed as I was with Lord Moran's account in his Harveian oration in 1952, of the war waged on quacks by the Royal College of Physicians since Tudor times, I cannot help feeling that, if there really are so many people unqualified in medicine yet with an intuitive psychological understanding, then we should persist in encouraging them to cooperate more intelligently with us. To do this, of course, it is necessary that they take some recognised training so that we do not lay ourselves open to the charge of associating with unqualified persons. More applicants for such training would however fit in well with Professor Adrian's (*Lancet*, 1954, 2, 538), appeal for the encouragement of the social sciences and their wider recognition by the universities, and the departments involved might then perhaps be regarded as the generative organs of the flower in analogy.

Madge (*Lancet*, 1954, 2, 1213), judging by the review of his recent book, would also welcome any increase of interest in the skills necessary to guide the multitude of people torn by their imperfect understanding of the situations in which they have to act. Cobbett would likewise have approved, for he wrote: "Ministers and *House*, have been collecting together all the materials for a dreadful explosion; and, if the explosion be not dreadful, other heads must point out the means of prevention," but if we see our way clearly, we can usually find the necessary drive (Franks 1954).

I am indebted to Dr. E. B. Strauss for access to records, and to Miss P. M. Perrott, for extracting the relevant information for me.

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PERICARDIAL EFFUSIONS

by W. E. GIBB

PERICARDIITIS is a common condition usually occurring with disease of the heart but also arising as a complication of other intrathoracic diseases and of sub-diaphragmatic disease or as a terminal event.

In its acute form pericarditis is fibrinous, sero-fibrinous or purulent in nature. The fibrinous is most frequently found accompanying rheumatic inflammation of the heart, with cardiac infarction, and at the termination of uræmia; but it is not uncommon in pneumonia, malignant disease of the chest and as a result of trauma. In this form the visceral and parietal layers of the pericardium become adherent more or less extensively by a layer of fibrin, but the more severe forms of pericarditis may be attended by the onset of a serofibrinous reaction, and many inflammatory conditions can in this way cause a pericardial effusion; while the result of an overwhelming bacterial infection involving the pericardium is a purulent pericarditis.

Pericarditis due to infarction is usually limited to that area of the myocardium involved, and both in this condition and in uræmia the condition is fibrinous in nature.

It is desirable that the physician should be familiar with the many conditions in which pericarditis can occur and important that its significance in certain well-known conditions should be fully appreciated. The advent of pathology and radiography have undoubtedly assisted in diagnosis, particularly with regard to aetiology, and this applies especially to pericarditis with effusion.

Pathology

When a small effusion forms the fluid collects in the most dependent parts of the pericardial sac, on the posterior and inferior surfaces, but the formation of a large effusion will separate the visceral and parietal layers of the pericardium extensively, and eventually fill the whole sac.

The two most frequent causes of a pericardial effusion of inflammatory origin are rheumatism and tuberculosis. An effusion due to a rheumatic inflammation is usually straw coloured while that of tuberculous origin may be a slightly turbid exudate. Both have a tendency to clot on standing, and have

a specific gravity greater than 1014. It is the high protein content and specific gravity, together with the presence of inflammatory cells in the exudate, which differentiate these effusions from a passive transudate. A blood-stained effusion, arising spontaneously, suggests a tuberculous origin. Inbed the character of the fluid, and the changes in the pericardium with tubercle formation, calcification and a tendency to subsequent fibrosis, adhesion formation and calcification are similar to those found in tuberculous pleurisy. Tuberculous pleurisy and pericarditis not infrequently occur together.

Symptoms

Acute fibrinous pericarditis is frequently painless because the visceral pericardium may be extensively involved without causing pain. When the parietal pericardium is also involved pain is produced and this is characteristically sharp and intermittent and felt over the præcordium, with a tendency to radiate to the left shoulder or to the epigastrium. If pleurisy co-exists typical pain may spread widely over one or both sides of the chest. When an effusion forms it is common for this sharp pain to subside but it may be replaced by a feeling of oppression over the præcordium or centre of the chest, and should the effusion become large enough to distend the pericardium more alarming symptoms are liable to develop owing to cardiac compression. These are dyspnoea and faintness and abdominal discomfort resulting from an inadequate cardiac output due to a falling venous return which also results in engorgement of the liver; and cough, orthopnoea and dysphagia due to compression of the bronchi, great vessels, and œsophagus. In extreme cases the distress and dyspnoea are marked and the patient may be found sitting up in bed and bending forwards.

Signs

The sign of fibrinous pericarditis is the friction rub which is best heard at the base of the heart or along the left sternal border. This is also frequently heard after an effusion has formed but sometimes disappears when the inflamed visceral and parietal surfaces are separated by fluid.

Small effusions may be impossible to detect clinically but fluid formation should be suspected if symptoms persist or increase with the disappearance of the friction rub, or when the general condition of the patient deteriorates.

As fluid collects dullness to percussion may be found to the left of the apex and in the fifth intercostal space to the right of the sternum (Roth's sign). When a large effusion has formed the cardiac impulse will probably have become palpable and the heart sounds weaker, and extreme tachycardia may develop. Pressure of the distended pericardium on the left lower lobe bronchus will result in signs of collapse of the left lower lobe giving rise to a triangular-shaped area dull to percussion with increased tactile fremitus and bronchial breathing at the base. Ewart first described this sign in 1896 but the name of Bamberger is also associated with it.

The earliest sign of fluid is found on radiological examination, the heart shadow tending to become more globular, and to increase in size. On screen examination not only may the normal contours of the heart be absent but there is diminished or absent pulsation and the cardiac shadow may alter in shape with a change in position of the patient. A further point is that the right cardiophrenic angle is an acute one, unlike that found present in rightsided cardiac enlargement.

Signs of cardiac embarrassment will probably develop either when a pericardial effusion forms rapidly or when it becomes very large. The condition is described as cardiac tamponade. It is in such cases that distress with dyspnoea, orthopnoea and cyanosis together with marked tachycardia, a low blood pressure and evidence of venous congestion develop. Compression of the heart by a large effusion prevents diastolic filling and this rapidly results in a rise of venous pressure. The neck veins are distended, enlargement and tenderness of the liver are present, and eventually ascites and oedema of the ankles develop. The distension of the cervical veins is increased during inspiration because in this phase of respiration the venous return to the heart is normally enhanced.

The decrease in cardiac output results in a failure to maintain an adequate arterial blood pressure, and one serious result of this, in severe cases, is a falling renal excretion.

It is the systolic pressure which shows a fall and therefore the pulse pressure is considerably lessened; and during inspiration the radial pulse may become noticeably weaker or disappear completely, the so-called pulsus paradoxus. This sign is also found in other conditions, particularly in cases of indurative mediastino-pericarditis and constrictive pericarditis, and occasionally in diseases of the lungs and pleura; but when found together with the previous signs it is a valuable guide to the presence of cardiac compression and to the need to relieve this without delay.

Electrocardiographic signs of pericarditis are characteristic and, when pain is present, of definite assistance in the diagnosis from cardiac infarction. When fluid has formed the complexes are of low voltage, and damage to the outer surface of the ventricle probably causes the changes in the ventricular complexes. These consist of an elevation of the RST segments followed later by the development of flattened or negative T waves which occur in the three limb leads. Q waves are absent.

Treatment

The treatment of acute pericarditis is unquestionably that of the underlying disease but the occurrence of pain, of cardiac tamponade and of purulent pericarditis require further consideration. Whereas pain, which may be severe, usually occurs in fibrinous pericarditis, it may continue when an effusion has formed, and morphia may be required for its relief. The application of an ice bag has also been found to be very successful. If the presence of a purulent pericarditis be suspected by deterioration of the patient's condition or by evidence of extension of an infection (e.g., empyema or sub-diaphragmatic abscess) together with an increase in fever becoming intermittent in type, sweats and a polymorph leucocytosis, paracentesis of the pericardium should be performed without delay. Pyopericardium is a grave condition and calls for drainage of the pericardial sac. If pus is thin it may be sufficient to needle the pericardium, removing as much of the fluid as possible, and to inject the appropriate antibiotic in addition to giving the latter parentally in full doses; but the danger here lies in the probability of incomplete drainage, with loculation of the fluid and a consequent inability to eradicate the infection even after

repeated aspirations. Open drainage with rib resection will therefore probably be a necessity.

A more frequent problem is that of the massive serofibrinous effusion causing cardiac embarrassment. Whereas the suspicion of a small effusion does not justify needling, the presence of tamponade demands it. The most usual sites for paracentesis are external to the apex beat but within the area of cardiac dullness, to the left of the sternum, avoiding the internal mammary artery, or in the left costophrenic notch. It is probably wise to avoid needling to the right of the sternum as the thin-walled right auricle may be injured if the effusion is not a large one. In purulent pericarditis the approach from the costophrenic notch directing the needle upwards and backwards behind the costal margin is probably the best because by this route neither the pleural sac nor the peritoneal cavity is likely to be pierced and thereby infected by the needle.

The removal of quite a small amount of fluid may result in marked relief of symptoms, but the removal of a larger quantity at one tapping is unlikely to cause distress or urgent dyspnoea which is a danger when pleural fluid is being aspirated.

Prognosis

The immediate prognosis in cases of rheumatic and tuberculous pericardial effusions is usually good. Seldom does a rheumatic inflammation give rise to a massive effusion and to serious embarrassment of the heart's action; but occasionally paracentesis may be needed though usually it is not necessary to repeat this. A severe rheumatic pericarditis indicates widespread cardiac involvement, with the danger of subsequent valve lesions and widespread myocardial damage, but the results of the formation of pericardial adhesions, with the development of a rheumatic "adherent pericardium," are almost certainly of less significance than was at one time thought. In such a case the cardiac enlargement is usually accounted for by endocardial and myocardial disease, though occasionally adhesions may impede venous return to the heart.

In tuberculous cases a large effusion may collect insidiously, a state of affairs which is also sometimes found in cases of tuberculous pleurisy. A large tuberculous pericardial effusion may require repeated aspirations, but even so there is undoubtedly the risk that

the patient may in time develop chronic constrictive pericarditis.

Chronic Constrictive Pericarditis

A review of the more important facts regarding pericardial effusions should include mention of this important condition which may result as a sequel of severe pericarditis.

When chronic pericarditis is confined to the presence of localised areas of fibrosis, "milk spots," to loose pericardial adhesions, or to adherence of visceral and parietal layers, the condition is of no practical importance. When, however, pericardial adhesions are tough and extensive, and the pericardium is thickened and has lost elasticity, limitation of the heart's action and interference with the venous inflow may result. This condition is known as chronic constrictive pericarditis (Pick's disease). In some cases strong fibrous tissue causes adherence of the pericardium to the mediastinum and to the parietes and thereby interferes with cardiac contractions. Not infrequently both constriction of the heart and adherence to surrounding structures are found, together with constriction of the great veins at their entry to the right auricle.

The fact remains that in cases of chronic constrictive pericarditis a history of acute pericarditis frequently is not forthcoming. Nevertheless, many of these are undoubtedly of tuberculous origin due to spread of infection from mediastinal glands or pleura; others may be the sequel to a septic pericarditis. In such a case the most important points in diagnosis are a gradual increase in venous congestion as shown by engorged neck veins, and enlargement of the liver together with ascites and dependent oedema.

The main conditions from which chronic constrictive pericarditis should be diagnosed are congestive heart failure with mitral stenosis or tricuspid disease, cirrhosis of the liver, and polyserositis (Concato's disease). Although this latter condition is primarily a peritonitis due to a chronic peritonitis, eventually it may result in some mediastino-pericarditis.

The course of chronic constrictive pericarditis is prolonged and the individual is frequently found to be more or less incapacitated. Treatment by means of mercurial diuretics and repeated paracentesis of the abdomen is purely palliative, and as most

of these patients are relatively good subjects for surgical treatment this is usually advisable. Many brilliant results have been achieved by removal of the constricting pericardium. The risk of operation will naturally be lessened if the patient can be

rendered free from œdema and severe venous congestion by medical measures beforehand. If there is good evidence at operation or after biopsy of an active tuberculous infection, a full course of streptomycin should be given.

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WELFARE STATE

In nineteen hundred and forty-five
 We saw the N.H.S. arrive
 And we welcomed it with an open mind
 'Cause we thought it would benefit mankind—
 I'm sure we all thought it would be like heaven—
 The Cradle to Grave and Aneurin Bevan,
 Free wigs and dentures, lots of hypnotics
 And legal aid for psychoneurotics.
 The changes that came fairly took us by storm
 But we learned all about how to fill up a form
 And our patients had nothing to ask us about
 They just said what they wanted and got the hell out
 If the drugs prove expensive for which we sign
 The Regional Medico keeps us in line
 If the Council dislikes us in spite of our pleas
 We're packed off to Swansea or Stockton-on-Tees.
 We haven't got secretaries any more
 Our wives take the 'phone calls and answer the door
 And if we do anything slightly absurd
 We're reported to Whitehall and given the bird.
 We kept our pride as we've done since then
 And we didn't strike like the railway men
 But it's rather hard to be keen on your job
 When a patient per annum brings just eighteen bob.
 So when a young man versed in medical arts
 Prescribes the wrong treatment then sends you to Bart's
 Don't judge him too harshly if he seems in a spin
 It isn't his fault it's the State that he's in.

J. D. PARKER.

THE LIFE AND WORKS OF LOUIS PASTEUR

PART II

by J. S. MALPAS

The researches into vinegar and wine have been omitted so that the investigation into the diseases of silkworms can be dealt with in more detail and the manner of the advent of Pasteur into medical research outlined.

One morning in Spring 1865 Dumas asked Pasteur if he would undertake the study and attempt to stop the ravages of the disease of silkworms then ruining the French silk industry. It had not been a sudden onset, for over a period of fifteen years 120 million francs had been lost by one arrondissement as a result of the disease. The disease which originated in Lombardy had spread to the whole of the silk producing world.

Many attempts had been made to prevent it. Unknown to Pasteur the association of pebrine, as the disease was called, with 'corpuscles' appearing in the body of the moth had been noted by several Italian workers who had made some half-hearted attempts at the production of a healthy strain of silkworm from eggs which were unafflicted by corpuscles.

A brief outline of the life history of the silkworm might be useful.

The silkworm develops from an egg and after four moults in which it increases in size it develops a voracious appetite, achieves its maximum size and then finds a suitable place to spin its cocoon. Inside the cocoon it changes into a chrysalis and then into a moth, male and female moths meet and finally the female produces about 800 eggs. The whole cycle takes about two months. If only the cocoons are wanted they are "smothered" a few days after their formation.

What was so disturbing about the disease was that apparently healthy silkworms would arise from eggs but at various stages either cocoon, moth or the next batch of eggs would show evidence of the disease in the form of rounded protoplasmic corpuscles. Consequently it had been necessary to import from Japan eggs which, though of poor quality,

and attacked by pebrine, by nature of their native hardness could still produce good cocoons.

The fact that the disease occurred in various stages and that the worse it became the more corpuscles appeared, suggested to Pasteur that this disease might be a degeneration: the corpuscles being products of degeneration rather than the cause of the disease. He was strengthened in this view by a most unfortunate accident. In some of the silkworms with which he was working sudden evidence of disease occurred. He took the bodies of the dead worms but on looking at their ground-up remains under a microscope he could not see any corpuscles. "In this case" thought Pasteur "the whole process of the disease has been so rapid that no time for degeneration has been given and that is why no corpuscles are present."

He was wrong because the silkworms had actually been attacked by a second and totally different disease called flacherie.

This wrong premise caused many failures in Pasteur's first attempts to eradicate the disease by breeding from moths showing no signs of corpuscles. Several explanations have been given why Pasteur went so far astray in his first attempts to control the disease but the most likely explanation is this: thinking that the disease was a degeneration and not due to a parasite he concluded that the corpuscles would be found equally distributed throughout the body of the moth. Therefore Pasteur only made a superficial examination of any one part of a moth suspected of having pebrine with the result that corpuscles existing in deeper tissues were missed.

Though based on the wrong premises Pasteur's idea that it was imperative to have moths free from corpuscles was essentially right and it is noteworthy that only 20 days after his arrival at Alais in June he was able to report this to Dumas.



The apparatus used by Pasteur in his studies on the diseases of silkworms. It consists of a collecting bottle, a microscope, a pestle and mortar for grinding up the moths or eggs to see if corpuscles are present, a bottle to convey dead moths in brandy to the local research centre. A box containing the cloth in which the eggs and moths of one year are wrapped is also shown. These eggs and moth are kept for investigation next year in order to produce healthy cocoons.

A great deal is known about Pasteur's approach to this problem because of the eyewitness accounts of many of his helpers and because he was requested to give an almost daily account of his progress to an anxious public.

His assistants and, in particular Gernez, could not understand why Pasteur did not believe that the corpuscle was a parasite, especially after Gernez had shown that the corpuscle was solely responsible for pebrine in a previously healthy worm. Pasteur admitted later that much of his reasoning was faulty and it is ironical that one who had been a violent protagonist of the role of micro-organisms in nature denied that the corpuscles were parasites.

Once this was known and the role of the corpuscles recognised the differential diag-

nosis between pebrine and flacherie could easily be made and it was not long before Pasteur showed that flacherie was the result of the rapid multiplication within the gut of the worm of an organism now called bacillus bombycis. This bacillus and certain allied species usually invaded the worms as a result of the worm being weakened by unfavourable conditions. The effect of temperature and ventilation on resistance was investigated and Pasteur was very intrigued by the ideas to which these studies gave rise.

Having elucidated the cause of the disease he then became a silkworm breeder travelling over the breadth of France demonstrating his methods and supervising the installation of his methods for the production of healthy eggs.

It cannot be denied that Pasteur was also a great showman. He had a liking for dramatic situations in which he could prove himself correct. He was a great exponent of public demonstrations going to great lengths to make his demonstrations clear to his audience. When he was studying fermentation he had small glass models of apparatus that he used so that he could carry them about to show his colleagues, when he was studying crystals he made models and before one lecture he got Duclaux to cut large wooden blocks into the shape of the crystals he was studying. Perhaps the classic instance of a trial in public was the Pouilly-le-fort experiment which will be mentioned later but the first was the success of his work in rearing silkworms at the Villa Vicentina owned by the Prince Imperial of France. Marshal Vaillant, minister to the Emperor's household was responsible for a generous offer to Pasteur. He thought that the atmosphere of this beautiful villa near Trieste would enable Pasteur to recover more quickly from the attack of hemiplegia which he had sustained the previous year. Pasteur devoted his convalescence to sericulture and in the next year the villa showed a profit for the first time in many years.

Thus Pasteur took from his studies on silkworms the knowledge that the "infinitely small" could invade animal tissues; that many variable factors played a role in disease particularly the resistance of the host; furthermore, that it was essential to note the clinical features of the disease and to correlate them with bacteriological findings, a lesson which was to be of profound importance in his studies on anthrax.

Pasteur's work was interrupted by the Franco-Prussian war of 1870. Within a few weeks the French army was defeated and in retreat. It was an army of sick and starving men and little care could be given to the wounded. Even if a wounded man reached a surgeon and was operated on, a terrible mortality resulted from his amputations. It is estimated that of the 13,000 amputations carried out in the Franco-Prussian war 10,000 led to death from post-operative infection. How slowly news travelled in those days! In 1866 Lister had reported the success of his antiseptic methods and for four years had been convincing many surgeons of its effectiveness.

It might seem strange at first that Lister, who so generously acknowledged his debt to

Pasteur in the matter of the germ theory of disease, was actually practising the doctrine ten years before Pasteur made a study of a disease which could be pathogenic for man. Pasteur commenced the study of anthrax in 1877, Lister published his classical paper in the Lancets of March to July 1867.

Paul Bert had repeated Davaine's experiments, but though animals had been injected with blood containing anthrax rods and the animals had died, their blood had contained no rods. If this blood was taken it could also cause death but no rods appeared like those typical of anthrax. In fact Davaine himself pointed out that the subsequent disease did not resemble anthrax. Pasteur agreed with him and showed that they had been due to the blood being contaminated with another organism which he called the vibron septique.

Koch demonstrated that in unsuitable conditions the anthrax bacillus produced spores and that these spores were extremely resistant. In an otherwise perfect paper on the subject Koch did not produce incontrovertible evidence that the anthrax bacillus, and that alone, was responsible for the disease. Though he had subcultured the organism eight times before he injected it again into an animal it might have still been possible for an unknown agent to have been transferred with the bacteria.

Pasteur gave the final conclusive piece of evidence that the anthrax bacillus, and nothing else, was responsible for the disease by subculturing the anthrax bacillus a hundred times. Each time he took one hundredth part of the culture and added it to the fresh culture medium. The resultant dilution of any agent transferred in the culture medium was therefore in the region of 100^{100} , a negligible amount.

A few years earlier, in 1873, Pasteur was elected to a vacant place in the section of Free Associates of the Academy of Medicine. He was elected with a majority of only one vote. It was to the Academy of Medicine that Pasteur reported most of his findings on the subject of anthrax. For the greater part of his time as an Academician he was an unpopular member, he never had the receptive audience that he had at the Academy of Sciences. This may be the cause of Pasteur's increased intolerance of other people's views. He knew that he was right and that failure to impress his doctrine might result in the deaths of thousands.

In 1878 Pasteur commenced a series of experiments on chicken cholera. The effects of chicken cholera are dramatically described by Pasteur in the "Memoire sur le cholera des poules."

The disease is lethal for chickens and rabbits in forty-eight hours but for guinea pigs the bacillus merely forms a local abscess when injected into the skin. If bacilli were taken from the abscess and injected they still remained pathogenic for other animals. Hence the guinea pig had some mysterious immunity. Pasteur saw in this fact an explanation to the strange phenomenon of an epidemic disease destroying some members of the population whilst leaving others severely alone and he wondered if some artificial means could be discovered to give this immunity.

The work on chicken cholera was resumed after the vacation in 1879 but unfortunately all the cultures left in the laboratory had become sterile. By some mistake some of these sterile cultures had been injected into animals. They had shown no systemic disturbance and as the sterile cultures could not be revived some fresh cultures were introduced. Some of the animals injected with the sterile culture were re-injected with the new virulent one. Instead of dying, as other animals had done, these lived. Pasteur repeated his experiment. The sterile culture was labelled P_3 and the following represents possibly the first record of experimental immunisation, it is taken from a page of his notebook :—

"Inoculated ten chickens with P_3 .

"Inoculated another ten chickens with P_3 several times in the pectoral muscles. Took ten of these chickens and injected the virulent culture to see if they were protected against its effects. Took another ten chickens injected the virulent culture into them to see if it had retained its virulence."

The immunised chickens were protected; here was a discovery to be classed with Jenner's discovery of vaccination against smallpox. The great question was could the cultures giving immunity be made again? New cultures were aged and again the same result was obtained. Thus a most important concept was born, namely that a bacillus could vary in virulence while the other characteristics by which it could be identified remained unchanged. Not only could their virulence be diminished by subjecting them to repeated culture, by "attenuating" the

strain, but their virulence could be increased by repeated "passage" from one animal to another. This latter finding was to have a most important bearing on the study of rabies.

In August 1880 Toussaint, a young professor of a veterinary school, announced that he had been able by means of heat to effect diminution of the virulence of the anthrax bacillus. Bouley and Chamberland, colleagues of Pasteur, tried the experiment with Toussaint's original vaccine at Alfort, a few days after they had received a sample. To their dismay four of twenty sheep died immediately as a result of the injection. It was obvious that Toussaint's method did not result in any permanent reduction in the virulence of the culture and that in the short interval of delay in using the culture its virulence had revived.

How could Pasteur successfully attenuate the bacillus? Heat and antiseptics proved of no value. Finally he discovered that it sufficed to keep the anthrax cultures in a shallow layer of neutral chicken broth at 42-43°C.

After eight days the culture was no longer harmful to guinea pigs, rabbits or sheep and it was possible to subculture attenuated bacilli from these. In about a month if the heating was continued the bacilli lost their ability to kill.

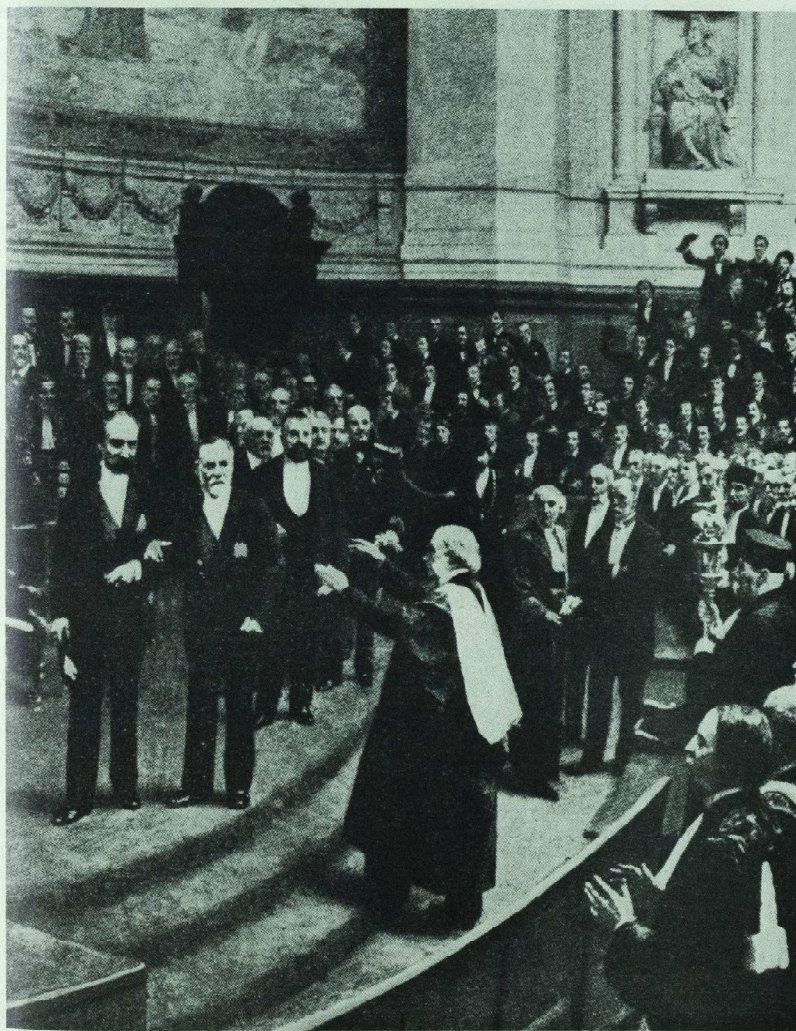
This was a discovery of much greater importance economically than that of protection of chickens from the disease of chicken cholera. Anthrax caused losses measured in millions of francs. If only the farmers could be induced to try immunization! It must be remembered that Pasteur was aging, no longer could he campaign across France as he had done in the days of the treatment of the diseases of silkworms.

He therefore decided on a dramatic public experiment at Pouilly-le-Fort.

How different it was from that first demonstration of his work to Biot thirty-five years ago. Instead of the sceptical but kindly scientist sympathetic to his efforts, his attempts were to be watched by countless farmers, veterinarians, doctors and laymen; some passive observers but many hoping that the experiment would end as a gigantic failure.

Roux who was a close collaborator with Pasteur writes:

"The Society of Agriculture of Melun



The meeting of Lister and Pasteur at the Sorbonne in 1892. Pasteur is entering on the arm of Sadi Carnot, President of the Republic.

had proposed to Pasteur a public trial of the new method. The programme was arranged for the 28th of April, 1881. Chamberland and I were away on vacation. Pasteur wrote to us to return immediately, and when we were re-united in the laboratory he told us what he had agreed upon. Twenty-five sheep were to be vaccinated and then innoculated with anthrax; at the same time twenty-five other sheep would be innoculated as controls; the first would resist; the second would die of anthrax. The terms were exact; no allowance was made for contingencies. When we remarked that the programme was severe, but that there was nothing to do except carry it out since he had agreed to it Pasteur replied:

'What succeeded with fourteen sheep in the laboratory will succeed with fifty at Melun!'

The animals were collected at Pouilly-le-Fort, near Melun, on the property of M. Rossignol, a veterinarian who conceived the idea of the experiment and who was to supervise it. 'Be sure not to make a mistake in the bottles,' said Pasteur gaily when on May 5 his assistants left the laboratory in order to make the first inoculations with the vaccine.

Roux continues:

"A second vaccination was made on the 17th May, and every day Chamberland and I would go to visit the animals. In these repeated journeys from Melun to Pouilly-le-Fort many comments were overheard which showed that belief in our success was not universal. Farmers, veterinarians and doctors followed the experiment with active interest, some even with passion."

In spite of all the excitement aroused by it, the experiment followed its course: the trial inoculations were made on the May 31 and the rendezvous was appointed for June 2 to determine the result. Twenty-four hours before the time decided upon Pasteur, who had rushed into his public experiment with such confidence began to regret his audacity.

On May 31 all the animals had been given an injection of a lethal culture of anthrax bacilli. Pasteur was in agony of uncertainty as various signs of illness appeared in the inoculated sheep. It is said that at one point he accused Roux of having bungled the experiment, not a very courageous act for a man in his position. The

ill effects of the injection on the immunized sheep soon wore off, however, whereas the other sheep steadily died until on June 2 when Pasteur went to see the result twenty-two had died and the last survivors showed all the signs of anthrax. He was immediately acclaimed.

Yet it may be asked whether in fact Pasteur did not demand too much of nature in this experiment? Was the most striking result due to luck. In dealing with biological problems it is recognised that the same degree of certainty cannot be expected as in chemical or physical experiments. This experiment is one of the best examples of Pasteur's insight into nature. For instance he tested the resistance of his animals during the time of maximum resistance. Many who repeated his experiments failed because they did not realise this fact and therefore attributed Pasteur's results to luck.

But like the dragon's teeth of legend, Pasteur's demonstrations produced an army of demands on his time. Those convinced asked that they should be able to reap the benefit of these discoveries and Pasteur had then to supervise the manufacture and marketing of these products. In the ten years before his death Pasteur's one discovery alone resulted in the saving of 7,000,000 francs and just under four million animals had been inoculated.

Whilst still engaged on the experiments arising from anthrax immunization Pasteur was asked to go as representative of the French Republic to the International Medical Congress in London. Our own Sir James Paget was Chairman of the Congress and took every opportunity of extending hospitality to Pasteur. Pasteur in his turn evidently thought highly of Sir James for until the day of his death he kept a signed photograph of Paget on his desk. Both Pasteur and Roux had a high regard for the English, Pasteur for instance, was surprised and delighted at the speed with which Whitbread's bought a microscope and innovated improvements which he suggested in their method of brewing.

In the same year as he was received at the Institute by Renan he commenced the studies of rabies. Why Pasteur chose this disease is something of a puzzle for though dramatic in its course and fatal in its termination, relatively few cases occurred each year in France. Not only this but Germany had shown that by proper quarantine laws the

disease could be controlled. It may be that Pasteur was provoked to its study by memories of his own childhood, memories of mad wolves terrorising whole communities; here indeed was a challenge coupled with a sense of romance.

Pasteur thought that he had isolated the infective organism in the saliva of mad dogs. When injected the disease produced bore no relation to clinical rabies and in fact the organism was the pneumococcus of which he gave a most accurate description. In vain Roux and he attempted to cultivate a micro-organism, first in broth then in spinal fluid and even in fresh brain but all was in vain. As is now known rabies is caused by a virus which is below the resolving power of the optical microscope. Roux once said that Pasteur realised this and told him that it was not worth while continuing the search.

With truly remarkable agility Pasteur abandoned the attempt to cultivate *in vitro* the causative organism. It is difficult to believe that one who had been responsible for many culture methods, who with Koch had recognised the necessity of finding the organism, was prepared at one stroke to abandon the whole basis of his previous work. This abandonment and his change over from lifeless media to receptive living cells must surely be counted one of his greatest triumphs.

Dr. Duboué of Pau had concluded that the nerve material of an animal dying of rabies must contain the active principle. Pasteur's first approach to the transmission of the disease in an easily controlled manner was the implantation of small pieces of infected nerve tissue under the skin of an animal. This method was as capricious as the injection of saliva had been. Someone in the laboratory, probably Roux, suggested that the material should be directly implanted in the brain of a dog. In this way contamination with other organisms would be avoided and the capricious incubation period controlled.

The operation was successfully performed in Pasteur's absence and Roux says it was quite touching to see Pasteur's gratification to see the dog alive after the ordeal. The animal developed rabies in fourteen days, material taken from its spinal cord and passed through rabbits in the same way as the cultures of chicken cholera had been "passaged" resulted in an increase in virulence the incubation period being reduced to six days. Thus Pasteur showed it was

possible to deal with rabies with methods similar to those used for bacteria.

Pasteur's nephew Loir who was technical assistant has shed light on how Pasteur solved the problem of attenuating the virus. Roux was studying the length of survival of rabies in the spinal cord. The cord was held in a little bottle similar to that which is held by Pasteur in the portrait of him painted by Edelfelt. Roux showed that the virus became attenuated on storage; Pasteur's problem was, therefore, to stop this attenuation at certain stages. He solved this by suspending the cord over caustic potash.

He next went on to show that by successive inoculation of more and more virulent cord it was possible to establish immunity against rabies in fifteen days. This might seem a very slow procedure if a bitten person is to be treated, but the average incubation time is about four weeks giving just enough time for immunity to be established.

It was known that Pasteur was pursuing these studies and naturally they aroused antagonism in medical circles. Not only at the Academy of Medicine but in his own laboratory, Pasteur had to meet many objections and in particular those of Roux who did not consider that tests such as those being used would ever justify its use on human beings. Roux left Pasteur for some time and only returned when his old master was being bitterly attacked. It is probably true that if Pasteur had not been forced by events to employ his treatment he would never have applied it.

As it was the treatment of Joseph Meister was undertaken only on the assurance of Vulpian and Doctor Grancher that the boy would die otherwise. Grancher took full medical responsibility, a most courageous thing to do in view of the uncertainty surrounding the experiment and the consequences it could have on his subsequent career.

Sixty hours after being bitten by a rabid dog Joseph Meister was injected with rabbit spinal cord attenuated by fourteen days drying. In twelve successive inoculations he received stronger doses until on July 16 ten days after being bitten he had the final injection containing the most virulent virus of all. The experiment was completely successful and the boy was saved from rabies.

However, all did not go well for in the November a little girl Louise Pelletier was bitten by a mad dog. Her arrival at the

22 juillet 1862.

— Inoculer virus rabique dans veines et quelques heures après,
 le soir, le lendemain ... extraire du sang et l'inoculer
 par réinjection. Donne-t-on le rage? Combien de temps
 après sont-ils au danger par ce mode?
 Conjecture que le virus rabique disparaît très vite
 par cette inoculation. Peut-être agit-il comme dans le système
 nerveux que de celui que la circulation y transporte instantanément
 (pour ainsi dire) et se conserve plus ou moins longtemps.
 — Diluer le virus rabique (inoculum) dans du sang frais tout récent et inoculer
 le mélange 1^o par réinjection 2^o par injection intraveineuse. — Donne-t-on
 le rage? Le virus est-il vite détruit dans le sang ou se purifie-t-il?
 — Inoculer dans l'intérieur des nerfs seuls le virus rabique.

A page from Pasteur's notebook when he was working on rabies. This gives some idea of how theory and experiment were dependent on each other as he worked.

clinic was thirty seven days late. Pasteur against his better judgement and realising that failure would provide a weapon in the hands of his opponents carried out the inoculations. Louise Pelletier died and a storm of protest broke. Roux had deserted Pasteur, only Grancher remained. Michael Peter at the Academy denounced the method and many lively minds joined with Peter, including a young doctor named Clemenceau. Anti-Pasteur meetings were held.

Within a few years, though, Pasteur's treatment was vindicated by the results and what was more important a general principle that of artificial immunity had been launched. He was asked to become the secretary of the which he was now too weak to use. He

accepted the post but did not perform his duties for long for in January, 1888 he had to resign owing to ill health.

During that year when his powers were failing he had the pleasure of seeing the Pasteur Institute rise on a tide of world wide generosity. It must have been a great joy for him to see the magnificent laboratory rising on the rough land close to the Rue Dutot. There was also irony for here was a tool which he was now to weak to use. He realised this for at its opening in November his son read his speech in which he said:

"Alas! Mine is the bitter grief that I enter it, a man 'vanquished by Time' deprived of my masters and even of my companions in the struggle."

He was now a world renowned figure. Honours crowded in upon him. A Jubilee was held in honour of his seventieth birthday on December 27, 1892. As he entered the great theatre on the arm of Sadi Carnot, President of the Republic, Lister strode forward to embrace him and the delegations from all over the world acclaimed him.

"You have" said Lister in his address, "raised the veil which for centuries has covered infectious diseases, you have discovered and demonstrated their microbic nature."

Pasteur was completely overcome by emotion and his speech was read by his son. It was a fine speech ending with the words:

"And you delegates from foreign nations who have come so far to give France proof of sympathy, you bring me the deepest joy that can be felt by a man whose invincible belief is that Science and Peace will triumph over Ignorance and War, that nations will unite not to destroy, but to build and that the future will belong to those who have done most for suffering humanity. I appeal to you, my dear Lister, and to all you illustrious representatives of medicine and surgery.

Young men, have confidence in those powerful and safe methods of which we do not yet know all the secrets. And whatever your career may be, do not let yourselves become tainted by a deprecating and barren scepticism, do not let yourselves be discouraged by the sadness of certain hours which pass over nations. Live in the serene peace of laboratories and libraries. Say to yourselves first: 'What have I done for my instruction?' and as you gradually advance, 'What have I done for my country?' until the time comes when you may have the immense happiness of thinking that you have contributed in some way to the progress and good of humanity. But, whether our efforts are or are not favoured by life, let us be able to say when we come near the great goal, 'I have done what I could.'"

Now on every side he saw the fruits of his researches, collaborators, pupils busy in their various new and spacious laboratories. Roux was at work on a new method of preventing diphtheria. Roux, like a silent ghost flitting about the corridors was a solitary man, on him depended the elaboration of Pasteur's theories. In 1894 at the Congress of Hygiene in Buda-Pesth he announced the

discovery of diphtheria antitoxin after work by Yersin, Behring, Kitasato and himself.

In November Pasteur was seized by illness from which he only partly recovered. During the winter many friends lavished attention on him, he was visited by Alexandre Dumas on the first day of the new year. Dr. Roux arranged a demonstration of the latest discoveries at the Institute so that Pasteur could keep abreast of the new knowledge. Chappuis, his old school friend, now Honorary Rector of the Academy at Dijon came to talk philosophy with him as in the old days of their studentship.

In an attempt to regain his health he went to the chateau at Villeneuve l'Étang in the park of Saint-Cloud. His old room over the stables retained its military simplicity that it had had throughout his ten years occupation. A simple table, chair, bed and cupboard was the only furniture. It is possible to see on the cupboard the pencil markings showing the height of his grandchildren who came to visit him there.

For a few weeks he sat under the beech trees of the park but finally his strength failed and on the afternoon of September 28, 1895 he died.

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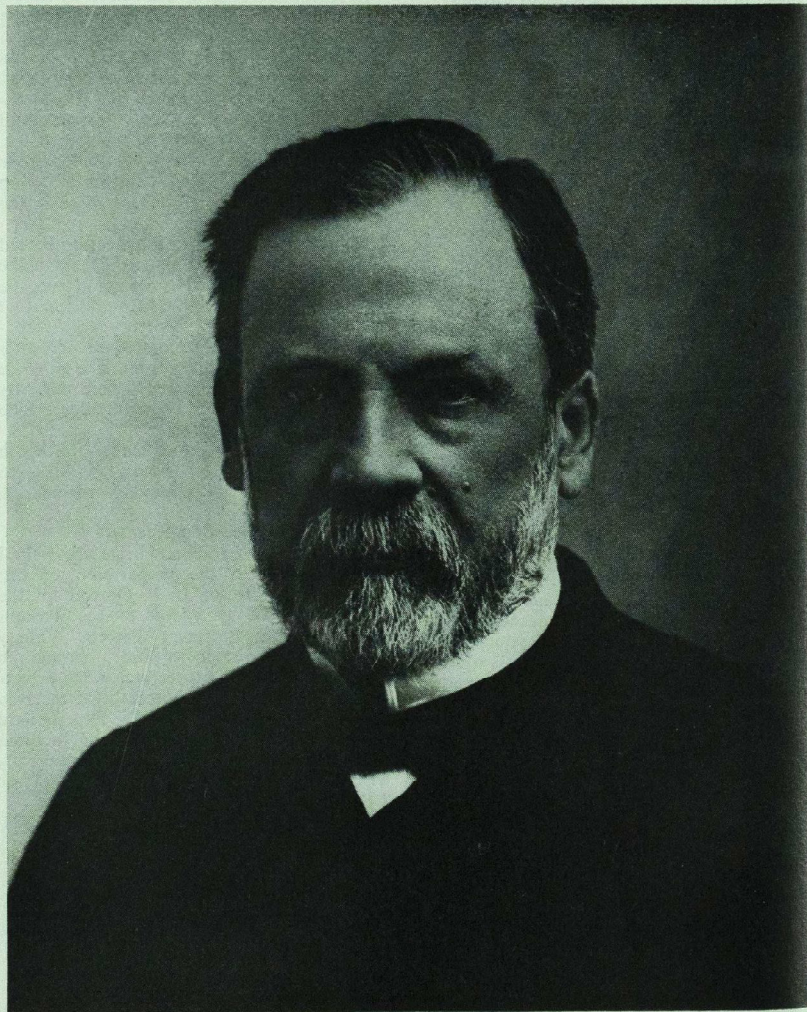
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Pasteur towards the close of his life. Probably taken about 1890.

ORTHOPAEDIC SURGEONS AT ST. BARTHOLOMEW'S HOSPITAL, LONDON

by J. L. THORNTON

ANY hospital having a long history behind it can present an interesting survey of the development of the specialties of medicine. Special departments are a comparatively recent development, and the growth of the need for these was normally gradual. However, in the case of orthopaedics we have the bone-setters first treating cases later to be undertaken by the general surgeons. These in turn relinquished orthopaedic cases to specialists in that specific field, and eventually a separate special department was created.

At St. Bartholomew's Hospital, London, the earliest references to bonesetters are contained in the official Journal recording the proceedings of the governing body, and from these the following information is gleaned. On December 2, 1583, the Governors of Bridewell wrote to the Governors at Bart's asking them to pay John Izard (Isaarde or Issard, *etc.*) for curing two poor of their house who had broken an arm and a leg. A letter was sent to Bridewell mentioning that Bart's was at a charge already for helping the poor at Bridewell, and that St. Thomas's Hospital should be asked to pay. However, a week later the Governors of Bridewell repeated the request, and it was agreed that the Treasurer of Bart's should pay forty shillings to the Treasurer of Bridewell towards the cost.

Several other payments to John Izard are recorded, and one to a certain "Mr. Wystone, bonesetter." On September 12, 1590 Francis Hollgrave (or Howegrave), the Hospitaller, requested payment for setting bones, which request was repeated in the two following years. The Hospitaller looked after the spiritual needs of patients, and the office has for many years been associated with that of Vicar of St. Bartholomew-the-Less. At one time it entailed duties later taken over by the steward, and it would appear that Hollgrave was also able to supplement his salary by bonesetting.

On July 7, 1596, it was agreed that Izard

should in future take charge of all poor persons at Bart's having broken bones, or limbs out of joint, and that he should have an annual stipend of eight pounds. He was awarded a further annual gratuity of forty shillings on February 15, 1611-1612, at his request.

Andrew Mathewes, barber surgeon, was given the reversion of Izard's office on November 20, 1619, and was permitted to assist Izard, but on November 4, 1625 he surrendered his place of reversion of bonesetter, and was paid ten pounds. He was to be permitted to apply for the position of surgeon when one became vacant, but shortly afterwards, on January 7, 1625/6, Mathewes was admitted as "one of the Chirurgions of this house for bonesetting fractures and dislocations," in the place of John Izard. However, it was noted that after his death the office would not again be filled. After 1627/8 there are no further payments to bonesetters recorded.

The disappearance of bone-setters from the professional staff of the Hospital implied that their work would be undertaken by the general surgeons as part of their normal duties. The only records we can have of their orthopaedic work are actual case records, reports in periodical literature, and in books describing their experiences. Several general surgeons contributed usefully to the literature of orthopaedics before this again became a specialist subject within the Hospital, and Percivall Pott (1714-1788) is immediately called to mind. Pott is recognised as the most eminent surgeon of the second half of the eighteenth century. In his sixteenth year he was apprenticed to Edward Nourse (died 1761), who lectured on anatomy and surgery at Barber-Surgeons' Hall, and at his home. On September 7, 1736 Pott was admitted to the Freedom of the Barber Surgeons' Company, and was awarded the Great Diploma of the Company. On March 14, 1744/5 he was appointed Assistant Surgeon to St.

Bartholomew's Hospital, and in 1749 became full Surgeon. In 1744 Pott had contributed a paper entitled "An account of tumours which rendered the bones soft" to the *Philosophical Transactions* (Vol. 41, 1744, p. 616), but he wrote little until he was incapacitated under the following circumstances. In 1756 he fell from his horse and suffered a compound fracture of the leg. Pott had himself conveyed to his house in Watling Street, and the surgeons, with Pott's consent, decided to amputate. Just then Edward Nourse arrived and decided to attempt to save the limb, in which he was successful. Nourse must therefore, with Pott, be recognised as early exponents of conservative surgery. While his limb was mending Pott had plenty of leisure, and spent his time writing books, which, but for his accident, might never have appeared. His first, *A treatise on ruptures*, was published in 1756, and went into several editions, but Pott's most important publication was *Some few general remarks on fractures and dislocations*. Issued in 1768, this book was dedicated to the Physicians at St. Bartholomew's Hospital, William Pitcairn, Anthony Askew and Richard Tyson. It also describes and illustrates the fracture-dislocation of the ankle which bears his name, and the book was translated into French and Italian. Tuberculosis of the spine, or "Pott's Disease" as it came to be called, was described in *Remarks on that kind of palsy of the lower limbs which is frequently found to accompany a curvature of the spine, and is supposed to be caused by it*, 1779. This was translated into French and Dutch, and was followed by *Further remarks on the useless state of the lower limbs in consequence of a curvature of the spine: being a supplement to a former treatise on that subject*, published in 1782. Pott attempted to cure tuberculosis of the spine by forming an artificial sinus. The enforced rest at least was most beneficial, and was later recommended by John Hilton (1804-1878), of Guy's Hospital. "Pott's Puffy Tumour" was described in his *Observations on the nature and consequences of wounds and contusions of the head, fractures of the skull, concussions of the brain*, [etc.], 1760, and Pott was also the first to describe chimney-sweep's cancer. He was responsible for the abolition of the cautery at Bart's, and was immensely popular as a teacher. Among his pupils were John Hunter, Charles Blicke,

James Earle and John Abernethy. Percivall Pott retired from St. Bartholomew's Hospital in 1778, and died on December 22, 1788.¹

John Abernethy (1764-1831), as a pupil of Pott, stressed the necessity for the conservative treatment of fractures. Abernethy was a good but not brilliant operator; in fact he had little opportunity to become one, for he was Assistant Surgeon to Bart's from 1787 to 1815, in which latter year he became full surgeon, and only then had his own beds in the Hospital. He stressed, perhaps unduly, the importance of diet and its influence on disease, and probably his main contribution to orthopaedics is the section dealing with fractures and diseases of joints (pp. 146-189), in his *Lectures on the theory and practice of surgery*, 1830.²

Edward Stanley (1793-1862) was particularly noted for his studies on the bones, and the preface to his book, *A treatise on diseases of the bones*, 1849, begins: "The admirable lectures on the diseases of bone, with which Mr. Abernethy commenced his anatomical and physiological course, first incited me to the study of this subject". Stanley was also the author of *Illustrations of the effects of disease and injury of the bones*, 1849, containing twenty-four plates printed in colour lithography, with descriptions, and published in the same year as his *Treatise*. But the two are wholly distinct and independent works. Stanley was first an apprentice of Thomas Ramsden, and then of Abernethy, and in 1826 became Demonstrator of Anatomy at Bart's. On the resignation of Abernethy he lectured on anatomy and physiology, and, although a Fellow of the Royal Society (1830), twice President of the Royal College of Surgeons (1848 and 1857), and Surgeon-Extraordinary to Queen Victoria (1858), he was thought little of by his contemporaries. Although a good teacher, his material was elementary and obsolete: yet he was keenly interested in his work at the Medical School, and, with John Abernethy, presented their collections of specimens to form a museum. Stanley prepared a manuscript catalogue of this, which is still extant in the Archives, and was also printed.

The brilliant career of Sir James Paget (1814-1899) can only be very briefly summarised, but several of his papers are of great significance to orthopaedic surgeons. Paget entered Bart's in October, 1834, when William Lawrence and Edward Stanley were the principal lecturers, and he carried off

all the prizes in both his first and second years. While still a student he discovered the *Trichina spiralis*, and in 1837 Paget became Curator of the Museum. The year 1843 saw his appointment as Lecturer in Physiology, and he also became the first Warden, holding this position until 1851. Elected Assistant Surgeon in 1847, he succeeded Stanley as full Surgeon in 1861, and four years later became Lecturer in Surgery. Paget was Surgeon Extraordinary (1858) to Queen Victoria, and later Sergeant Surgeon Extraordinary (1867), and Sergeant-Surgeon (1877). Many honorary degrees and other honours, including a baronetcy, came to him, and he was Consulting Surgeon to the Hospital when he died on December 30, 1899. Paget's writings are numerous, and during his early career he supplemented his meagre salary by means of medical journalism. In 1853 appeared his *Lectures on surgical pathology*, in two volumes, a pioneer work on the subject. This was followed in 1867 by an interesting clinical lecture on "Cases that bone setters cure" (*Brit. med. J.*, 1867, i, pp. 1-4). "Paget's disease of the nipple" was described in a paper "On disease of the mammary areola preceding cancer of the mammary gland" (*St. Bart's Hosp. Rep.*, 10, 1874, pp. 87-89), and the disease of the bone usually known as "Paget's disease" was the subject of a paper "On a form of chronic inflammation of bones (osteitis deformans)" which was read before the Royal Medical and Chirurgical Society of London in 1876, and later published (*Med. Chir. Trans.*, 60, 1877, pp. 37-64, and 66, 1882, pp. 225-236). Two other papers of orthopaedic significance were published in 1870, the first, "A case of necrosis of the femur without external inflammation" (*Trans. Clin. Soc. Lond.*, 3, 1870, pp. 183-186), describes the "quiet necrosis of Paget", while the second was entitled "On the production of some of the loose bodies in joints" (*St. Bart's Hosp. Rep.*, 6, 1870, pp. 1-4). In Paget's *Studies of old case-books*, 1891 he described (p. 6) "the enlargements of the tubercle of the tibia which are often seen in young people much given to athletic games", or what is now called Osgood-Schatter disease; and (p. 130 *et seq.*) tibial pseudarthrosis in children and congenital tibia bowing. His *Clinical lectures and essays*, 1875, and his *Selected essays and addresses*, 1902, also include papers of

orthopaedic interest, some of which are enumerated above.³

Another pupil of Sir William Lawrence, Holmes Coote (1817-1872), was interested in diseases of the joints, and wrote a book on the subject. Coote was apprenticed to Lawrence, became Demonstrator of Anatomy in the School, and was elected Assistant Surgeon to the Hospital in 1854, becoming full Surgeon ten years later. In 1861 it was decided to found a Lectureship in Orthopaedic Surgery, and Holmes Coote, then Assistant Surgeon, was appointed to the post. The importance of teaching orthopaedics to students was recognised; yet it was more than 50 years before a department entirely devoted to this speciality was established. During the Crimean War, Coote volunteered for hospital work in Smyrna, and subsequently suffered from ill-health. On the retirement of Sir James Paget in 1871, Coote became Senior Surgeon, but died the following year from general paralysis. He was the author of *The homologies of the human skeleton*, 1849, which is based on Sir Richard Owen's theory of an archetypic skeleton; "Observations on the pathology and treatment of joint disease" (*St. Bart's Hosp. Rep.*, 2, 1866, pp. 141-147), which describes two cases of disease of the knee-joint; *On joint diseases: their pathology, diagnosis, and treatment: including the nature and treatment of deformities, and curvatures of the spine*, published at London, Edinburgh and Dublin in 1867, which Coote dedicated to Sir William Lawrence; and "Rachitis" (*St. Bart's Hosp. Rep.*, 5, 1869, pp. 125-135), in which he attributes rickets to the dissolution of the monasteries, and suggests similar social causes for its spread.⁴

Sir Thomas Smith (1833-1909), as apprentice to Sir James Paget, was the last of the apprentices at St. Bartholomew's Hospital. Elected F.R.C.S. in 1858, Smith published a *Manual of operative surgery on the dead body* in the following year, a second edition appearing in 1876 with W. J. Walsham as joint-author. Smith became Lecturer on Descriptive Anatomy (1871), and Surgeon (1873) to Bart's, and was Surgeon Extraordinary to Queen Victoria. As Honorary Sergeant-Surgeon to King Edward VII, he assisted Sir Frederick Treves in operating on him in 1902. About the year 1855 Smith described and illustrated the microscopic

appearances of actinomycosis, but without knowing with what he was dealing. The material has been reproduced by A. A. Kanthack,⁶ and Smith's account represents the first description in English of actinomycosis. He wrote little, but invented numerous instruments, and is particularly remembered for his operation for cleft-palate and hare-lip. His most important paper on this subject, "On the treatment of cleft-palates in infants and on the care of clefts of the hard and soft palates by operation under chloroform" (*St. Bart's Hosp. Rep.*, 7, 1871, pp. 153-181) includes reports of forty cases. Smith wrote several papers of special orthopaedic interest. They include the following: "A clinical lecture on resection of the knee-joint in children, illustrated by the performance of that operation" (*Med. Times & Gaz.*, 1863, ii, pp. 241-242), in which Smith suggested that the results were good if the epiphyseal plates were not interfered with during the operation; "A foot having four cuneiform bones" (*Trans. Path. Soc. Lond.*, 17, 1865, pp. 222-223); "Skull-cap showing congenital deficiencies of bone" (*Ibid.*, 16, 1865, pp. 224-225), which represents the first report of craniohypophysial xanthomatosis, but reports of subsequent cases resulted in the condition becoming known as the "Hand-Schüller-Christian syndrome"; "Chronic osteitis of the femur" (*Trans. Path. Soc. Lond.*, 18, 1867, pp. 218-219); "Excision of the knee-joint: eight years after the operation" (*Trans. Clin. Soc.*, 1, 1868, pp. 62-63), which illustrated the effect of resection in growing bones, and supported Smith's previously formed opinion that "provided the epiphysal cartilages were uninjured by the operation, the growth of the limb would in all probability be unchecked". In 1874 appeared what is probably Smith's most important paper, entitled "On the acute arthritis of infants" (*St. Bart's Hosp. Rep.*, 10, 1874, pp. 189-204). Here Smith makes no mention of sequestration of the epiphysal head, and does not complete his description, which would have made his name even more respected. Tom Smith's disease may be defined as acute suppurative arthritis of a major joint, within the first year of life, with destruction of the articular end of a constituent long bone and without ankylosis. He reported twenty-one cases, seemingly with these characteristics, in each of which the hip, knee or shoulder were

affected first. Twelve cases were fatal, and necropsies were performed in no fewer than eleven of these. Smith described the morbid changes in infantile scurvy in "Haemorrhagic periostitis of the shafts of the long bones, with separation of the epiphysis" (*Trans. Path. Soc. Lond.*, 27, 1876, pp. 219-222), and the paper is illustrated by two coloured drawings by Thomas Godart.⁶

In 1867 Alfred Willett (1837-1913) was appointed to give demonstrations on orthopaedics, which duty usually devolved on an assistant surgeon. Willett had been born at Brighton, the son of William Catt, and on leaving school was apprenticed to Mr. George Lowdell, a Brighton surgeon. After working in the Sussex County Hospital for three years, Willett came to Bart's in 1857. He held successively the appointments of House-Surgeon (1860), Registrar (1863), Warden and Assistant Surgeon (1865), Surgeon (1879), Joint Lecturer in Surgery (1889), and Consulting Surgeon (1901). Willett married the only daughter of Sir George Burrows (1801-1887), a son-in-law of John Abernethy. Acknowledged as a very careful and thorough operator, Willett wrote little, and his only contribution to the literature of orthopaedics appears to be his Bradshaw Lecture, "On the correction of certain deformities by operative measures upon bones" (*Brit. Med. J.*, 1897, ii, pp. 1689-1697). In 1869 a sub-committee consisting of Holmes Cooté, Alfred Willett and John Langton was formed to consider improvements in the department of orthopaedics, but we have no record of its recommendations.⁷

On December 4, 1879, Howard Marsh (1838-1915) was given charge of orthopaedic out-patients in place of Willett, who was appointed Surgeon to the Hospital. Willett was Demonstrator of Orthopaedics from 1867 to 1878, and Marsh succeeded him in this appointment in the latter year. It would appear that the offices of officer-in-charge of orthopaedic out-patients, and of demonstrator in orthopaedics went together, but the dates of appointment slightly differ in several instances. Frederick Howard Marsh entered Bart's in 1858, and in February, 1862, became House-Surgeon to Frederick Carpenter Skey (1798-1872). Marsh was appointed Surgeon to the Hospital for Children with Chronic Disease of the Joints in 1869, and held several appointments at Bart's, both in the Hospital and the School. He

was Demonstrator of Orthopaedic Surgery from 1878 to 1882, and became full Surgeon to the Hospital in 1891. He resigned in 1903 upon appointment as Professor of Surgery at the University of Cambridge. Marsh devised several mechanical appliances for use in orthopaedic cases, and strongly supported John Hilton's views, as expressed in the latter's *Lectures on rest and pain*. Marsh wrote extensively on orthopaedics, the following representing his more significant contributions: "On the prejudicial effect of inter-articular pressure in joint disease: and the application of continuous extension, by means of a weight, as a remedy for this condition" (*St. Bart's Hosp. Rep.*, 2, 1866, pp. 147-155), which quotes Hilton's *Rest and pain*, and includes seven case reports from the Hospital for Sick Children; "Notes on diseases of the joints, based chiefly on cases that have occurred in the Hospital during the present year" (*Ibid.*, 4, 1868, pp. 179-200), reporting fourteen cases, followed by remarks on the treatment of hip disease, with emphasis on the value of complete rest and continuous extension by means of weights; "Some cases of congenital dislocation of the hip joint. With remarks" (*Ibid.*, 11, 1875, pp. 113-125); "On manipulation; or, the use of forcible movement as a means of surgical treatment" (*Ibid.*, 14, 1878, pp. 205-219), dealing with fifteen cases, several of which had been in the hands of bone-setters, and subsequently proved to be malignant; "Notes on orthopaedic surgery. Rickets, knock-knee, flat-foot, lateral curvature" (*Ibid.*, 18, 1882, pp. 17-48), written on his resignation from the orthopaedic department, and giving an account of orthopaedic cases and their treatment at that period, with mention of the large incidence of rickets, knock-knee, etc., and with special reference to the working conditions of shop-girls, and adolescents in general. In 1886 appeared Howard Marsh's book, *Diseases of the joints* [etc.], London [etc.], published by Cassell, and dedicated to Sir James Paget. This was issued in America in the same year, and a German translation by W. Kindervater was published at Leipzig in 1888. A second English edition, edited with the assistance of [Sir] D'Arcy Power, was published in 1895. The book was very popular, and fifteen years later appeared a "new and enlarged edition thoroughly revised by the author and by [Sir] C. Gordon Watson," London, [etc.], 1910. Several other papers came from Marsh's pen,

proving a keen interest in orthopaedics that lasted long after he had ceased to be head of the department, including "The Cavendish Lecture on growth as an agent in (1) the production, and (2) the removal of deformity" (*West Lond. Med. J.*, 4, 1898, pp. 1-21); *Septic arthritis. The Bradshaw Lecture delivered at the Royal College of Surgeons of England on December 10, 1902*, London, 1903, which discusses diseases of the joints due to infection; and "Present views on diseases of the joints" (*Birmingham Med. Rev.*, 64, 1908, pp. 219-229), wherein Marsh expresses indebtedness to Lister for success in operations on the joints⁸

In 1881 Howard Marsh resigned as Demonstrator of Orthopaedics, and was replaced by William Johnson Walsham (1847-1903), who was also appointed (June 15, 1882) to take charge of orthopaedic out-patients upon Marsh's retirement from this post on June 1, 1882. Walsham came to Bart's as a student in 1867, and was prosector to Luther Holden and G. W. Callendar, then lecturing on anatomy. Walsham took the L.S.A. in 1869, and afterwards went to the University of Aberdeen, where he graduated M.B., C.M. in 1871 with highest honours. In May of that year he was appointed House Physician to Francis Harris, but after nine months Walsham changed over to become House Surgeon to Holmes Cooté. He occupied several teaching appointments in the School, and was Assistant Surgeon (1881) and later Surgeon (1897) to the Hospital. Walsham was particularly interested in nasal surgery, and in surgery of the gall-bladder and bile ducts. When in charge of the orthopaedics department he advocated treatment by exercises, or by means of surgery, rather than the use of complicated appliances. His writings on orthopaedics are few but important, and include the following: "On the osseous tumours of bone, formerly called osteoid cancers" (*St. Bart's Hosp. Rep.*, 15, 1879, pp. 111-118), which discusses the definition of "osteoid cancer", and attempts to distinguish between the various forms of malignant osteoid growths. After two years experience in the orthopaedics department, Walsham reviewed about one hundred and forty cases of lateral curvature of the spine, one hundred and ten being new cases of which notes were kept. He discusses the value of plaster of Paris cases, steel supports, elastic bandages, exercises and posture, and

provides extensive tables and charts, with a summary of his findings. The paper is entitled "Notes from the Orthopaedic Department on the treatment of lateral curvature of the spine" (*Ibid.*, 20, 1884, pp. 195-212). This was followed by "Osteoclasia" (*Ibid.*, 27, 1891, pp. 217-223), describing "the fracture of bone for the correction of rickety and other deformities". The breaking of limbs by hand, and by means of an osteoclast is mentioned, and the paper deals with fifteen cases in which limbs were broken by either Grattan's or Thomas's osteoclasts. In 1892 Wilfred Kent Hughes (1865-1941), a native of Melbourne, offered to assist Walsham to complete a book on deformities, but six months after commencement Kent Hughes found that he would have to return to Australia earlier than intended. They therefore decided to restrict the scope of the book to deformities of the foot, the resultant volume appearing as *The deformities of the foot: with their treatment*, London, 1895. This contains over three hundred photographs and figures, and incidentally mentions that there were at that time between seven and eight hundred patients per annum treated in the orthopaedic department, Kent Hughes was then clinical assistant in the department, and later held appointments at St. Vincent's Hospital, Melbourne, the Children's Hospital, Melbourne, and Melbourne Hospital. He contributed numerous papers to Australian medical periodicals, and was revising *The deformities of the foot* at the time of his death. Walsham was the author of several other successful books, his *Surgery, its theory and practice*, [etc.], going into nine editions.⁹

Walsham resigned his appointment on November 11, 1897, and William Bruce Clarke (1850-1914) assumed charge of the orthopaedic cases until April 9, 1903. Bruce Clarke had entered Bart's in 1873, serving as Demonstrator of Anatomy (1881), Assistant Surgeon (1883 or 4), and finally as full Surgeon from 1902 to 1912. He was also Surgeon to the West London Hospital. Bruce Clarke was mechanically minded, and fitted up a workshop at his house in Harley Street to assist him in devising appliances for his orthopaedic cases. He was the author of two papers of orthopaedic interest published in *St. Bartholomew's Hospital Reports*.¹⁰

Following the resignation of Bruce Clarke, William McAdam Eccles (1867-1946) as-

sumed charge of the orthopaedic cases on April 23, 1903, and in that year the term "chief assistant" first came into use in connection with the special departments. George E. Gask was the first to be appointed Chief Assistant to the Orthopaedics Department, and subsequent holders of this office and recorded in the Table on page 204. McAdam Eccles was educated at University College School and at University College, London. He qualified at Bart's in 1890, having previously dressed for three months under Walsham who was then in charge of the orthopaedics department. He was awarded an M.S. with a gold medal in 1894, and became a careful, competent operator, with a deeply religious outlook, and an unusually even temper. McAdam Eccles left little of orthopaedic interest in his writings. He was elected full Surgeon in 1912, and in 1927 became Consulting Surgeon and a Governor of the Hospital.¹¹

In 1907 there were four beds for orthopaedic cases in each of Charity and Lawrence Wards, and in June, 1908, it was decided that notes of cases in these beds were to be taken by dressers. There was always a lack of sufficient beds for orthopaedic cases, and there was no improvement even when in June, 1912, it was agreed that a specialist be appointed to take complete charge of the Orthopaedics Department, both in- and out-patients; that four male and four female beds be made available for orthopaedic cases; and that the Department should be installed in the Surgical Out-Patients' Room. The beds were to be in the wards of the junior surgeon, and accordingly McAdam Eccles allotted four male beds in Paget Ward, and four female beds in Harley Ward.¹² On November 14, 1912, Reginald Cheyne Elmslie (1878-1940) was appointed Surgeon-in-Charge of the Orthopaedics Department. He had served on several occasions as chief assistant in the Department, and had been acting head since the resignation of McAdam Eccles on May 2, 1912. While still Chief Assistant, in 1910, Elmslie had persuaded the Governors of the Hospital to establish a properly organised massage department, as an adjunct to his own, but in later years he found it difficult to obtain sufficient beds to house his patients.

R. C. Elmslie was appointed by the London County Council in 1905 as part-time medical inspector for schools associated with the Medical Officers of Schools Association,

of which he was President at the time of his death. He was associated with the Central Committee for the Care of Cripples; was an original member of the British Orthopaedic Association, serving as President in 1930; was President of the Orthopaedic Section of the Royal Society of Medicine, 1923-24; and of the same Section of the British Medical Association in 1924.

Elmslie made numerous important contributions to preventive orthopaedics, and he was particularly interested in scientific and artistic physical education; also in remedial gymnastics. He was a popular teacher, frequently using films to demonstrate, and he laid particular stress on manipulative surgery. Few of his operations were described in the press, but his work on coxa vara, on fibrocystic disease, and on osteochondritis juvenalis of the hip was fully recognised.

It would appear from the available evidence that Elmslie had great difficulty in placing the new specialist department on a firm footing. On March 12, 1914, for example, he sent a letter regarding the manufacture by the Hospital of celluloid splints, and it was decided that the views of the Medical Council should be sought. Six years later, on June 3, 1920, it was decided that work on these splints should commence in a room on the top floor of the Outpatients' Block, and that the services of the Women's Guild in this connection be accepted. In September, 1914, the beds for orthopaedic cases were reduced to two male and two female, but three years later Elmslie was asking for additional space for the Department, and for permission to use Surgical Outpatients, as his Monday orthopaedics session was overcrowded. On July 12, 1917, it was decided that the Orthopaedics Department be temporarily housed in Surgical Outpatients, where it remains. In 1910, a non-resident house-surgeon was first appointed, but later there was difficulty in obtaining clinical assistants for the Department, and on January 4, 1923, Elmslie asked if he might invite outsiders, without their having to pay fees, which was agreed to. In 1926 we find Elmslie requesting that the question of the provision of an Orthopaedic Ward be reopened, but in response we read on April 26, 1928, that five male beds in Stanley Ward, and five female beds in Darker Ward be made available for orthopaedic cases. Even this only came after

Elmslie's attempted resignation, for on January 26 of that year he had been asked to postpone his decision to resign, pending a report on the Department. Also in 1928 it was agreed that a special staff nurse be appointed to take charge of orthopaedic patients, and that a second chief assistant be introduced. Two years later, on June 12, 1930 we find that the Orthopaedics Department was allocated eighteen beds in Kenton Ward, but that it was to have only fifteen beds in the reconstructed Hospital. An assistant surgeon to the Department was appointed in 1930, and in the same year we note that a new operating table for the Orthopaedics Theatre was purchased at a cost of £58 10s.

Reginald Cheyne Elmslie suffered from ill-health towards the end of his tenure of office, and on June 6, 1935 he was granted leave of absence. He finally resigned on November 25, 1936, with effect from December 31, and was succeeded by Sidney Limbrey Higgs. Elmslie's work for orthopaedics will be remembered by his former colleagues and associates, but in the distant future his reputation will rest mainly upon his publications. H. Jackson Burrows has compiled a list of Elmslie's writings,¹³ consisting of 204 items. His publications in book form include: *Coxa vara: its pathology and treatment*, 1913; *Remedial exercises in schools and school clinics*, 1914, a booklet issued by the Medical Officers of Schools Association at one shilling; *The after treatment of wounds and injuries*, 1919; and he edited Auguste Broca's *The after-effects of wounds of the bones and joints*, London, Paris, 1918, which was translated by J. Renfrew White. Several of Elmslie's papers in the *St. Bartholomew's Journal* record his own work in the development of the Orthopaedic Department, including "The Massage Department" (43, 1935-6, pp. 141-142), which deals with the introduction of scientific massage, and the growth of massage as a profession; "Orthopaedics" (44, 1936-7, pp. 80-82), containing a very brief history of orthopaedics at Bart's; and "Artificial limbs" (22, 1914-5, pp. 166-168; 23, 1915-6, pp. 5-8), a subject of major importance during World War I. Similarly *St. Bartholomew's Hospital Reports* contain several of Elmslie's significant papers, including "Osteitis deformans, with a report upon two cases in which sarcoma of one of the affected bones arose" (44, 1908, pp. 121-

142), based on records of over ninety cases, six being from personal observation; and "Fibrosis of bone: generalized osteitis fibrosa cystica not due to hyperparathyroidism" (68, 1935, pp. 147-158), reporting six cases.¹⁴

During the 1939-45 war the Orthopaedics Department organised under the Emergency Medical Scheme a special unit of two hundred beds at Hill End Hospital, St. Albans, and a smaller unit of sixty beds at Friern Hospital. Also, the out-patients department still functioned at Bart's, despite the absence in the fighting services of several senior members of the staff. After the war the Department remained at Hill End, where it has eighty beds, and a few beds for orthopaedic cases and for fractures are made available at Bart's,

largely by courtesy of the Surgical Professorial Unit.

The Orthopaedics Department is the largest special department of the Hospital, and it would appear impossible to bring it back to London unless the Ministry of Health relaxes the 800 bed maximum set for London hospitals, despite the Goodenough Committee recommendation of 1,000 beds for teaching hospitals. In spite of the difficulties imposed by lack of beds and adequate accommodation, the members of this Department have made considerable contributions to surgery through the centuries, and continue to maintain the traditions of their predecessors. Orthopaedics is one of the oldest branches of surgery, as instanced by the bone-setters, and it is likely to continue an important science when therapeutics renders surgical interference for most purposes a thing of the past.

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- ¹ See Horder, Rt. Hon. Lord S. Thomas Jeeves: The life and works of Percivall Pott, *St. Bart's Hosp. Rep.*, 30, 1894, pp. 163-187; Jones, Arthur Rocyn: Percivall Pott, *J. Bone & Joint Surg.*, 31B, 1949, pp. 465-470; Lloyd, G. Marner: The life and works of Percivall Pott, 1714-1739 [sic.], *St. Bart's Hosp. Rep.*, 66, 1933, pp. 291-336; *Medical Classics*, Vol. 1, No. 4, 1936, is devoted to Percivall Pott, including portrait, chronological biography, eponyms, bibliography of his writings, bibliography of biographies, and reprints of three of his classic writings; Power, Sir D'Arcy: Epoch-making books in British surgery—ix, The works of Percivall Pott, *Brit. J. Surg.*, 17, 1929-30, pp. 1-6; and Power, Sir D'Arcy: Eponyms vii—Percivall Pott: his own fracture, *Brit. J. Surg.*, 10, 1922-23, pp. 313-315.
- ² See Thornton, John L.: *John Abernethy: a biography*, 1953; and Thornton, John L.: John Abernethy and operative surgery, *J. Bone & Joint Surg.*, 33B, 1951, pp. 636-641.
- ³ See Jones, Arthur Rocyns, Sir James Paget, *J. Bone & Joint Surg.*, 33B, 1951, pp. 446-451; and Paget, Sir James: *Memoirs and letters*. Edited by Stephen Paget, 1902.
- ⁴ Holmes Coote: Obituary, *St. Bart's Hosp. Rep.*, 9, 1873, pp. xxxix-xliii.
- ⁵ Kanthack, A. A.: A fading record: early observations on the ray fungus by Mr. Thomas Smith, F.R.C.S., *St. Bart's Hosp. J.*, 3, 1895-6, pp. 50-52.
- ⁶ See Church, Sir William S.: In memoriam, Sir Thomas Smith, Bart., K.C.V.O., F.R.C.S., *St. Bart's Hosp. Rep.*, 46, 1910, pp. xxxi-xlvi; and Roxburgh, R. A.: Sir Thomas Smith. [Abbreviation of essay awarded the Wix Prize.], *St. Bart's Hosp. J.*, 56, 1952, pp. 542-548.
- ⁷ Obituary: Alfred Willett, F.R.C.S., *St. Bart's Hosp. J.*, 20, 1912-3, pp. 181-182; portrait bust.
- ⁸ See In Memoriam: Frederick Howard Marsh, 1838-1915, *St. Bart's Hosp. Rep.*, 51, 1951, pp. 1-7, portrait; and Obituary: Frederick Howard Marsh, *St. Bart's Hosp. J.*, 22, 1914-5, pp. 156-158; portrait.
- ⁹ See Obituary: William Johnson Walsham, *St. Bart's Hosp. J.*, 11, 1903-4, pp. 17-18; portrait; and P[ower], Sir D'A[rcy]. In memoriam: William Johnson Walsham, *St. Bart's Hosp. Rep.*, 39, 1903, pp. xxxiii-xlii.
- ¹⁰ See Doran, Alban: Obituary, William Bruce Clark, *St. Bart's Hosp. J.*, 21, 1913-4, pp. 131-

133; portrait; and L[ockwood], C. B.: In Memoriam, William Bruce Clark, *St. Bart's Hosp. Rep.*, 50, i, 1914, pp. 1-5; portrait.

- ¹¹ See Eccles, David: Obituary, William McAdam Eccles, *St. Bart's Hosp. J.*, 50, 1946-7, pp. 131-132; portrait.
- ¹² Treasurer and Almoner's Minute Book, June 20, October 17, 1912; most of the information regarding appointments has been taken from these Minute Books.
- ¹³ Burrows, H. Jacksons: Obituary of R. C. Elmslie, and bibliography of his writings. (Unpublished.)
- ¹⁴ H[iggs], S. L.: Reginald Cheyne Elmslie, Obituary, *St. Bart's Hosp. J.*, War Ed. 1, 1939-40, pp. 229-230; portrait.

Acknowledgments

I desire to express my sincere thanks to Mr. H. Jackson Burrows, F.R.C.S., for assistance in preparing this paper; to Dr. Mary Thornton, widow of Wilfrid Kent Hughes, for information regarding her late husband; and to Mrs. G. Whitteridge, Archivist to St. Bartholomew's Hospital, and Miss M. V. Stokes, Assistant Archivist, for providing material from the Hospital Archives.

ORTHOPAEDICS DEPARTMENT

Surgeons-in-Charge

1867	- - -	Alfred Willett, Demonstrator of Orthopaedics, and for part of time, at least, in charge of the department; resigned 1879.
December 4, 1879	- - -	Howard Marsh appointed; resigned June 1, 1882.
June 15, 1882	- - -	William Johnson Walsham appointed; resigned November 4, 1897.
November 11, 1897	- - -	William Bruce Clarke appointed; resigned April 9, 1903.
April 23, 1903	- - -	William McAdam Eccles appointed; resigned May 2, 1912.
May 2, 1912	- - -	Reginald Cheyne Elmslie appointed acting Chief; appointed Surgeon-in-Charge, November 14, 1912; resigned November 25, 1936, with effect from December 31.
January, 1937	- - -	Sidney Limbrey Higgs appointed.

Clinical Assistants

[These were appointed for three months, but some were retrospective (as noted), and certain individuals served several terms of office.]

October 15, 1903	- - -	C. M. H. Howell.
January 28, 1904	- - -	W. J. Burfield.
December 8, 1904	- - -	Tom Bates.
October 4, 1906	- - -	H. G. Gauvain.
July 18, 1907	- - -	F. C. Trapnell.
November 9, 1911	- - -	P. Jenner Verrall (acting since January, 1911; reappointed February 22, 1912, and June 13, 1912).
December 7, 1911	- - -	H. M. Johnson (from January, 1912).
February 29, 1912	- - -	J. E. H. Roberts (as from previous January 1).
January 8, 1914	- - -	C. H. S. Taylor (reappointed April 9, 1914).
July 10, 1919	- - -	F. H. Robbins.
1930	- - -	W. E. Underwood.
1930	- - -	C. F. Watts.
July 2, 1931	- - -	G. H. Bradshaw.
1931	- - -	J. E. A. O'Connell.
1932	- - -	K. F. D. Waters.
1933	- - -	A. S. Rajasingham.
1935	- - -	V. C. Snell.
1936	- - -	A. H. Hunt.
1937	- - -	V. A. P. Swain.
1938	- - -	C. J. Longland.
1950	- - -	J. D. Cornish.

Chief Assistants

[These were usually appointed for one year.]

June 4, 1903 - - -	George E. Gask (reappointed May 26, 1904).
June 26, 1905 - - -	C. Gordon Watson.
May 1, 1906 - - -	R. C. Elmslie (reappointed April 25, 1907; resigned September 26, 1907; reappointed July 8, 1909; July 7, 1910; 1911; acting Head of Department, May 2, 1912).
September 17, 1908 - -	R. B. Etherington Smith.
June 20, 1912 - - -	P. Jenner Verrall, up to December 31; reappointed January 2, 1913; December 4, 1913; December 10, 1914; November 11, 1915; granted leave of absence for duty in R.A.M.C.; reappointed December 16, 1915; December 14, 1916 returned as Chief Assistant, holding this position until December 18, 1919.
September 19, 1912 - -	J. E. H. Roberts, for six months from previous July.
December 9, 1926 - -	S. L. Higgs, to act for R. C. Elmslie during his absence.
August 2, 1928 - - -	John P. Hosford appointed as 2nd Chief Assistant; resigned April 9, 1931 as from April 30.
June 25, 1931 - - -	E. A. Freeman and H. Jackson Burrows; E. A. Freeman resigned October 8, 1931, and H. Jackson Burrows in 1936.
1932-1935 - - -	T. Meyrick Thomas.
1935-1939 - - -	W. D. Coltart.
1937-1939 - - -	H. B. Lee.
Part-time Chief Assistants	
1942- - - - -	I. M. Robertson.
Senior Registrars	
1946-1951 - - -	R. S. Henderson.
Registrars	
1946-1949 - - -	E. D. Vere Nicoll.
1947-1951 - - -	W. C. Lyon.
1949-1951 - - -	E. Shepherd.
1951- - - - -	C. W. S. F. Manning.
1951- - - - -	A. H. G. Murley.
Orthopaedic Surgeon	
1946- - - - -	H. Jackson Burrows.
Assistant Orthopaedic Surgeon	
1937-1946 - - -	H. Jackson Burrows.
1946- - - - -	W. D. Coltart.

SPORT**FENCING****The Electrical Foil.**

The demonstration of this apparatus, which was shown for the first time in this country at the London Section of the Amateur Fencing Association on April 20, was of great interest.

Anyone who has fenced, or has seen fencing, must have realised the difficulties of judging and presiding over a bout of foil, and thus any apparatus which simplifies this is to be warmly welcomed.

Many of us have been wondering, since the announcement of the demonstration, exactly how the machine was going to work, and what in fact it was going to decide. To settle the fencers' curiosity at once, it is

purely a judging machine, and does not produce any analysis of the validity of stop hits, and etc.

Electrical epee fencing has of course become an established thing in this country since it was first used internationally in Geneva in 1931. The reason for the 20-year time lag before the introduction of an electric foil is due to the differences in the scoring between the two weapons. For non-fencers, this must be explained briefly. In epee fencing, the target is the whole of the opponent's body, and the first point of the blade to arrive on the opponent's body secures that "point" or "hit" as it is called. Foil fencing is much more simpler because, firstly, the target does not include the head, arms of

legs; and, secondly, the first point of blade to arrive does not necessarily secure that hit—there being a right-of-way rule in some cases.

Fencing is "refereed" by means of four judges and a president for each fight. Two judges observe each fencer and signal hits to the president. The president starts the fencers, and stops them when alleged hits are signalled by the judges. He then analyses the phrase—that is the fencers' movements immediately prior to the alleged hit—questions the judges as to that hit, and decides, taking into account the right of way, and various other rules in foil, whether or not the hit signalled by the judges is satisfactory.

This apparatus for foil does away with the necessity for judges, but not for the president. It records, by means of lights, hits landing on fencers, and whether they were on or off target. The president's attention is drawn to the lights by means of a buzzer.

The great advantage of the electric foil is that it eliminates the human error of judges which is a big consideration, since wrong decisions, and disagreements between judges, are by no means rare occurrences.

The disadvantages are, the wearing of an additional metalised jacket, the different balance to the foil, the connections to the electric circuits, and also that the bib of the mask has had to be removed from the target due to technical difficulties. At the moment, all the apparatus has to be imported from Italy, which may make prices prohibitive.

Only the barest essentials of fencing have been mentioned above, and there are a number of inapparent snags which the electric foil raises. There is no doubt, however, that it has made a great advance in the assessment of hits in foil fencing.

Sports Day.

Sports Day this year will be on Saturday, June 18, at Chislehurst. As last year the Sports will be organised as an Inter-Year Competition, and it is hoped that this will stimulate the potential athletes and create interest among spectators. The Sports will be followed by the presentation of prizes, and a Dance will be held in the Pavilion.

Other fixtures in June:—

Saturday, June 11.—United Hospitals' Championships at Motspur Park.

Wednesday, June 22.—Match v. St. Thomas's Hospital at Chislehurst.



*"Whatever Miss T. eats
turns into Miss T."*

Once we are weaned we never encounter real catering efficiency again. The maternal breast, maintaining a constant supply of perfectly balanced food under sterile conditions, and delivering it direct to the consumer, can't be beaten. In a foggy way we eat our way through life, but with very little idea of what we are about—less, indeed, than the animals, who seem much better informed than we are about what to eat and what to leave alone.

Nevertheless, the study of nutrition, though still young, is always reporting news, not only about foodstuffs and their fate in the body, but also about the fate of the body under the impact of its food. Still, we don't know much as yet. We can't even settle the question

Sorry! there just isn't room here for the end of this amusing, yet strictly informative essay. But you can read it all—along with a stimulating half-dozen others—in "The Prosings of Podalirius", a medical series which appeared originally in The Times. Like to have a copy? Then send us a post-card (address below).

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1955

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D. J. Tooby

J. Townsend

2ND M.B. EXAMINATION

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Farren, P.
Johnson, P. A.
Norris, P. L.
Stephenson, C. G.
Tooby, D. J.
White, S. J.

Bench, J. T.
Dimock, J.
Farrow, L. J.
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Rowlands, D. F.
Tabor, A. S.
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April 1955

Pathology

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Greenwood, R. A.

Medicine

Dinkel, P. A.
Burgess, E. H.
Cairns, D. A. O.

Surgery

Burgess, E. H.
Farrar, J. F.

Midwifery

Dinkel, P. A.
Burgess, E. H.
Cairns, D. A. O.
Grant, B. G. H.

The following have completed the examination for the Diplomas
M.R.C.S., L.R.C.P.

Dinkel, P. A.
Cairns, D. A. O.

Rycroft, P. V.

Rycroft, P. V.
Kirk, A. G.
Irwin, M. H. K.

Cairns, D. A. O.

Nerney, J. M.
Kirk, A. G.
Irwin, M. H. K.
Luscombe, A. H.

Burgess, E. H.
Grant, B. G. H.

SOCIETY OF APOTHECARIES

FINAL EXAMINATION

April 1955

Surgery

Mellish-Oxley, K. G.

Mr. Mellish-Oxley has completed the examination for the Diplomas M.R.C.S., L.R.C.P.

Births

DIXEY.—On April 2, to Susan and Dr. Roger Dixey, a third son.

JUBY.—On March 23, to Elizabeth, wife of Bernard Juby, F.R.C.S., a sister for Jonathan and Jane.

Engagement

The engagement is announced between Dr. J. B. Carver and Miss D. E. Ash.

Marriage

SIEGLER—FREEDER.—On April 17, Joseph (Gerald) Siegler, F.R.C.S., to Miss Brenda Freeder.

Deaths

BELLWOOD.—On April 17, Dr. Kenneth Benson Bellwood, aged 64. Qual. 1914.

HILL.—On April 18, Surgeon-Captain Horace Bryden Hill, R.N. Qual. 1904.

KILGOUR.—On April 25, Dr. William Robert Kilgour, aged 71. Qual. 1906.

MORLAND.—On April 26, Dr. Egbert Coleby Morland, aged 80. Qual. 1898.

SANKEY.—On April 6, Dr. R. H. Sankey, aged 81. Qual. 1902.

SEALY.—On March 27, in Tasmania, Lieut-Col. Geoffrey Orr Fern Sealy, aged 81. Qual. 1896.

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At a meeting of the court of the Barber's Company, held at Tallow Chandler's Hall on April 5, Sir Cecil Wakely, the Master admitted Sir James Paterson Ross as an honorary freeman.

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Dr. GEOFFREY BOURNE has been elected an Honorary Fellow of the American College of Chest Physicians.

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ST. BARTHOLOMEW'S HOSPITAL JOURNAL

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No. 7

EDITORIAL

"Here each individual is interested not only in his own affairs but in the affairs of the state as well: even those who are mostly occupied with their own business are extremely well-informed on general politics — this is a peculiarity of ours: we do not say that a man who takes no interest in politics is a man who minds his own business; we say that he has no business here at all."

Pericles' Funeral Oration, Thucydides.

ST. BARTHOLOMEW'S HOSPITAL has many associations with the political life of England; some are due to its long history and situation in London, whilst others are through its members and benefactors. Its very foundation stems from the political influence Rahere enjoyed at the Court of Henry I.

Life for those living or working in the Hospital during the early centuries of its existence can have been anything but dull. On Saturday, June the 15th, 1381, they witnessed one of the great scenes of English history: the crushing of the peasant's revolt. According to the Chronicle of St. Mary at York, King Richard II and his followers were grouped on the East side of Smithfield, while Wat Tyler and the rebels were arrayed on the West and North. The blow struck by Walworth the Mayor must have caused the onlooking Sisters and Brethren to catch their breath. Tyler was carried into the Hospital, but was given little time to recover; for shortly after the Mayor entered and ordered him to be brought into Smithfield, where he was beheaded. This was summary justice, though probably no more than Tyler's due, since the mob had beheaded on the preceding Wednesday, a person no less than the Archbishop of Canterbury.

Two hundred years later the successors of these Brethren were to hear the crackling of

the flames which enveloped the Smithfield Martyrs.

The strange affair of the Russian doctors calls to mind our own Dr. Rodrigo Lopez, physician to Queen Elizabeth I and first resident physician to the Hospital. Accused with some other Portuguese of attempting to poison his royal patient, he was found guilty and confined in the Tower. "A very goodly jewel," said to have been part payment for this unethical task, was discovered in his baggage. We shall probably never be certain of his guilt, for this damning piece of circumstantial evidence may quite well have been planted by his enemies. He ended his days at Tyburn, hung, drawn and quartered. The evidence against the Russian doctors must have been less conclusive for they still survive. Like Lopez, they had to endure the abuse of the ill-informed masses. In Tudor and Stewart times the Brethren's hospitality was not restricted only to the sick. The Governor of Dunkirk was held within the precincts as a political prisoner. And Colonel Pride, who purged the House at Cromwell's command, also lived at the Hospital.

During the succeeding centuries the Hospital has maintained its connection with political life, largely through the activities of its members. The late Lord Addison is a

notable recent example of a Bart's doctor-politician. The Hospital still continues to provide physicians and surgeons to Kings and Queens but, fortunately or otherwise, royal preferment is less easily obtained than it was in Rahere's day.

St. Bartholomew's is, of course, not the only British hospital with interesting political associations, nor are Bart's men the sole representatives of the profession in politics. But, as space is limited, the part must serve for the whole. In foreign countries, too, medical men have shown that they can become formidable politicians. J. P. Marat, a leader of the French revolution; Sun Yat Sen, founder of the Chinese Republic; and "Tiger" Clemenceau, famous orator and Prime Minister of France; all started their careers as doctors. These men forsook medicine completely, and were not "mostly occupied with their own business." Though both Lord Addison and Marat achieved considerable success with their medical work.

The New Hospital Block

At last with Ministerial blessing the Little Britain site has been cleared for action. Work on the foundations should begin within the month. The first building to be erected is L-shaped and adjoins the cloisters of St. Bartholomew's-the-Great. It will accommodate the special departments in four wards, each containing thirty beds. The cost is estimated at £400,000 and it will take two and a half years to complete. Eventually, a tunnel passing under Little Britain will connect the new block with the main Hospital buildings.

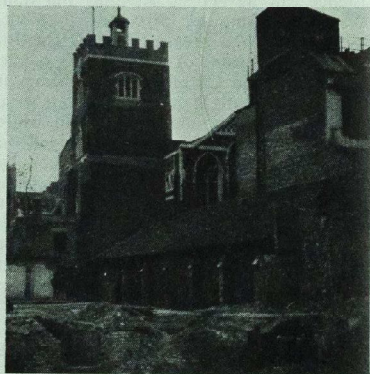
Meantime the archaeologists under the direction of Mr. W. F. Grimes, director of the London Museum, have been exploring the site. Two diggings have been made and parts of the Old Priory brought to light. Mr. Grimes tells us that the site is disturbed, i.e., disorganised by the foundations of more recent buildings, so that investigations are difficult. We gather that the authorities are apprehensive lest a Mithras Temple or similar sensational archaeological find should turn up during the excavations, as this would delay the building more than somewhat. But it is unlikely that Roman remains will be unearthed, for the site is outside the City wall. Nevertheless we intend to watch the

Thousands of years have passed since Pericles described that First Democracy, and political decisions can no longer be taken in the market place. A complex system of government with proportional representation has removed the burden of political responsibility from the ordinary man; and, oddly enough, the more specialized a person's rôle in society, the more likely is this to be the case.

Many members of the medical profession hold the firm opinion that because they serve humanity, they are relieved of all obligation to take part in its guidance. Is the general situation at home and abroad so well ordered that a large body of men, whose knowledge of people and their needs is unsurpassed, can afford to take no active interest in politics? It has taken the atom bomb to make the physicists aware of their responsibilities. Perhaps the National Health Scheme with its attendant political negotiations will perform the same office for medical men in this country.

work on the foundations with a clinician's eye. Was not the Pathology Department, appropriately enough, built on a Roman cemetery?

We hope to publish an article on the building by Mr. Guttridge of Adams, Holden and Pearson, the architects, in a future issue.



Site of the new building
A view of St. Bartholomew's-the-Great, showing the cloisters and exploratory ditches.

View Day

Glorious sunshine banished the showers of the preceding day, and in the afternoon the Square filled with summer dresses, laughter and reminiscences. We were there too; wearing, as Dr. Strauss remarked, new personae for the occasion. The pageantry was less than in former years: for morning dress was, by decree, no longer *de rigueur*, whilst the red geraniums, due possible to the vicissitudes of the weather, seemed sparse and sickly. Though the yellow tulips in Sister Tutor's window-box did their best to make amends. Any who doubt the splendour of massed geraniums against mellowed stone should go to Oxford and see Peckwater Quad. And *they* have neither fountain nor trees.

The procession of Head Porter, Treasurer, Clerks, Matron, Steward, and Governors, moved from block to block on their journey round the wards. And in each ward the same timeless questions: "Dr. —, are you satisfied with the conduct and nursing of your ward?"

"Matron, are you satisfied . . . ?"

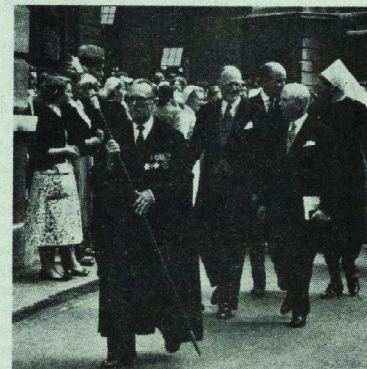
"Sister, are you satisfied . . . ?"

Meanwhile everyone thronged to the side-shows: the Hospital departments open to view, some with elaborate exhibitions. Even the most knowledgeable visitor or blasé student could find something of interest. The collection of Hospital Seals in the Great Hall; the anatomical drawings displayed in the Library; to learn anatomy with such artistry open before one would convert drudgery to pleasure. Upstairs, the Pathological Museum can always be relied on to draw the crowd. Its gruesome contents exert a fascination, which cannot be matched by the fluttering of cards in Hollerith machines, or the tasting of saltless bread. Surprisingly, the majority of the visitors here were nurses—"I'm *sure* they took that out of the man in bed fifteen."

This year, however, the prize exhibit was to be found in the Charterhouse preclinical school. The apple of Professor Rotblat's eye, the newly-christened Linear Accelerator. Golden-tongued experts declaimed the merits of this electronic marvel, tastefully decorated for the most part in cream and blue enamel. Anyone who looked at all bemused with the flashing lights, or the intricate confusion of wave-guide and wires, was seized by the indefatigable Professor,

whose ability to make the complicated appear simple is surely miraculous.

Back in the Hospital the visitors were beginning to depart. The wards had been open, and the Sisters praised for their decorative skill and for the delicious teas, so lavishly provided. But, as we left, it was our impression that the patients were still slightly puzzled about the meaning of it all.



View Day Procession
The Head Porter, Clerk to the Governors, Treasurer; and behind, the Assistant Clerk and Matron.

Sir Henry Dale, O.M., G.B.E.

The congratulations of all Bart's men go to Sir Henry Hallet Dale on the occasion of his eightieth birthday.

Sir Henry qualified at Bart's in 1903, having previously studied at Cambridge, and devoted his career to research. Four of the many contributions he has made to scientific knowledge are outstanding: the discovery of the oxytocic effect of posterior pituitary extracts, the demonstration of histamine's rôle in the phenomenon of anaphylaxis, the recognition of acetylcholine as a chemical transmitter of nervous impulses, and his work on biological standardization. Perhaps more important still has been his influence on the research of his contemporaries in his capacities as Director of the National Institute for Medical Research and President of the Royal Society. Sir Henry numbers the Nobel Laureate and the Order of Merit among the honours that have been bestowed upon him.

The Abernethian Society

An expedition from the University of the West Indies to the Columbian Andes was the subject of a talk given to the Society on June 2 by Dr. Bunjé. He developed his theme round a series of magnificent colour photographs taken by himself. We hope to publish an abridged account in a later number, without, alas, colour blocks. The April *Journal* though pleasing artistically, was otherwise most ruinous.

Before the audience dispersed a curious event took place: the elections of the Abernethian Society. We congratulate Mr. Whitehouse on being elected President, and Messrs. Buchanan and Marsden on becoming Secretary and Treasurer. Having paid our respects to these gentlemen we cannot forbear from making some comment on the elections and on the general state of the Society. Nepotism is a word guaranteed to raise the systolic pressure; but it surely is no coincidence that of the seven members elected to office five should come from one of the more ancient Universities: a proportion which is at gross variance with that in the student body as a whole. The two brave souls who were coerced, so the President informed those present, into opposing the official nominees received one vote apiece. The Duke of Newcastle himself couldn't have managed better.

We asked the retiring President to comment on the absence of preclinical nominations. "Well, we have a Charterhouse representative, but as so few preclinicals attend . . ." A Charterhouse representative. The phrase is pathognomic of the widening rift between the Hospital and the preclinical school. We feel that some effort should be made to reduce this gap and that it is for the Abernethian Society to show the way.

The Society has a fine tradition reaching back over a hundred and fifty years. Yet in recent times it has shown all the signs of being mortally sick. It has looked on benignly while necessity created rivals, such as the Junior Osler, the Physiological, and the Natural History; and remained inactive when these usurped those of its members who prefer to read their own papers, to discuss, and to recount their own field work. The Abernethian Society as it is today would give no opportunity to a Paget. He would be forced to found a society of parasitologists in order to tell of his dissecting room discoveries. The committee will no doubt

set up the weak cry: what about our Clinical Evenings? Well, what about them? Like View Day, they come but once a year.

We find it difficult to believe that the Society cannot make some attempt to regain its former prestige. And if the new committee fails in this task, there is perhaps some preclinical *Odysseus* who will shake off his lethargy, return, and put the house in order.



"What have you there my pretty maid?"*

Members of Parliament

Those students who were drenched to the skin whilst waiting in Trafalgar Square on Election Night, will be pleased to learn that of the eleven doctors elected to the New Parliament two are Bart's men: Mr. J. D. Cronin and Dr. D. McI. Johnson.

Mr. Cronin qualified in 1939. After the war he specialized in surgery, becoming orthopaedic surgeon to the French Hospital. And in 1952 he was elected a member of the L.C.C. He won the Loughborough constituency for the Socialists by a substantial majority of 4,263.

Dr. Johnson qualified in 1926 and went into general practice. After the war he gave up his practice and started a publishing firm.

* Drs. Spence and Bodley Scott as seen by our Candid Camera on View Day.

In addition to being a doctor, he is a Barrister-at-Law and sits on the Sutton and Cheam Borough Council. He won Carlisle for the Conservatives by the uncomfortably small margin of 370 votes.

We congratulate them both and look forward to reading of their exchanges set down in the pages of *Hansard*.

View Day Ball

One of the best things the Coronation did for Bart's was to transform the old Students' Union Dance into the View Day Ball. The Princess was changed into a Queen. The Bart's Ball, as it is now rightly known, has continued ever since as one of the most popular of the all too rare highlights of the Hospital year. Description fails. If you missed it this year you must come next. It was in 1953 that the Ball was first made a Hospital rather than a College occasion. But if we lacked anything on that glorious May night it was more Lay and Senior Staff.

Oxford-Bart's Club

The Oxford-Bart's Club are holding their Annual Sherry Party in the Hospital Library on the evening of Tuesday, the 12th of July. Anyone eligible who has not received an invitation should write to the Hon. Secretary, the Abernethian Room, St. Bartholomew's Hospital.

Art Exhibition

We invite Bart's men past and present, and those in any way connected with the Hospital, who have artistic talent, to prepare for this exhibition, which will be held sometime in October. The organizing committee tell us that any art form is welcome. So, whether you put brush to paper, chisel to stone, hand to potter's wheel, or simply pour paint on to canvas and tread it in with your feet, we hope you will support the exhibition. Details of time and place will be published later.

The Journal

Mr. A. Salsbury has resigned from the post of Editor. We congratulate him on his recent marriage.

The Assistant Editor, Mr. G. R. Kinross Wright, has been elected Editor in his place.

Miss Ann Mary McDonald is the new Charterhouse representative on the Publication Committee.

HARWELL

ON ARRIVAL at the Atomic Energy Establishment, all members of the expedition were presented with large red discs stating that we were VISITORS, and were therefore to be faithfully attended throughout. After lunch, in a large room where the concentrated brainpower of the assembled staff had to be felt to be believed, the party was escorted to the Medical Research Council Block. Among other things here, the effects of chronic irradiation on groups of mice were demonstrated: the main finding is a decrease, the aetiology of which is as yet unexplained, in their life span, as compared with that of control groups. There is no significant increase of tumour production, and the pathology is largely that of premature degeneration of all tissues. However, in another department of this block, mice which had developed tumours subsequent to irradiation were shown; and the point was made by Dr. Mole that it is now established that degenerative changes in the reproductive system occur before there is any appreciable degree of leucopenia. In Dr. Mole's classic phrase: "Most people wear their radiation film monitor over their hearts; I keep mine in my trouser pocket."

The party was then guided to the basement, the new home of a genetic research unit from Edinburgh. Here, enclosed monastically in feet-thick walls of concrete, experiments are carried out with radioactive Cobalt on mice. The Cobalt itself is sunk in a well in the floor, and is raised by remote control on a Heath Robinson series of wires and pulleys. A sudden inconsequential roar of machinery caused some of the more fearful visitors to look furtively round for the Emergency Exit, but we were assured—that in the unlikely event of the thing suddenly rearing up from the depths, the dose we would receive would be so small as to be harmless.

Tea and Geiger-counters came together, the latter in many forms varying from a huge machine, which looked as if it should bear the legend "I Speak your Atomic Weight," to a small vacuum-cleaner type, pleasingly designed and handy for the home of the future.

The climax was the visit to the pile, B.E.P.O., a charming childlike name which sits uneasily upon the Moloch it describes. The building which houses the pile is a vast

aircraft hangar, and in the middle of it squats B.E.P.O., a huge square mass of concrete walls and radioactive middle, honey-combed with slots for graphlite trays carrying, in the main, uranium. The power needed to feed, and the air to cool, this monster is of the astronomical order at which the imagination boggles and is left at the post. Perhaps it would help the gentle reader to be told that three similar constructions in America use as much power as the whole of the United Kingdom! The workings of the pile were described competently by a young physicist, who clearly is on friendly terms with it; and amplified by Professor Rotblat.

Passing in some trepidation a sign which said "Danger—Neutron Beam," but omitted to say where the Beam was, the party ended up in the Isotope Department. Here there is a closely protected store of radioactive Cobalt housed in a sort of solid shed known locally as Lenin's Tomb. It is used currently for experiments on carrots, onions and potatoes; the suggestion that the mass production of fission chips should be started met with the reception it deserved. A ball of uranium, the size of a coconut, or for those who prefer more surgical descriptions, about 5 inches in diameter, was lying on a table: the idle suggestion by the resident expert that we should attempt to pick it up, nearly precipitated multiple ruptures amongst those present, without any perceptible movement of the ball. This, which to one simple mind was almost the most impressive thing seen at Harwell, was also the last. Closing time had arrived, and, with the courtesy and efficiency which had been so evident all day, we were shepherded beyond the steel and wire confines to the outside world again.

The thanks of the Abernethian Society are most warmly extended to Professor Rotblat, for all his help in proposing, organizing and accompanying the tour.

MISS N. COLTART.

Royal College of Physicians

PROFESSOR H. V. MORGAN and PROFESSOR IVAN DE BURGH DALY, F.R.S., have been elected Fellows.

INTRODUCING THE FAMILY DOCTOR

On April 7, Dr. Ronald Gibson, of Winchester, gave a lecture under this title to final year students. The dominant feeling of the student after qualification, he said, should be "I am a doctor—how exciting," and from the first he should strive to become an honorary and ex-officio member of each patient's family. No one could hope to be a good family doctor without certain attributes, particularly compassion, sympathy and understanding. "It is easy to be 'shot of' patients if you feel like that, by sending them into hospital. The right way, however, is to keep them at home and treat them there with the help of District Nurse and Home Help, Midwife and Health Visitor, Ambulance Car Service and X-Ray department, Consultant and Specialist (in domiciliary consultation), Pathologist and Medical Officer of Health, the appropriate Priest and, often forgotten but always valuable, the doctor's own partners. You know the patient first and the disease afterwards. Your expert colleague knows only the disease. Therefore let him know what sort of patient he is to see." If he had to go into hospital, it took very little time to pop in and see him there, and you could explain so many hospital mysteries in the language that you and he had learned to talk together.

There were two absolute essentials: the patient should be thoroughly examined, and the notes should be efficiently compiled. "Never tower above children, get your head down to their level somehow, look at the tonsils last, and let Nurse give the injections." Neurotics, he said, were often charming people, sensitive and generous and as they talked more than most patients, it was advisable that they should say the right things about you. You should never consign patients, like rubbish, to dustbins labelled "Old Age" or "Neurosis" or "The Menopause." It was too easy to put the lids on and leave the contents to rot. Something could always be done to help them. The stress and strain patients were nearly all women. "If you tell a male patient to go to bed, he will thankfully retire for as long as he can persuade you to let him stay there.

A similar instruction to his wife will require at least a week's notice before she can so arrange her duties that she can take herself off to bed, without the family starving or going unwashed from start to finish of her illness. And if you try to keep her in bed too long you will find that she has timed your visit to a nicety, so that she is in bed for a maximum of ten minutes before you arrive and thirty seconds after the car has been driven away."

Finally, there would always be with you the Anxiety States, the Melancholics, the Depressives, the *Staphylococcus aureus* (penicillin resistant, of course) and the haemolytic streptococcus; and, casting a shadow over everything, carcinoma.

The next lecture in this series will be by Dr. L. W. Batten, of Hampstead, probably some time in October.

FRENCH BAYONETS

by PENRY ROWLAND

TO MATTHEW WARD was admitted an emaciated man suffering from an oesophageal stricture. He was depressed — with reason. After settling down for a couple of days, he talked freely and dramatically of the origin of his trouble.

He was by profession a sword swallower and had a European reputation. The troupe to which he belonged had a date in Paris and received their usual warm welcome. His turn was the high spot of the Show and was very impressively announced by the *compère*, who insisted that unless absolute silence was observed throughout the performer would not appear. The clatter at the tables gradually subsided and at a signal the big drum of the orchestra was struck twice with dramatic effect and utter silence reigned.

From between the great curtains, the little man walked to the centre of the stage, bowed, and took up a careful and definite stance with his head thrown far back, picked up a bayonet from a little table and slid it gently and slowly down his gullet. Then without

turning his head he picked up a second and a third—and a fourth! Then an assistant at a sign handed him one after another and at last 9 or 10 were in place. The great crowd, holding their breath and gazing, were entranced.

Suddenly a man near the front shouted out: "It is false. It is false." He rushed up to the platform, on to the stage and reaching the performer grasped the bayonets in both hands and dragged them forcibly out.

Picture the scene! The performer unable to move even his head made no resistance and fell to the ground bleeding profusely. Pandemonium broke out, and the horrified blunderer disappeared under a crowd of execrating Parisians, and presumably went to trial.

The wretched performer was in hospital for many weeks, but made a good recovery. He could, of course, never repeat his performance, but was accepted in the same troupe—as a Monkey Impersonator—and made a success of it, yet because of repeated sojourns in hospital, he lost his job. And just before entering Matthew he had pawned his Monkey suit with the valuable head for £20, and felt that it was the end of everything.

I told this story to my father—a minister, who went round and gathered the cash needed to rescue the suit, redeemed it and presented it at the bedside. Some tickets for a box at a famous Music Hall arrived a few days later.

God and the doctor we alike adore
But only when in danger, not before;
The danger o'er, both are alike required,
God is forgotten, and the Doctor slighted.

Epigrams: JOHN OWEN.

* * *

The Journal

Contributors are reminded that articles must reach the *Journal Desk* by the first of the month prior to that of intended publication. Writing should be on alternate lines, on one side of the paper, and must be legible. Double-spaced typescripts are looked upon with especial favour.

ANTOINE FRANÇOIS, COMTE DE FOURCROY (1755-1809)

CHEMIST AND REVOLUTIONARY

by W. R. BETT.

THOUGH he lived in the great period of French chemistry, Antoine François de Fourcroy in the bicentennial month of his birth is remembered not for any epoch-making discovery, but as a brilliant teacher who through the spoken and the written word popularised Lavoisier's doctrines. Inevitably his reputation has suffered by reason of his political activities and particularly through his alleged complicity in the execution of Lavoisier, on whose shoulders he had climbed to fame and success. Many of his actions in later life were apparently motivated by recollections of the miserable poverty that had been his lot in childhood, and of some of the slights which he had suffered.

Belonging to a poor branch of a noble family, Fourcroy was born on June 15, 1755, in Paris, where his father held a humble position as pharmacist to the Duke of Orleans. Possessing a remarkable memory and a love of poetry, the boy used to entertain his sisters by reciting entire scenes from plays and by his imitations of famous actors. His father's friend, the celebrated anatomist Félix Vicq d'Azyr, was instrumental in obtaining for him a medical scholarship. As a student Fourcroy lived in squalor. For a neighbour he had a water-carrier with twelve children, and his earliest attempts at medical treatment were practised on this family. In return, he knew that, though he might go short of other necessities, he was at least assured of a plentiful supply of water. When the Academy of Medicine refused to grant him as a protégé of Vicq d'Azyr the degree of docteur régent, Fourcroy took up the study of chemistry. His talents had been recognised by J. B. M. Bucquet, the professor of chemistry at the medical school, who gave him the run of his laboratory and on one occasion, when he was unable to lecture, asked him to take his place on the platform. Although quite unprepared, Fourcroy spoke for two hours

without hesitation, developing his theme in logical sequence. In 1784 he was appointed to the chair of chemistry at the Jardin du Roi in succession to P. J. Macquer. In view of subsequent events it is interesting to recall that he was highly recommended for this post by Lavoisier.

For more than twenty-five years Fourcroy taught chemistry to large numbers of students. His natural gifts for oratory were carefully cultivated, and he became one of the most popular lecturers of his time. All the tricks of oratory were his: he knew how to be eloquent in the grand manner, and he knew how to be lighthearted and witty, but he always held his audience with the magic of his voice, his lucidity, and the perfect logic of his presentation.

THE CHEMICAL QUARTET

Lavoisier took the promising young man under his wing and chose him as one of the famous quartet, in company with Claude Louis Berthollet and Guyton de Morveau, that was to devise a new and revolutionary nomenclature for chemistry. This was submitted to the French Academy in 1787. Fourcroy published more than fifty scientific papers in his own name, and a similar number in collaboration with L. N. Vauquelin. It is difficult to be sure today which of the latter were based on his original researches, for Vauquelin was the most modest and self-effacing of men, and there is reason to believe that Fourcroy received the credit for work which had actually been done by his assistant.

Fourcroy's book *Philosophie Chimique* (1792) was translated into most European languages. In his student-days he had supported himself by translating, and in 1777 he performed a useful task by rendering Ramazzini's classic work on occupational diseases from Latin into French under the title '*Essai sur les maladies des artisans*'.

His practical work included research on the chemistry of various animal substances, on urinary calculi, and on albumen in vegetables. He discovered magnesium phosphate and did much to strengthen the ties between chemistry and medicine. This took a practical form in his book '*L'Art de reconnaître et d'employer les médicaments dans les maladies qui attaquent le corps humain*' (1785).

THE REVOLUTIONARY

Fired by ambition and not devoid of personal spite and animosity, Fourcroy played a prominent part in the French Revolution. He was a member of the National Convention, and during the Reign of Terror his place on the Committee of Public Safety gave him considerable power. Yet he did nothing to prevent the closing of the French Academy and without a word of protest allowed his benefactor Lavoisier to go to the guillotine. His

conduct is all the more inexplicable, for he is known to have exerted himself to save other men of science from a like fate. That jealousy of Lavoisier's position at the head of French chemistry led Fourcroy to engineer his death seems incredible, and it is more likely that he honestly regarded the great scientist as a counter-revolutionary and an enemy of the people. Ironically, he was chosen to deliver the eulogy when the *Lycée des Arts* held a memorial service for the martyred Lavoisier in 1796.

In his last years Fourcroy was stripped of many of his offices. He had an apoplectic seizure on December 16, 1809—on the very day he was created a count of the French Empire—and died in the arms of his faithful assistant Vauquelin. His eulogy was pronounced by Baron Cuvier, who made it quite clear that he would not have paid tribute to a man whom he believed guilty of complicity in a plot against Lavoisier.

WHY I BAPTIZED MICHAEL SCOTT

by J. D. PARKER

I IMAGINE there are few Christian doctrines about which so many misconceptions exist as the teaching on baptism. On the one hand we have those who consider it a kind of social function, a conventional "naming" of the child, traditionally involving one of their rare visits to church. On the other extreme there is the case I read about in the *Daily Mirror* not long ago: a child had died early in infancy unbaptised, and an Anglican clergyman had informed the mother that the infant, having been cut off from God, would go to hell and presumably suffer the tortures of the damned. I doubt if these tidings greatly endeared the mother to the ministers of her neighbourhood.

Let us examine the position a little more fully. We first hear of baptism in the Scriptures when St. John was baptising by immersion in the River Jordan. John's baptism differed from that instituted by Christ in that the former was merely a

symbolic "cleansing," signifying repentance for sin, whereas Christ later elevated it to the dignity of a sacrament, that is to say a ritual bestowing supernatural grace, using the same form of baptism already familiar to the Jews.

The purposes of Christian baptism are as follows: *Salvation*. Baptism is necessary for salvation rather like the Ist. M.B. is necessary for a medical qualification. You can get no further without it, nor without baptism can any of the other sacraments be received validly. Christ used baptism to initiate members into His Church. In a nocturnal conversation with the Jewish ruler, Nicodemus, He said: "Except a man be born of water and of the Spirit, he cannot enter into the Kingdom of God." (John iii 5). The precise time of the institution of baptism as a sacrament by Christ is not known. Certainly by the time of the Pentecost the precept of receiving baptism became binding upon mankind and the ritual

has been performed since the Church's earliest days. *Remission of sin*, both original and actual. Original sin like congenital disease is sin traditionally inherited after the fall of Adam, though not specifically alluded to by Christ. And actual sin like acquired disease is sin committed by the person in question during his life. *It imparts supernatural grace to the soul.* This comes direct from God, sanctifying the soul and giving it strength to resist evil temptation. *It imprints a special character or seal on the soul and hence the sacrament cannot be repeated.*

There arises the question of the child who dies in infancy. If he has been baptised he goes straight to eternal bliss, since he is without original sin and has committed no actual sin to merit punishment. If he is unbaptised he cannot enter heaven, yet he has done nothing to deserve eternal torment. His soul is immortal whether baptised or not. What then is his fate?

The Church teaches that an innocent though unbaptised soul can never see God, but nevertheless spends eternity in a state of perfect natural happiness in Limbo. This comes from the Latin "Limbus" or fringe, a word used in the Middle Ages to denote the outskirts of hell where the just, who died before the coming of Christ, are painlessly detained until released by His Resurrection.

At first sight this may seem a somewhat cruel doctrine, all the harder to accept these days where social thinking tends to be expressed in terms of collectivism and the abolition of individual privileges. It is easier to comprehend if we realize that heaven is not included in any charter of human rights, but is a gift which God in His infinite goodness has made available to those worthy to receive it. If it is withheld from an unbaptised infant there is no injustice done, provided no suffering is inflicted upon the innocent soul. If the soul has never set eyes on God it cannot regret not being with Him, any more than an aborigine can miss the amenities of western civilization having never experienced them.

In its simplest form baptism consists of pouring or sprinkling water over the head of the child at the same time saying the words: "I baptize you in the name of the Father, the Son and the Holy Ghost." In church the ceremony is more complex and includes the anointing of the head and chest with chrism and oils to symbolize union with Christ. If the recipient is an adult he is required to

recite the creed and renounce evil. In the case of a child this is done through sponsors. Baptism on a sick bed is sometimes called Clinical Baptism, though this term refers more particularly to adults who did not receive the sacrament in their childhood.

The usual minister of baptism is a priest, but in case of necessity, e.g. when there is danger of the child dying unbaptised, anyone may administer the sacrament if a priest is not readily available. Tertullianus expressly states that baptism can be given by *all*. Even a Jew may baptize in an emergency if he intends to do what Christ ordained. This extreme licence demonstrates the importance with which baptism is regarded by the Church.

Michael Scott was admitted from Bart's District on November 28, 1954, at the tender age of one hour. A bifid spine was noticed at birth and since his mother did not wish to feed him there seemed no point in delaying his admission. On examination he looked fairly fit, but there was a large meningocoele in the sacral area and the skin overlying the tumour was bruised and erythematous. Pressure on the meningocoele produced no impulse at the anterior fontanelle. The circumference of the head was 13½ inches. The muscles of the lower limbs were paralysed and greatly hypertonic, and the knee and ankle jerks were accentuated indicating upper motor neurone involvement. There was no plantar response and the patient suffered from true incontinence.

Within ten days he had gained weight and cerebrospinal fluid had ceased to ooze from the sacral mass although it appeared larger. A surgical opinion was obtained but the lesion was deemed too extensive to warrant surgical intervention.

On December 23 the sulphonamides, which the baby had been having since the outset, were stopped and the pyrexia, which had persisted during the previous weeks, abated. By January 10 a purulent discharge was observed coming from the meningocoele and the child started to have intermittent fits. These were adequately controlled by a course of intramuscular paraldehyde which was commenced a few days later.

A week later the meningocoele seemed to have shrunk but the dreaded signs of early hydrocephalus were becoming manifest. The

Michael Scott is not the real name of the child.—Ed.

cranial circumference was now 15½ inches and the sutures were well separated. Ventricular puncture showed a hazy, colourless, clot-free fluid containing 400mg. per cent. protein, 33mg. per cent. sugar and 687 polymorphs per cu. mm. The baby's temperature was now starting to fall more rapidly. Within a few days the cranial circumference had increased to 16 inches.

By February 7 he was beginning to have periods of apnoea alternating with periods of increased respiration and it was evident that life's candle was reduced to a glimmer. The unlikelihood of his having been baptised was also evident in view of his early admission and the disinterest of his parents, and I began to wonder whether the responsibility for carrying out the dictum of Tertullian should not fall upon my shoulders. Let me hasten to mention here that there has never been any connection between baptism and "faith healing". Baptism is a purely spiritual therapy and remissions in "hopeless cases" are extremely rare if indeed they have ever occurred at all, whereas after Extreme Unction, a sacrament specifically ordained to comfort the dying, health is occasionally restored.

By February 14 the child's condition had greatly deteriorated. He was now taking very little food and was wasted and dehydrated. Clearly if he was to be baptised at all

it was no longer safe to postpone the matter further. He was by this time in a room by himself adjacent to the main ward. I used tap water and an ordinary dropping pipette and, dressed in white coat and mask in the clinical atmosphere of Lucas ward, administered the sacrament to the sleeping infant. The ceremony lasted I suppose five seconds. At least there was no more that could be done.

On the morning of March 1 he died. He had lived a little longer than was expected, but his temperature had dropped progressively to 90°F. in the preceding few days. Post mortem demonstrated the meningomyelocoele and disclosed a blockage in the fourth ventricle, which presumably gave rise to the hydrocephalus.

Science cannot prove that life after death exists, or if it is a reality what form it will take. Science can tell us much about ourselves and the world we live in. There comes a point, however, when science can take us no further, and that is when philosophy and faith are important. The medical profession taken as a whole is not renowned for its spiritual fervour, but it would be a pity if a scientific training were inevitably to carry in its wake a devotion only to materialistic dogmas. Let us hope that Michael Scott has reached that place of contentment to which even the most sceptical of us secretly aspire.

Births

TAYLOR.—On April 15, at Berega, Tanganyika, to Joan and Dr. Joseph Taylor, a daughter (Priscilla Helen).

BRADY.—On April 29, to Margaret and Dr. Thomas Brady, a son (Patrick John).

SLACK.—On April 29, to Joan and Dr. W. W. Slack, a son.

Engagements

SHERE—GARRAD. The engagement is announced between Dr. Stanley Shere and Dr. Frances Elizabeth Garrad.

POYNTZ-WRIGHT—POLITZER. The engagement is announced between Mr. Richard Poyntz-Wright and Miss Caroline Politzer.

Deaths

BATT.—On May 22, Dr. John Dorrington Batt, M.C., Qual. 1914.

BELLWOOD.—On April 17th, Dr. Kenneth Benson Bellwood, O.B.E., aged 64, Qual. 1917.

GRIFFITHS.—On May 8, Cornelius Albert Griffiths, F.R.C.S., aged 90. Qual. 1889.

GURNEY.—On May 25, Dr. Alexander Cecil Gurney. Qual. 1894.

MOLESWORTH.—On April 10, Theodore Henderson Molesworth, M.B., F.R.C.S., aged 82. Qual. 1898.

Change of Address

Dr. C. R. HART to Goldthorns, Yaxley, Peterborough.

THE LINEAR ACCELERATOR AT BART'S

by PROFESSOR J. ROTBLAT

ON APRIL 27, H.R.H. the Duke of Gloucester formally inaugurated the linear accelerator recently installed in Charterhouse Square. The ceremony, which was attended by many of the Governors, senior Hospital and College staff and outside guests, marks the beginning of a programme of research unique of its kind in a hospital, and which puts Bart's again in the forefront of radiotherapy.

X-Rays have been used for the treatment of tumours ever since their discovery in 1895. Throughout that period there has been a notable tendency to use more and more penetrating radiations, as these make it possible to irradiate deep-seated tumours without too much damage to superficial tissue. The standard radiotherapy equipment used nowadays in hospitals is based on an X-ray tube working at 250,000 volts. In 1936 Bart's was the first hospital in Europe to enter the "super-voltage" field by installing the one million volt X-ray machine in the Sassoon Department. This machine, which probably has the longest uninterrupted period of service of any X-ray equipment, is still in operation and up to date has been used for the treatment of over 3,000 patients.

Bart's example was later followed by some other large hospitals who also acquired super-voltage machines. This trend became particularly marked in the post-war period when, thanks to the remarkable achievements in nuclear physics, several new devices to produce X-rays of a very high energy have been developed. Among these devices the linear accelerator was found to have many advantages which made it particularly suited for radiotherapy work: the most important advantage is the combination of a high energy with a high intensity of the X-rays. Several such accelerators, producing X-rays of an energy of four million volts, were ordered by the Ministry of Health and are now being installed in hospitals in Great Britain. One accelerator, working at eight million volts, is at the Medical Research Council Unit at Hammersmith Hospital. The machine at

Bart's, which can produce X-rays up to an energy of 16 million volts, is so far the most powerful of its kind to be installed in a hospital.

Principle and Operation of the Accelerator.

The linear accelerator is, in principle, a device to accelerate electrons so that they acquire a very high kinetic energy. As the name implies, the electrons are accelerated along a straight line. Although at the end of their run the electrons have the same energy as they would have had after passing through a potential difference of up to 16 million volts, no such high voltages are employed; in fact, the highest potential used is only 50,000 volts. The acceleration is achieved by means of a radio-wave which is made to travel along a 20 ft. long tube, the so-called waveguide, which is the heart of the machine. The velocity with which the waves travel can be varied by means of corrugations, or diaphragms, placed at intervals inside the waveguide. The diaphragms are so arranged that the velocity of the radio-wave is steadily increasing as it travels along the tube. The electrons are produced in the "gun," in a similar way as in an ordinary X-ray tube or radio valve, by heating a tungsten filament to a high temperature. The 50,000 volts applied to the gun accelerate the electrons to a velocity of about two-fifths of the velocity of light. The radio-wave in the guide, near the gun end, is made to travel with the same velocity, so that the electrons entering the guide are carried by the wave and ride on it, in much the same way as a surf rider is carried by an ocean wave. The increasing speed of the wave causes the electrons to move faster, and by the time they reach the other end of the tube, which takes only about one forty millionth of a second, the electron velocity is 99.95 per cent. of the velocity of light.

The radio waves are generated in a magnetron, a special high-powered valve which produces waves of a frequency of 3,000

megacycles per second. The waves are generated not continuously but intermittently, in pulses of very short duration; these pulses can be repeated at any desired frequency, from 10 to 500 per second. Although the mean power consumption of the radio-frequency system is quite low, about five kilowatts, the power in the pulse is very high, about 2,000 kilowatts, and over 40 per cent. of this can be delivered to the electron beam. The linear accelerator is thus the most efficient of all accelerating machines.

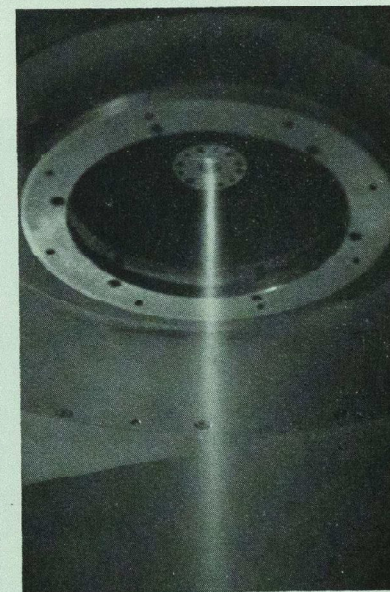
The accelerator can be operated from either of two positions: the Physicist's Control Desk or the Radiographer's Control Desk. The former contains a number of measuring instruments as well as a cathode ray oscilloscope by means of which one can check at a glance the working of any part of the machine. This desk is intended to be used only for starting up the accelerator and for the initial tuning. For routine operation the Radiographer's Control Desk is employed. This is situated at a greater distance from the machine and contains only those controls which are necessary for normal running of the accelerator.

Production of X-rays.

If the beam of electrons is made to strike a disc of a heavy metal, e.g. gold or platinum, X-rays are produced, which at this high energy are emitted mainly in the same direction as the electron beam. The electrons travel in the accelerator in a horizontal direction. For therapy purposes, however, it is desirable to direct the radiations at the lesion from different angles. To make this possible, as well as to provide other facilities required for treatment, an extra piece of equipment, the X-ray head, is attached to the end of the accelerator. The head contains a magnet by means of which the electron beam emerging from the waveguide can be bent through 90 degrees. In addition, the whole head can be rotated through an arc of 140 degrees, so that the radiations can emerge in any direction from 20 degrees on one side of the downward vertical to an angle of 30 degrees above the horizontal. For experimental purposes the electron beam can also be made to emerge in the straight through direction, without being bent by the magnet.

The X-ray head also contains various ionization chambers and other devices to measure the intensity of the electrons and of

the X-rays. Some of these devices are so arranged that they control automatically the energy of the emerging radiations and ensure that the X-ray beam maintains its direction. The size of the emerging X-ray beam can be varied by means of motor driven lead diaphragms; the aperture of the beam is rectangular, and at a distance of one metre it can be varied from zero to an area of 20 x 28 cm.



The beam of electrons emerging from the accelerator.

The X-ray output depends on the pulse repetition frequency employed and on the energy of the electrons; the latter can be controlled to some extent by varying the current from the gun. The graph of *fig. 1* gives the X-ray output, at a pulse repetition frequency of 500 per second, for various energies of the electrons. It is seen that at an energy of 14 million volt the output is 3,300 roentgens per minute at one metre distance. This is at least 10 times greater than the output available from any other radiotherapy set. At higher energies the output goes down, but even at 16 million

volts the output is still very high, about 1,100 roentgens per minute. Thus, although the machine is officially called the "15 million volt" linear accelerator, which was the figure originally aimed at, it can produce X-rays of higher energies.

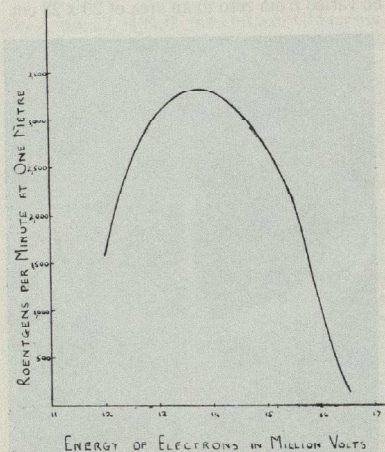


Fig. 1.—X-ray output as a function of electron energy.

New Techniques in Radiotherapy.

In addition to the generation of an intense beam of high energy X rays, which will be used for the treatment of cancer in the conventional way, the linear accelerator provides the possibility of developing two new techniques in radiotherapy. One is electron therapy, in which the electrons themselves are brought out from the machine and used to irradiate the tumour. Electrons of an energy of 15 million volts can penetrate to a depth of 3 inches in tissue, and there are definite advantages in using such electrons, chiefly due to their finite range of penetration which ensures that the irradiated volume can be much better defined. The other possibility is neutron therapy. The bombardment

of uranium with electrons gives rise to a copious emission of fast neutrons. The effects due to the passage of neutrons through tissue are in many ways unlike those caused by X-rays, and the results of neutron therapy may therefore be quite different. In addition, it is easy to slow down the fast neutrons to the velocity of thermal agitation, and it is known that in certain cases it is possible to localize the therapeutic action of such slow neutrons in definite regions of the body.

In order to be able to select the different types of radiation which can be generated, the X-ray head contains a target holder which can be put in any one of three positions. In the first, there is no target, and the electrons emerge directly into the air. In the second, they are made to strike a platinum disc, resulting in the production of an X-ray beam. In the third they strike a uranium cylinder and the X-rays produced give rise to the emission of fast neutrons.

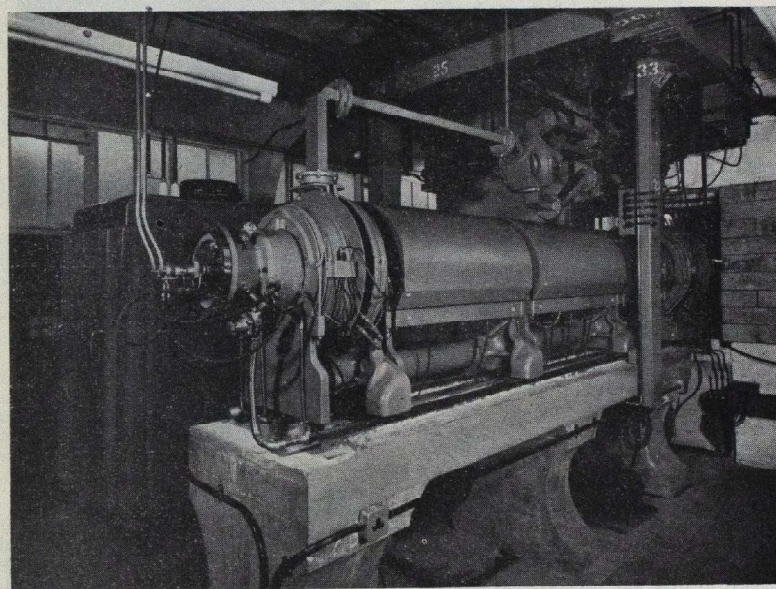
Research in Radiobiology.

Apart, however, from the development of the various radiotherapy techniques, it is intended to use the linear accelerator mainly as a tool for fundamental research into the action of radiations on living tissue. This is of particular importance at a time when the release of radiations, either in war or in peace, may influence the future of mankind, and when it is therefore essential to have a full knowledge of the effects produced by radiation in the living organism. As yet little is known about the detailed mechanism of the destruction of cells by the passage of ionizing radiations. The linear accelerator lends itself particularly well to such investigations, mainly due to the pulsed character of the radiations it generates, and to its capability of delivering momentary doses of radiation at an exceedingly high rate.

The electrons are emitted in a series of short bursts, each lasting about a millionth of a second; when tuned to optimum output, each pulse contains about 400,000 million electrons. Since the whole of the emerging electron beam is contained in a circle of 1 cm. diameter, it follows that one pulse of electrons can deliver a dose of over 15,000 roentgens. This corresponds to a dose rate in the pulse of 700,000 million roentgens per minute, or, at a repetition rate of 500 pulses per second, to a mean dose rate of 500 million roentgens per minute.

These features open the possibility of studying effects caused by radiation within a very short time interval after it has been delivered, since even one pulse of radiation is sufficient to produce an observable effect. In addition to the study of the kinetics of various reactions produced by radiations, the speed at which the various secondary processes occur, and the effects resulting from the application of greatly increased dose rates, lend themselves to investigation. Apart from providing a better understanding about the way in which radiations affect living tissue, such studies may also lead to new

gives rise to the formation of free radicals. In the living organism these radicals may be responsible for the various chemical reactions which ultimately lead to the destruction of the cell. The life-time of the free radicals in tissue is so short that it has been impossible to study them in detail so far. It is hoped to measure the life-time of these radicals by means of their absorption spectra. For this purpose pulsed light sources have been developed which give intense flashes of light of about one microsecond duration. These flashes are synchronized with the pulse of radiation so as to obtain a series of absorp-



The first three sections of the linear accelerator showing the gun, the rectangular waveguide, the magnetron and the modulator.

ways of protection from radiation, as well as to improved methods of radiotherapy.

One of the first experiments to be carried out in radiobiological research is an attempt to identify the short-lived chemical products formed as a result of irradiation. It is known that the passage of radiation through a liquid

spectra at various intervals after the irradiation. In order to analyse the spectra, a high speed rotating mirror with frictionless bearings has been built.

In another series of experiments, in collaboration with Professor Wormall, the effects of radiations on tissue enzymes and on serum

complement are being studied with the aim of determining whether any inactivation of them is caused by the action of the radicals. The relationship between dose rate and the biological effect on the living cell is to be studied by the use of the tissue culture technique in collaboration with the Strangeways Research Laboratory at Cambridge.

In order to carry out these investigations a number of new facilities were required and the accelerator has been correspondingly modified.

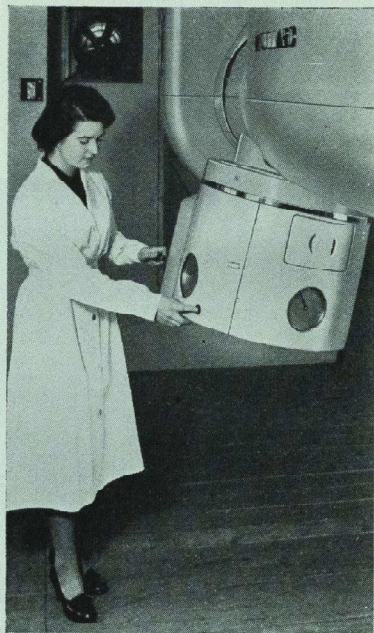
The very high output of radiations means that for many experiments the time of exposure would be very short; in fact, too short to be controlled by a mechanical device such as a clock. For this reason, a new method of terminating exposures has been devised, in which the number of pulses to be delivered can be preset. A special electronic device was designed and built in the Physics Laboratory, by means of which the exposure is terminated after any predetermined number of pulses, from 1 to 9,999. For many radiobiological experiments single pulse exposures will be employed and a separate facility for this is provided.

To avoid possible variations of intensity in the individual pulses, which may occur when the radio waves are switched on, the accelerator has been modified to include a deflecting device near the gun end. By means of this device the electron beam is deflected and prevented from passing along the accelerator until stable conditions have been attained.

Housing of Accelerator.

In order to complete the basic studies on radiation effects and on new radiotherapy techniques in the shortest time, it was decided to devote the next few years entirely to research work. During this period it is not intended to treat any patients, and for this reason the linear accelerator has been installed in a temporary building in Charterhouse Square adjacent to the Physics Tower. The site of the building is a pit, which during the war served as an Emergency Water Supply, and the machine is situated below ground level. This ensures a certain measure of protection from the radiations, but the main protection comes from the thick walls of concrete which surround the X-ray head. A detailed survey has shown that in the control rooms as well as in the neighbouring

buildings the level of radiations due to the accelerator is well within the safety limit. The control circuit contains a number of safety devices which would automatically stop the operation of the machine should anybody enter the accelerator room.



The X-ray head.

The linear accelerator at Bart's is so far the only large size equipment in a hospital to be devoted to full time research in radiobiology. It is also unique in another respect. Unlike most other major research projects which are financed from Government funds, this machine was purchased from the Discretionary Fund of the Hospital, which also maintains the research work with it. The whole credit for promoting this project goes to the Treasurer, Sir George Aylwen, and the Board of Governors, whose enlightened attitude and appreciation of the value to clinical medicine of long term academic research have made possible the launching of this important programme of investigations.

THE CHAMBERLAINS' SECRET

by P. J. BEKEND AND J. F. PIGOTT.

IN the Middle Ages midwifery had returned to a primitive state, and there was no means of saving mother or child in a difficult labour. Nature was allowed to take its course. Little was known of the mechanism of birth as the place of knowledge was taken by a mixture of folklore and superstition. The teachings of the Greek, and the majority of the Roman physicians, had been forgotten long since. At this time midwifery was controlled by the Church and by the midwives. The Church's teaching was based entirely on Galen's, which, however mutilated by translation, was accorded biblical authority. Galen said the womb was double horned, therefore it was. To suggest that Galen was wrong made the speaker a proper subject for interrogation by the Holy Office.

Salerno was the most famous School of Medicine in Europe during the 11th Century. From this University came Dame Trot of Nursery Rhyme fame, who wrote a series of books known as the Trotula. The Trotula were not very good, e.g. the following treatment is recommended for difficult labours: "When there is a difficult labour with a dead child, place the patient in a sheet held at the corners by four strong men, with her head somewhat elevated. Have them shake the sheet vigorously by pulling on the opposite corners, and with God's aid she will give birth."

In fourteenth century England St. Bartholomew's Hospital was the centre of medical learning. Here John of Mirfield, a priestly scholastic, compiled his *Breviarum Bartholomei*. In this comprehensive work, John presented what he thought good and worthy of quotation from many well-known authorities. He mentions the wording of a charm which is to be written on parchment and worn by a pregnant woman in order to help her delivery.

Such learning as the midwives had was based on the teachings of St. Hildegarde, who was Abbess of a convent in Germany. The good Abbess did present some simple direc-

tions for the hygiene of pregnancy and the puerperium, but was more concerned with her rules for suppressing sexual desire. Special songs were sung by the midwives to accelerate delivery. Exorcisms and incantations also had their place in the birth ritual.

The sixteenth century observed the rebirth of midwifery. In 1500 Jacob Nufer, a Swiss sow gelder, disappointed by the attempts of thirteen midwives to deliver his wife, called in two lithotomists. These gentlemen were expert at removing stones from the bladder, but were unable to shift this difficult child from its mother's womb. Jacob took his sow gelding instruments and did the obvious thing: the baby was delivered by Caesarean section and lived. The mother also survived, later giving birth to six more children without difficulty.

The next successful Caesarean section was performed in 1540, while in the same year a book on midwifery, *The Birth of Mankind*, was published by an English Physician, Thomas Raynalde. This book was the fountain head of English obstetric literature and influenced the practice of midwifery for three centuries. In 1551 Ambroise Paré published his brief *Collection Anatomique*. Here Paré describes the operation of Podalic version which had been forgotten since A.D. 200. Paré was the greatest surgeon in France, but did not think it beneath his dignity to attend a woman in labour. In his way he brought the practice of midwifery out of the dark ages doing what he could to instruct the midwives.

At this time France was torn by religious strife as the Huguenots, led by the Prince of Condé battled with the Catholics, led by Catherine de Medici. Many Huguenots emigrated to England after the battle of Jarnac in 1569. Among the emigrés was Dr. William Chamberlain, who settled in Southampton with his wife and three children. He resumed medical practice there, and it is known that he taught medicine to his sons, who were "nursed up as from the cradle to all parts of Physick".

A paper read before the Junior Osler Club on Monday, May 16, 1955.

In 1572 occurred the massacre of St. Bartholomew's Eve. After this the Chamberlains could never hope to return to France. Dr. William Chamberlain moved to London leaving his eldest son, Peter I, to carry on in Southampton. Eight years later Peter I heard that his father had died, so he left Southampton to rejoin the family. His younger brother Peter II had followed his father's profession, and was a member of the Barber-Surgeon Company. Peter I decided to join the company as well. He could only do so as a foreign member, since he had not been apprenticed to a member of the company. He had to submit to an oral examination; "touching his skill in the generative parts of women, and bringing to bed of women in their dangerous and difficult labours." This was one of the many subjects on which his knowledge was tested. After paying his fees; seven guineas for the examination; twenty shillings to the clerk for his diploma; twenty shillings to the company's poor box; and five shillings to the Beadle; he was entitled to hang up his striped barber's pole with a basin hung on the end. This he did in Blackfriars, his younger brother having already set up his pole in March Lane.

They were soon in trouble with the Company, however, and were fined for not attending lectures, which were compulsory. They also came into conflict with the College of Physicians. The College considered that they alone were competent to prescribe medicines, and that the Barber-Surgeons were subservient to them, only fit for such menial tasks as the physicians prescribed. Dr. William Harvey, when he drew up the regulations for St. Bartholomew's Hospital, ordained that "no surgeon give inward physick without approbation of the doctor."

The Chamberlains had no hope of becoming Fellows of the College of Physicians since an Oxford or Cambridge doctorate was a necessary qualification. Peter I was actually imprisoned by the College, although he was surgeon to King James I. He was saved by the Queen, who sent the Archbishop of Canterbury to rescue him from Newgate. Peter II fell foul of the College when he sent the following petition to the King: "That some order may be settled by the State for the instruction and civil government of midwives". Both brothers supported the humble petition of the midwives that "the said midwives be incorporated and made a society". In the College

records it states that "Peter II did impudently advocate the cause of these women". They dismissed as an idle boast his claim that "he and his brother and none others excelled in the practice of midwifery."

Peter II's son, Peter III, was sent to Emmanuel College, Cambridge, in 1615, at the early age of fourteen. He left Cambridge and went to Heidelberg and Padua, at the latter University he received in 1619, the degree of Doctor of Medicine. He then returned to England. And in 1620 he "wore his scarlet under the worthy professor of Oxford, and the next year under the Doctor of the Chair at Cambridge." At the age of twenty he was Doctor of Medicine at three Universities: Padua, Oxford and Cambridge. At this time he wrote "my degrees seemed big unto myself and dyed my cheeks with the reflection of my red robes." He applied immediately to the College of Physicians for admission, but it was recommended that he should wait awhile and try again. Seven years later, in 1728, he was admitted, though admonished by the president "to change his mode of dress and not to follow the frivolous fashion of the youth at court, but to conform to the Custom of the College and adopt the decent and sober dress of its members."

The royal favour bestowed on Peter I was transferred to Peter III when his uncle died. Peter III had taken over the duties of Surgeon to the Royal Household before he was officially appointed. In that year, 1630, he attended the Queen when Charles the Second was born. Peter III maintained the family tradition in other ways as well, and was soon involved in the struggle to educate and instruct midwives. Like his father and uncle he was soon in trouble with the College. In 1634 Mrs. Hester Shaw and Mrs. Whipp presented another petition for the incorporation of midwives; they also took the opportunity of complaining that Dr. Peter Chamberlain made the midwives meet at his house once a month, although he had no authority to do so. He was bent on having the sole power of licensing midwives "out of an opinion of himself and his own ability in the art of midwifery." A more serious charge was that he had threatened "he would not repair unto such women as are distressed whose midwives had refused to conform to him." The petition was addressed to "The Right Reverend Bishops under whose jurisdiction the petitioners are, and to whom the licensing of your petitioners do belong." The enquiry



Paul Chamberlain, M.D.

An engraving, published by Richardson in 1794, based on a portrait of doubtful authenticity. The former is in the British Museum.

that followed was conducted by the Archbishop of Canterbury and the Bishop of London; they condemned Peter Chamberlain's actions, and made a ruling that he should "forthwith be a suitor to the Lord Bishop of London for licence to practise midwifery." This was a firm rap on the knuckles and a reminder that, under an act of King Henry VII, the fellows of the College of Physicians had the right to "practise Physick in all and every his members and parts." There being no reference to any female parts, for the Church had maintained a vested interest in these for nearly a century. The system of licensing in London was such that no matter how well qualified a man was, he could not practise midwifery without a

licence from the Bishop. Peter III was disgusted and wrote, "the burden of all the midwives in and about London lay only on my shoulders."

Midwifery was still a woman's art when the Chamberlains started in practice, for there was great prejudice against men attending the lying-in chamber. The midwives may have hated the Chamberlains, but the results that the family achieved with their secret instrument were so good, that they were soon imploring them to come and attend the mothers who were in difficulty. The Chamberlains were prepared to go to fantastic lengths in order to preserve their secret. They arrived at the house in a special closed carriage, and with them came a huge wooden

box adorned with gilded carvings, it was so heavy that it took two men to carry it. The lying-in chamber was cleared of onlookers, the woman in labour blindfolded, and only then was the box opened. Only the Chamberlains were allowed inside the locked room, but through the door the terrified relatives could hear peculiar noises, ringing bells and other sinister sounds as the secret went to work.

The secret was talked about by the public, scorned by the College, and derided by the midwives; but nobody could deny that from Peter I onwards, the Chamberlains had some extra skill that made for obstetric success. Dr. Peter Chamberlain, Peter III, entrusted the secret to three of his sons, Hugh, Paul and John. Little is known of John but Paul practised midwifery and became a noted quack. He invented a necklace of small beads, which he asserted, facilitated the cutting of teeth in infants; it sold for five shillings. Hugh, on the other hand, played a large part in the history of midwifery; he held a licence to practise midwifery from the Bishop of London and he was one of the few doctors who stayed in London during the plague of 1665. He lived in a court just off the Old Bailey.

In 1670 Hugh visited Paris where he met Mauriceau. Hugh was prepared to sell the family secret to the French government for ten thousand pounds. Mauriceau was educated at the Hotel Dieu and practised in Paris; he was known as "the oracle of the obstetricians of the century." He heard of Chamberlain's success with difficult cases and decided to give the instrument a trial. He had under his care a badly deformed rachitic dwarf of 28, well on in labour with her first child. Mauriceau had found the foetal head high above the deformed pelvis with its face forward. It seemed a hopeless case, and he took the view that if Chamberlain could deliver this baby he must have something worth buying. Chamberlain tried. The patient was in bed and all manipulations were done under the bedclothes, however, he managed to apply the secret instrument to the head, which was a remarkable feat in itself. He laboured uncasingly for three hours without pause. At last he had to admit defeat.

Hugh returned to England and the secret remained in the family. He admired Mauriceau, and translated his *Accomplished Midwife* into English with additional notes. He complimented Mauriceau on his skill, but

deplored strongly the delay in delivery advocated by him, and the techniques he employed in difficult labours. (He perforated the child's skull and delivered it piecemeal using blunt or sharp hooks). He said that Mauriceau lacked the Secret, and rather apologetically went on to say: "there being my father and two brothers living that practise this art, I cannot esteem it my own to dispose of, nor publish, without injury to them."

His father died in 1683, leaving the three brothers to carry on the family tradition. Hugh was already teaching his son, Hugh Junior. The family still attended the Royal Household and it was Hugh Senior who was involved in the Warming Pan Scandal. It was said that the wife of James the Second, who was brought to bed a month early, had been delivered of a stillborn infant and that a live child had been secreted into the Palace in a warming pan and an exchange made. Unfortunately Hugh arrived an hour late and could only testify that the baby was newborn.

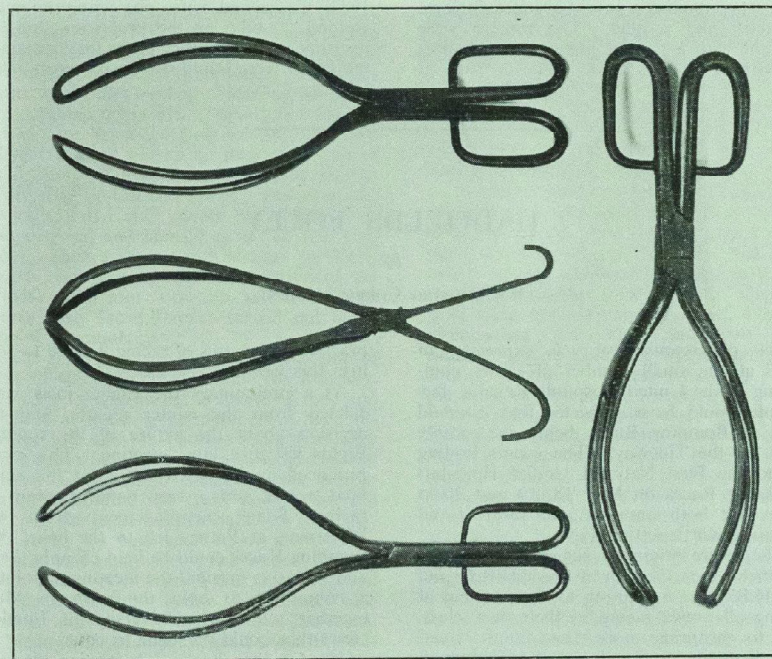
It can not be said that the Chamberlains lacked public spirit; they were great planners and schemers. The Peters had tried to organise the midwives. Peter the third had suggested to the House of Lords that he should have a monopoly of the manufacture of baths and bath stoves. His more ambitious scheme was "to clothe all the poor of England" by making into one common stock all debts due on public accounts, all waste lands, commons, mines, and the profits of manufactories, engines, inventions and a host of other things. Other ideas were labour houses for robbers and thieves, setting up a Public Bank, and erecting an academy for the education of youth.

Hugh senior advocated a public health insurance scheme. A small annual levy was to be made on each house. The scheme embraced rich and poor alike, providing full medical and surgical service for all diseases except the pox, midwifery, and cutting for stone. For the last three calamities there was to be a small extra charge. This was because "deliveries require mighty pains on the part of the accoucher"; the operation for stone was not only dextrous but required much attendance; and in the case of pox there was an extra charge so that "it might not hereby be encouraged." His most important proposal was to "make England rich and happy" by means of what was called the Land Bank. It was based on rather shaky

economic foundations and inevitably crashed. Hugh had to retire somewhat hastily to Holland on suspicion of debt. This was in 1699, and in the same year a verse was published by an anonymous author entitled:

Hugh stayed in Holland for the rest of his long life and died there in 1726.

Hugh junior remained in England. It is thought that he did not use the secret to any great extent. He became the Duke of



The Chamberlains' Secret

The forceps found in Woodham Mortimer Hall are now at the Royal Society of Medicine. From the facsimiles in the Wellcome Collection.

"Hue and Cry after a Man-midwife who has lately delivered the land-bank of their money." It describes the disappearing doctor in unkindly terms:

He's a little old man very pale of complexion
 Into many deep things makes a narrow inspection.
 His head's very long and his hand's very small
 Fit to fathom a gentle Tuquoque withall.
 To give you his character truly compleat
 He's Doctor, Projector, Man-midwife and Cheat.

Buckingham's personal physician and died in Buckingham Palace in 1728. Perhaps because he had no sons, or because medical ethics were changing, he allowed the family secret to leak out. For, five years after his death, Edmund Chapman made public the design of the Chamberlain forceps and their method of application. It was not until nearly a hundred years later that the secret instruments themselves were discovered. During 1813, in an attic in Woodham

Mortimer Hall, near Maldon, a loose floor board was found which revealed a trap door. Hidden under this was a chest containing a pair of old fashioned ladies gloves, letters, fans, trinkets, a packet containing a tooth labelled, "my husband's last tooth," and the Secret—three sets of midwifery instruments, each set containing a pair of obstetric forceps, a vectis, and a fillet. The forceps were straight with a pair of metal spoon-shaped, fenestrated blades, united like a pair of

scissors, and having curved scissor handles. Slight modifications appear in the three forms.

Peter III had retired from London after his fights with the authorities to live at Woodham Mortimer Hall and practise midwifery at peace in the country. After his death in 1683, his second wife, possessing no male children to take up the profession, hid the instruments in the attic. There they remained until they were found over a 100 years later.

HADFIELDS FOLLY

by

OUR ROWING CORRESPONDENT

WHEN DISSATISFACTION was expressed in 1953 at the small number of crews competing in the United Hospitals Regatta, few people would have suspected that it would lead to Bumping Races being successfully held on the Tideway. The events leading up to the First National United Hospitals Bumping Races on May 18, 19 and 20 at Kew, are both amusing and bizarre, and certainly worth setting down.

They were originally suggested by James Hadfield, then Captain of the U.H.R.C. and S.T.H.B.C., as a solution to the problem of giving all crews racing in their own class, and to encourage more crews on the river. The first site proposed was the Thames at Kingston. But expense made this impracticable, and the question arose whether the races were feasible on the Tideway. A few were honest in their objections: bumping was a debased form of racing, made necessary elsewhere by the narrowness of the Fenland ditches and the streams at the source of the Thames. The majority were amused and sceptical, having visions of death and disaster in the inevitable shambles. The few enthusiasts believed that the original objection might be true of the foundation of such races at Those Other Places, but that the results of such racing justified trying them on a river where the geography did not make them imperative. Some experience of Bumps at up-river schools, who

practise both forms of racing, tended to confirm this view.

As a preliminary the Eights races were deleted from the winter regatta, and the decision about the nature of the summer Eights left to a later meeting. This alone produced an increased entry for the small boat events and a very good standard of racing. Some encouragement from the Watermen at Putney led to the belief that Bumping Races could be held cheaply there, and with this in mind the meeting appointed a committee to hold the races in May, together with any University of London crews they could persuade to enter.

The fun then began. A starting place at Hammersmith was found which was exposed for a sufficient length of time at low tide, a course was decided upon, and the blessing of the Port of London Authority obtained. The latter, far from being official and obstructive, was most helpful. Consultations taking place in a splendid launch off Lambeth Pier. Dr. R. J. Blow, L.M.B.C. and S.B.H.B.C. gave a lecture to coxes pointing out the intricacies of Bumping races.

Then came a blow. The boatmen at Putney, upon whom so much depended, reported that they would be occupied on the chosen dates with preparations for a Regatta. Moreover, the other rowing clubs who were competing in this Regatta did not react favourably to the idea of dodging the Bump

crews. So a change of course was vital. Once more the committee plodded through the sand and mud at low tide; this time in the neighbourhood of Kew Gardens. The stretch seemed suitable. A shot gun was taken along in order to find out how far the sound would carry. The enthusiastic gunner used a 12 bore Magnum and tried a double discharge with 3 inch cartridges. The acoustic effect was satisfactory; but, as the recoil cut his finger and nearly broke his nose, some other method of starting the crews was deemed advisable. Meantime sustained antagonism from the University College and Hospital coach played an important part in frightening off many, and eventually all, the University of London crews. However, the captain of U.L.B.C. placed his boathouse at our disposal and himself gave valuable support. Then a scare arose because the River Police gave a very different version of the Tides' behaviour on the selected dates. Fortunately the difference turned out to be one of terminology.

The next problem was the crucial one of how to start the crews. And one morning, armed with an iron bar, a length of rope and a chock of wood, some members of the committee met the St. Thomas's Eight at Kew for a trial start. In a strong wind and fast stream considerable difficulty was experienced in holding the crew, and at the first attempt the eight went straight into the bank. However, by trial and error, a workable scheme was established; two waders holding each crew. A boatsmith was commissioned to make the lines, stakes, bungs, and also rubber balls to fit to the prows of the boats.

Meanwhile, attempts to get a Clock Firm to provide an Official Clock, and to get the H.A.C. or Yacht Clubs to provide suitable cannons met with no success. Further shooting trials were carried out to test the effect of cartridges without balls. These were unsatisfactory, and black powder blank seemed to be the only answer. Then R. W. Lister, the captain of U.H.R.C., contacted the C.U.B.C. and obtained permission to borrow the University cannons. Accordingly he set out for Cambridge with another Committee member in the latter's car the day before the races. Arriving in Cambridge rather late, one tyre went flat. And the drivers were a little upset to see two bullae in the spare one. However they set off again to find the Secretary of the C.U.B.C. who had apparently gone out sculling. After a hectic chase down the

river bank, he was eventually intercepted at Grassy Corner and the necessary information extracted. Then, while the driver mended another puncture which the chase had produced, Lister fetched the cannons by taxi. And very late they set off for London. Somewhere near Hatfield they got yet another puncture which they wearily mended. Shortly after setting off again there was a loud report, and the car waltzed crazily to a standstill with an eviscerated tyre. Frantic phone calls and fervent prayers were made and the remaining tube patched up. In the gathering gloom they set off once more, only to be rudely stopped after another quarter of a mile by another report and burst tyre. As if the cannons possessed some malevolent hoodoo, the elements joined in the fray and a heavy snow storm developed. The car had to be towed on two wheels to a garage in Potters Bar, where another member of St. Thomas's Boat Club fetched two very cold, wet and disconsolate individuals, and two brass cannons, about which they were rapidly becoming paranoid. A less promising eve to the event can hardly be imagined.

Nevertheless, in somewhat chilly and changeable weather, shortly after 5 p.m. on May 18, a quorum of crews, constituting the second division of the United Hospitals Bumping Races, assembled on the Surrey bank opposite Syon House. They were marshalled by Mr. Jeremy Debenham, a former Assistant Secretary of the C.U.B.C., who, as befitted his legal status, dealt with all crises with admirable presence of mind and impartiality. The genie of the cannons had nearly exhausted his resources, and, with but one misfire, was rammed into submission by P. J. Scott. Thus, to a magnificent roar of smoke and flame, the boats were precipitated into the stream, and went headlong down the ebb tide after each other.

The first guns were fired by a fellow of the Royal College of Surgeons, Mr. Frank Law, C.U.B.C., L.M.B.C., and the first bump was scored very shortly afterwards by St. Thomas' IV, coxed by a Fellow of the Royal College of Physicians. Bart's considered it unnecessary to deny the subsequent rumour that they were going to embark an eminent gynaecologist, who could be counted upon to sink the first crew to founder in the races. Bart's III went off to a fine start, and, there being a bump in front of them, had no difficulty in maintaining their position at the bottom.

In the first division, Bart's I started second and Bart's II fifth. The order of starting was arranged arbitrarily by the Committee, based as much as possible on the performances of the crews in the racing the last time the cups were competed for, some 18 months earlier. At that time Bart's II contained three oarsmen who had rowed at Henley, thus they were now placed in a high position which they could not reasonably be expected to maintain. On the first night they were bumped by St. Thomas's II, and on the next night by Middlesex I. On the last night they surpassed themselves and kept away from Westminster I.

On the first night St. Thomas's I failed to take advantage of the tide and Bart's I got within a quarter of a length, but, largely owing to inexperience of this type of racing, failed to press home this advantage. On the next night St. Thomas's went away, Bart's closing at the finish to just outside their distance. On the final night, Bart's went off fast and got to about one length from St. Thomas's who drew away again and finished at about their distance after a good race. On each night Guy's, who were third, finished well outside their distance from Bart's. To the Third Eight went the honour of making the first bump for Bart's. For, in spite of '4' making last minute, nay, last second, adjustments to his dress, they managed to leave their stake at the gun and bump the London II. Although on the final night they could not catch St. Thomas's III, who had been bumped by St. Thomas's IV, (for which they were fined three guineas) they managed to keep away from their erstwhile victims.

The evil spirit of the guns was a hard one to lay, for on the second night it was apparent that powder was running out. Luckily the Metropolitan Police pushed through the procedure for a powder permit, which normally takes a fortnight, in time to keep the guns firing on the last night. Nevertheless disaster nearly overtook the guns of the first division on the second and third nights. On the second night the nimble fisted rugger player who was i/c Artillery contrived to discharge, by accident, the shotgun, held ready in case of emergency, between the one minute and zero guns, nearly filling his assistant's ear with wadding! On the last night the President's gold Hunter stopped after the minute gun, only the presence of mind of the Chief Umpire saved the division from chaos.

In spite of vicissitudes the races went off

without accident or serious hitch. By the third night a very fair order had been established. Perhaps a smaller distance between the boats will improve the racing, although this was in any case keen. Two things stood out. One is that the more crews there are the better. For every crew has a chance of making good. The other is that the number of spectators was disappointing. A small army of helpers was needed to get the races underway; pushing out, counting down, etc. For Bart's, members of the rugger club and others performed their somewhat chilly offices with commendable skill. It seems a pity that more people could not muster even a fraction of such interest in order to come and watch. However, there will probably be another time, and there is a pub on the course.

BUMPING RACES RESULTS

	MAY	18	19	20
St. Thomas's I				
St. Bartholomew's I				
Guy's I				
The London I				
St. Bartholomew's II				
St. Thomas's II				
Middlesex I				
Westminster I				
St. Mary's I				
St. Thomas's III				
The London II				
St. Thomas's IV				
St. Bartholomew's III				

CREWS

- 1st VIII:** Bow, C. N. Hudson; 2, T. W. Bolton; 3, T. P. Ormerod; 4, D. A. Stainsby; 5, C. C. H. Dale; 6, J. F. Piggot; 7, D. H. Black; Stroke, D. A. Chamberlain; Cox, A. Geach.
- 2nd VIII:** Bow, C. B. S. Wood; 2, A. J. Allison; 3, P. Fenn; 4, M. Besser; 5, M. Hall; 6, R. Marshall; 7, J. Bartlett; Stroke, D. Thomas; Cox, D. King.
- 3rd VIII:** Bow, D. Sadlick; 2, J. Chalstrey; 3, J. Shaw; 4, A. Lytton; 5, D. Lammiman; 6, M. Sleight; 7, P. Weaver; Stroke, M. Burfoot; Cox, C. Bert.

LETTERS TO THE EDITOR

AN EAST END CLUB

Sir,—May I use the *Journal* to make an appeal for helpers for a cause of topical interest.

There is in the East End of London a club which attempts to cope with the problem of so-called "unclubbables," the socially maladjusted boys and girls who are so much in the news. From the point of view of society, the existence of gangs of these youths is a great and apparently increasing menace for which a solution is imperative. From the human angle, the needs of the individuals making up these gangs are no less great. The hideous social background from which so many of them emerge, and the pathetic downward path which they seem forced to follow, constitute a challenge which must be met by society itself.

The club, which is mixed and deals with all ages, is situated in a district notorious for its lawlessness. Its members, quite unable to accept the demand made by more orthodox clubs, find there an atmosphere which they can accept, where they are welcomed without question, and where, it is hoped, some progress may be made towards their social rehabilitation. The problems which this poses are immense and there is no simple answer to them. However, one overriding need is that these boys and girls may be given the opportunity to make ordinary friendly contact with normal decent people.

The club relies on a band of voluntary helpers who, for various reasons, have recently diminished in number. The need for more helpers is urgent, and if any readers, men or women, feel that they could afford one evening a week or fortnight at the club, with either the senior or junior group, it would be of immense value.

Will anyone who is interested please get in touch with me.

Yours, etc.,

The Abernethian Room. II. M. HOLDEN.

THAT SARCOPHAGUS

Sir,—There is a certain Roman sarcophagus which the many visitors to the Path. Museum on View Day will have passed. I do not object to sarcophagi, but I do object to the dust and other debris which fills and covers this one. Surely it was sufficient sacrilege to tear it from the ground during the excavations for the library, without subjecting it to the indignity of being neglected by generations [sic] of cleaners. There is also a shelf on which the dust is an appreciable fraction of an inch thick, and nearby a group of derelict show-cases, some of which have broken glass panes—presumably kicked in by disgruntled students on their way down to earth after lectures and P.M's.

May I enlist your support in seeing that this eyesore is cleansed, preferably before next View Day. For I do not think it consonant with the public's idea of hospital hygiene. The magnitude of the problem is not such that calculations of the seven maids with seven mops' variety need be entertained.

Yours faithfully,

OBSERVER.

The Abernethian Room.

THE AUGUSTINE SOCIETY

Sir,—A group of students have formed themselves into a Society with these objects:—

To learn and to live the Christian Faith according to the discipline of the Church of England.

To have a special duty of prayer for the patients of the hospital and for all its life.

To explore both in thought and in practice the right relation between religion and medicine.

This group whose main function is a corporate service of Holy Communion (on the first Thursday of every month at 8.15 a.m. in St. Bartholomew's-the-Less) is open to all communicant members of the Church of England who accept a simple Rule. The Society aims to hold occasional evening lectures and discussions to which all members of the College will be welcome. We will be glad to give more information to anyone, clinical or pre-clinical, who is interested.

Yours sincerely,

NINA COLTART,
F. J. C. MILLARD,
R. E. NOTTIDGE.

The Abernethian Room.

CHRONIQUE SCANDALEUSE

Ave.

Your columns within the last decade printed a letter, which my daughter's hound Cerberus was constrained to write to you, on the occasion of the disappearance of a column named after my daughter Persephone. I feel hound likewise not to let the occasion pass without some remonstrance. This column has grown to be one of the most important in the *Journal*, being a commentary and record of the day to day happenings in the Hospital, and makes the *Journal* different from other similar publications.

I cannot believe that no day to day happenings occurred in my favourite Hospital, nor that you were so bemused or besotted that you could not see them. Moreover, Zeus tells me that the blank spaces in the issue alone amounted to enough space for this column; to say nothing of a poem spread over a page, and a page of references which no-one but the author will read.

I can only assume that the inclement weather caused you to think that the winter months, during which Persephone reigns in Hades, had returned. I can assure you it is not so, and trust you will resurrect this column so dear to me.

You remain, sir,

My faithful servant,

DEMETER.

Mount Olympus. Delivered by Hermes.

EXAMINATION RESULTS

LONDON UNIVERSITY

FINAL M.B., B.S. EXAMINATION, April, 1955

Honours

BERGEL, D. H.—Distinguished in Applied Pharmacology and Therapeutics.
 HURN, B. A. L.—Distinguished in Surgery.
 McDONALD, P.—Distinguished in Obstetrics and Gynaecology.
 STROUD, R. A.—Distinguished in Applied Pharmacology and Therapeutics, and Obstetrics and Gynaecology.

Pass

Arnold, D. L.	Bailey, R. D.	Berry, W. M.
Boxall, T. A.	Boyton, J. O.	Browse, N. L.
Bugler, R. A.	Burgess, E. H.	Cairns, D. A. O.
Clark, R. W.	Cunningham, G. A. B.	Edmonds, C. M. D.
Evans, T. A.	Harris, W. G.	Grant, B. H.
Gray, A. J.	Fletcher, F. M.	Hick, B. D.
Jepson, B. A.	Lefford, M. J.	Macadam, F. I.
Malpas, J. S.	Menzies, I. S. I.	Montgomery, B. K.
Nerney, J. M.	Rees, E. L.	Robinson, M. R.
Smart, P. J. G.	Snow, J. T.	Staley, M. E.
Thoresby, F. P.	Wadge, D. A.	Wickham, J. E. A.
Witt, M. J.	Wyatt, A. P.	

Supplementary Pass List

Part I		
Ashbee, C. R. N.	Boff, M. M. L.	Dale, S. L.
Deering, R. B.	Fairclough, C. M.	Gordon-Watson, M. A.
Gray, J. M.	Hewer, R. L.	Irwin, M. H. K.
Langham, G. D.	Mann, P. E.	Nwachukwu, P. O.
Roche, D. W.	Sanford, W.	Stainton-Ellis, D. M.
Stainton-Ellis, J. A.	Taylor, C. G.	Taylor, J. H. K.
Walton, W. J.	Williams, J. C. L.	Wood, P. H. N.
Part II		
Ball, M. J.	Catnach, T. B.	Ellis, C. D'A.
Hopkins, D. H. G.	Irwin, M. H. K.	Lytton, A.
Sharer, P.		
Part III		
Farrar, J. F.	Luscombe, A. H.	
Part IV		
Ball, M. J.	Catnach, T. B.	Ellis, C. D'A.
Farmer, D. B.	Farrar, J. F.	Hopkins, D. H. G.
Irwin, M. H. K.	Luscombe, A. H.	Sharer, P.

CONJOINT BOARD FINAL EXAMINATION, April, 1955

Surgery: Boxall, T. A.

Mr. T. A. Boxall has now completed the examination for the Diplomas M.R.C.S., L.R.C.P.

PH.D. EXAMINATION, April, 1955

Lacy, D. (Science)

L.M.S.S.A. FINAL EXAMINATION, May, 1955

Surgery: Mehta, P. C.

RECORD REVIEWS

HOMAGE TO FRITZ KREISLER. Campoli (Violin) with Eric Gritton (piano). Decca LT 5012.

Side 1: Praeludium and Allegro ("Pugnani," arr. Kreisler), Liebesleid and Liebesfreud (Kreisler), Polichinelle—Serenade (Kreisler), Schön Rosmair (Kreisler), Caprice viennois, Op. 2 (Kreisler), Tambourin Chinois, Op. 3 (Kreisler).

Side 2: Minuet in G (Paderewski, arr. Kreisler), Caprice in E flat: Caprice in A minor (Wieniawski, arr. Kreisler), Rondine on a theme of Beethoven (Kreisler), La Chasse ("Cartier," arr. Kreisler), La Gitana (Kreisler), Danse espagnole (Granados, arr. Kreisler), Variations on a theme of Covelli (Tartini, arr. Kreisler).

Fritz Kreisler, now eighty years old was one of the world's greatest violinists, and it was as a tribute to him on his eightieth birthday that Campoli made this recording.

All these pieces are well known on the concert platform, most of the shorter ones being favourite encores. Campoli undoubtedly has great affection for them, the caressing way in which he plays "Liebesleid" and "Liebesfreud" is most touching; he is also able to demonstrate his virtuosity in no uncertain way—his control of spiccato bowing and the accuracy of the double-stopping in "La Chasse" is amazing. All the pieces are delightfully played with loving care, but I think this recording is worth getting just for the performance of the Praeludium and Allegro: the sweeping melodic line of the Praeludium is played with such a rich singing tone and the Allegro is simply brilliant. A word of praise also for Eric Gritton for such a sympathetic unobtrusive accompaniment.

OPERETTA RECITAL BY HILDE GUEDEN, with the Vienna State Opera Orch. and Choir, conducted by Max Schönhen. Decca LXT5033.

This is a collection of popular soprano arias from various Viennese Operettas, interspersed with orchestral and choral items. An attempt at continuity has been made by joining the various items with bridge passages; and at unity by having "Wiener Blut muss was eigenes sein" at the beginning and end of the recording. Both are achieved, quite satisfactorily, for although there are a number of composers represented, their styles are all very similar.

On first listening to this recording I was immediately struck by the buoyancy of the whole performance; Miss Gueden, the chorus, the orchestra and the conductor, are so obviously enjoying themselves. It is light, sugary music. Miss Gueden sings clearly and accurately and it is pleasing to hear a female voice with such evenness of quality throughout its range. Reproduction is good. Thoroughly recommended for those who like this type of music—just the things to play on a warm summer evening!

GILBERT AND SULLIVAN: Princess Ida: The D'Oyly Carte Opera Company with the New Symphony Orchestra conducted by Isadore Godfrey. Decca L.K.4093 (4 sides).

During the war whilst on tour in the Provinces with some of the more popular operas, the D'Oyly Carte Opera Company stored the properties of Princess Ida in London. Unfortunately a bomb disposed of them. The Opera was then neglected, apart from a few amateur productions, until last year when it was revived at the Savoy Theatre with a new production. Now the Decca Record Company have made available on two L.P. 12-inch discs.

Only Act II on the second disc was received for review: Acts I and III being on the first disc (automatic coupling).

This Second Act is the best piece of recording I have yet heard done by the D'Oyly Carte Opera Company; there are no distressing lapses in intonation by the soloists which marred many of their previous recordings. The soloists are good, Muriel Harding and Ann Drummond. Crant and Leonard Osborn being old Savoyards; Thomas Round and Victoria Sladen are perhaps better known at Covent Garden; their diction is clear and in the ensembles they blend well. Generally the engineers have done a good job: occasionally during the louder passages the orchestra swamps the voices, but otherwise the balance is well adjusted.

Provided Acts I and II are up to this high standard this Opera will be a valuable addition to the G. and S. enthusiast's collection. Princess Ida really deserves a little more of the limelight, it contains some charming Sullivan music and the Gilbert wit is certainly not lacking—the "Ape Song" is delightful!

SO TO SPEAK . . .

For Classical Scholars

Schizophrenia means splitting of the mind and not, as you might think, a diaphragmatic hernia. —*At Goodmayes.*

CHTHONOSOLOGY (try pronouncing it), the geography of diseases. —*Dictionary.*

Medical Students, perhaps?

"A physiological textbook is amoral, but immoral persons may use such a text for immoral purposes!"

—Rachel Taylor, quoted in *Usage and Abuse*.

SPORT

SAILING

Annual Regatta

The Regatta was held at Burnham-on-Crouch on May 26, 27 and 28, some twenty-five people attending. The programme included two heats and a final of the Open Racing for the Commodore's Trophy, a Ladies' Race, and a friendly race.

On the whole we were very fortunate with our weather. The rain, although threatening, never materialised, and most of the sailing was done in sunshine. Fresh winds on the first two days necessitated reefing. There were no capsize, although both helmsmen and crews enjoyed some exciting moments. The racing was remarkably keen and close throughout, and some interesting "post mortems" were held in the evenings.

On the Friday, a Spring Flood and a light easterly wind provided interesting tactical conditions as well as perfect sailing weather. The Ladies' race, sailed in the morning over a short course, resulted in a split-second finish between the second and third boats.

In the final of the Open, H. Blake and Mr. J. Marsden started on the North Shore, while the other four helmsmen favoured the South side. At the beginning of the long and tricky beat against the tide A. Smart was well placed, but by the time the windward mark was reached, H. Blake worked out a convincing lead, which he held through to the run home.

Dr. Coulson presided and presented the prizes at the Club Dinner.

It is regrettable that once again the Preclinicals were conspicuous by their absence.

Commodore's Trophy: 1, H. Blake; 2, Mr. J. Marsden; 3, B. Waldron.

Ladies' Race: 1, Miss L. Rowswell; 2, Miss A. Lloyd; 3, Miss P. Farrar.

The Sherren Cup

This is a cup for which Inter-hospital Races are held annually during Whitsun weekend. Bart's Sailing Club won the cup last year and successfully defended it this year.

Bart's qualified for the final by winning their heat in TOURMALINE. The final was held on Whit Monday over a long course including two windward legs. Bart's, in AMBER, made a bad start, being recalled and having to recross the line. At the Holfiwell buoy, the first windward mark, AMBER was leading with Westminster, Guy's, London and St. Mary's following in that order. U.C.H. were disqualified at the start. Bart's held their lead, which was increased throughout the race, finally winning 7 minutes 25 seconds ahead of the second boat, London, with Westminster third.

CREW: H. Blake, M. Hayes, J. Misiewicz.

CRICKET

1st XI v. St. Thomas's. April 23 at Cobham St. Thomas's 121—5 dec.; Bart's 55 out. Lost.

1st XI v. U.C.S. Old Boys. April 30 at Chislehurst. Bart's 65—9 (Nicholson ret. hurt); U.C.S. O.B. 144—8 dec. Lost.

1st XI v. R.A.M.C. May 7 at Crookham. Bart's 97—6 dec. (Baterham 34); R.A.M.C. 53 out (Rosborough, D., 4 for 9. Won.

1st XI v. Hampstead. May 8 at Hampstead. Hampstead 208—5 dec.; Bart's 63 out. Lost.

1st XI v. Radcliffe Infirmary. May 14 at Headington. Bart's 170—4 dec. (Nichols 68, Marks 60 n.o.); Radcliffe 91—7 (Nichols 3 for 22). Drawn.

1st XI v. Romany. May 15 at Chislehurst. Bart's 240—7 dec. (Bower 78, Marks 63); Romany 87—3. Drawn.

1st XI v. Balliol College. May 21 at Oxford. Bart's 212—9 dec. (Nichols 60, Bower 55); Balliol 164 out (Mackenzie 4—32). Won.

1st XI v. Putney Eccentrics. May 22 at Chislehurst. Bart's 198—8 dec. (Bower 62, Nicholson 41 n.o.); Putney Eccentrics 93 out (Bloomer 3 for 15). Won.

1st XI v. Riddells Rovers. May 29 at Chislehurst. Riddells Rovers 169—6 dec.; Bart's 96 out (Nichols 34). Lost.

ROWING

Hammersmith Regatta: Maiden VIII's

The 2nd VIII was drawn against Oxford House. Bart's had a good start and took an early lead of half a length, but a few bad strokes at the end of a minute immediately reversed the position. Oxford House slowly increased their lead to win by one and a half lengths.

Crew: Bow, C. Wood; 2, A. Ellison; 3, P. Fenn; 4, M. Besser; 5, R. Marshall; 6, T. Bolton; 7, D. King; Stroke, D. Thomas; Cox, C. Bert.

London University Allom Cup

1st Heat: This was rowed against St. Thomas's, who were unfortunately unable to enter their complete 1st VIII. Bart's went away from the start and soon increased their lead to two lengths.

Final: Imperial College took two-thirds of a length in the first few strokes, but Bart's fought back hard and, rowing as well as any time this season, held on for most of the course. However, in the last few hundred yards several untidy strokes enabled Imperial College to row clear, and win by one and a half lengths.

Crew: Bow, B. Harrold; 2, D. Chamberlain; 3, P. Ormerod; 4, T. Bolton; 5, C. Doyle; 6, F. Piggot; 7, C. Hudson; Stroke, D. Stainsby; Cox, A. Geach.

United Hospitals Bumping Races

An account of these will be found elsewhere in this issue.

TENNIS

University of London Cup: 1st Round. May 7th at New Cross. Bart's v. Goldsmith's College. Won 5—4.

This match was played on the hard courts at Goldsmiths' College under conditions which were not ideal for tennis. A high wind coupled with brilliant sunshine made serving a rather hazardous procedure. However, Bart's were able to adapt themselves to the conditions more successfully than their opponents and the first pair, Walton and Goodwin, played very well to win all their matches. The second and third pairs were less successful, but contributed to the victory by each winning one of their matches. Bart's thus qualified to meet Imperial College in the second round.

Team: W. J. Walton, C. S. Goodwin, J. Worthy, J. T. Bench, W. S. S. Maclay, I. Mellows.

University of London Cup: Second Round. At Chislehurst on May 21. Lost 5—4.

Heavy rain delayed the start of this match and as a result the courts were damp and slippery. The conditions tended to make play very difficult and Bart's did well to win as many matches as they did against the cup-holders. The ultimate result was in doubt right up to the last match since at tea Bart's were leading by 3—2. The match was levelled at 4—all, and the last match between Bart's second pair and Imperial College first pair proved to be an exciting affair in which the initiative changed hands several times. Worthy and Bench for Bart's did well to win the first set at 7—5 and they raced away to a 3-love lead in the second set. At this point they faltered and very soon the set was lost 4—6. The final set was a dismal affair for Bart's and Imperial College won this by 6—1, and thus the match by 5—4.

Team: W. J. Walton, C. S. Goodwin, J. Worthy, J. T. Bench, W. S. S. Maclay, J. Mellows.

BOOK REVIEWS

Another damned, thick, square book! Always scribble, scribble, scribble! Eh! Mr. Gibbon?

—William Henry, Duke of Gloucester, 1743-1805.

I do not resent criticism, even when, for the sake of emphasis, it parts for the time with reality.

Winston Spencer Churchill.

MODERN TRENDS IN BLOOD DISEASES, edited by J. F. WILKINSON (Manchester). Butterworth & Co. (Publishers) Ltd. 359 pp. 65s.

The founder of the distinguished Manchester school of haematology has edited this "guide to the present trends of the more important clinical and experimental investigations and research" in diseases of the blood; and his success, in selection of contributors and of material, is remarkable.

The titles of some of the articles show that haematology is not to be regarded as being the inalienable property of the pathologist. Thus, D.L.L. Griffiths writes on "Bone changes and blood diseases"; J. H. Twiston Davies on "Dermatological Aspects of blood diseases"; and W. Gaisford, Professor of Child Health, on "Paediatric Haematology." Then D. Dawson discusses "Changes in the Fundus in Diseases of the Blood" in a contribution that deserves to become a classic. The clinician has, indeed, come into his own again.

There is nothing parochial about this book; our transatlantic cousins have contributed from their well-filled store of experimental results. C. V. Moore has admirably summarized the present state

of our knowledge of iron metabolism, while Cartwright and Wintrobe pursue this important matter in connection with the anaemia of infection. Crosby and Dameshek have produced one of the best short accounts of haemolytic anaemia that has yet appeared, while Rimington, the only representative of London, makes "Blood Pigments and Porphyrins" misleading easy—until one reads him a second time, when one finds that the hidden treasures are precious but less comprehensible than they seemed.

Every contributor has given of his best—and an admirable best it is; and it is not possible to comment on every one. Even so, Israël's "Reticuloses" and Stratton's "Iso-immunization" must receive the reviewer's fullest praise.

In short, this is an admirable book for the haematological physician, for the laboratory haematologist and for the candidate for higher examinations. It is, of course, unfortunate that the price is so high; the book needs to be on hand for reference; but for most of us that will be impossible and we shall have to depend on the libraries who will, it is to be hoped, have enough copies in circulation.

A. PINEY

**THE PRINCIPLES AND PRACTICE OF
SURGICAL NURSING**, by D. F.
ELLISON NASH, F.R.C.S. Edward
Arnold (Publishers) Ltd., 30s.

WITHIN recent years the number of surgical books for nurses has increased rapidly, and the basic pattern of all has been similar. Surgery has been presented to the nurse in very much the same way as it is taught to medical students, but abbreviated or diluted, as if the authors believed that what the nurse needed was a kindergarten version of the doctor's surgical knowledge. There is a noticeable tendency in some books towards a strip-cartoon method of presentation, as though a series of pictures of a surgical operation would supply all a nurse's needs on that subject.

Everyone, lay or medical, feels interest or curiosity in reading such accounts, but if the needs of the student nurse are to be met, she must be shown her own rôle in the field of surgery and made to feel its importance. Her place with regard to the patient's future as well as his present, with his relatives and with the hospital community must be made clear to her, and she needs to see the nursing problems in connection with any patient and his complaints, and be shown that such problems are never insoluble.

Mr. Nash's book is a new departure because he recognises what the student nurse needs, and has written for us a book on surgical nursing rather than on surgery. He has a big reputation as a teacher in the nursing school in this hospital, and expectation has not been disappointed. His book is 1,000 pages long, packed with information not about operative details, but about the principles underlying surgical treatment and how to deal with practical questions ranging from the ways by which an intravenous infusion may be kept running, to the problems of a patient who wants to know if he has cancer. He tells how to remove different kinds of skin clips and subcuticular stitches, how to prevent blood getting into the hair at thyroidectomy, how to put drops into the eye, what to apply to the skin around a gastrostomy tube, and how to give a hypodermic injection to a child. The author has firm convictions on all kinds of technique, and on at least one instance his

ideas are ahead of current practice. There is no doubt, for instance, that the no-touch method of catheterisation should be generally adopted.

The sections on pre- and post-operative management are excellent; the one on uro-surgery is outstanding, and contains information of the greatest value on catheters, apparatus and instruments. The chapter on surgery in infancy and childhood shows the author's insight into the problems of the children and their staff. There is a very full account of anaesthetics; of theatre work and management, including a very good section on the care and maintenance of instruments. Throughout the whole book the nurse is addressed in adult terms, with no hint of patronage, as a colleague in the surgical team.

All the line drawings are well chosen and executed; for instance, nurses find great difficulty in understanding biliary operations and the drainage tubes involved, and there is a good figure on p.575 to help them. There are many useful illustrations of instruments, needle mounts and fittings, and apparatus of all kinds.

For a book of this size the number of misprints is very small indeed, and criticisms that come to mind are of detail rather than principle. For instance, biopsy of the endometrium is not "D and C" (p. 752). The bandage in Fig. 379 has an abnormal number of ends and fails to cover the dressing. The use of rubber tubing on an undine (p. 841) appears an unnecessary complication, and lotion should be tested with a thermometer, not the back of the hand.

Mr. Nash is to be congratulated not only on the amount of relevant information that he has gathered together, but also on his appreciation of the nurse's viewpoint. The publishers have served him well, producing a handsome book, pleasant to handle, at a price that is more than reasonable for the value given.

Miss W. E. HECTOR.

**MEDICAL ART AND HISTORY IN
EXETER**

A Catalogue of the Exhibition

This Catalogue of an exhibition of the treasures of medical literature from Exeter Cathedral, Exeter Medical Library, and from the Archives of the City of Exeter and the Royal Devon and Exeter Hospital serves to remind one that not all the great bibliographical treasures of medicine are housed in the larger medical libraries of London. Organised by Mr. Norman Capener, President of the Devon and Exeter Medico-Chirurgical Society, and also a Bart's man, the exhibition was held to raise funds for restoring the old books in the Exeter Medical Library. We hope that this object was successfully achieved.

Exeter was a prominent medical centre at one time, and we must mention in particular its connection with John Haddy James; a pupil of John Abernethy, and a regimental assistant surgeon at the Battle of Waterloo, who later achieved great distinction in his native city.

It is difficult to pick out items for special mention among the manuscripts, books and portraits recorded in the catalogue, but we note a fourteenth century manuscript of John of Gaddesden's *Rosa Anglica*; a copy of Celsus' *De medicina* printed in 1497; the second edition of Vesalius' *De fabrica*, 1555; *De homine*, 1662, by Descartes; Hooke's *Micrographia*, 1665; Glisson's *De rachitide*, 1660, and *Anatomia hepatis*, 1665; Burton's *Anatomy of melancholy*, 1628; and classic contributions by Cheselden, Pott, William and John Hunter, Jenner, Abernethy, Astley Cooper, Charles Bell and John Sheldon.

Finely produced and illustrated, this informative catalogue is a valuable guide to the Exhibition, while those who were unable to visit the latter can derive great pleasure and profit from browsing through this fascinating record.

J. L. THORNTON.

MEDICAL PROBLEMS OF OLD AGE, by A. N.
EXTON-SMITH, M.A., M.D., M.R.C.P. John
Wright and Sons Ltd., pp. 344, illus 17. 30s.

This book is written by one of the younger generation of physicians who practice Geriatrics. It describes medicine and surgery in later life as encountered at a general hospital. After a preliminary discussion of the difficulties of diagnosis due to silent disease and multiple pathology, the author goes on to consider the maintenance of health and home care for old folk. His chapters on rehabilitation are interesting and also informative. He continues with accounts of surgery in aged subjects; cardiac and vascular disease; respiratory disorders; neurological lesions; and so on, for every system in the body. Dr. Exton-Smith also shows pictures of equipment used for rehabilitation of hemiplegic patients, one or two clinical photographs and a few X-rays of conditions commonly found in later life. The book concludes with an index and a list of authorities from whose writings quotations have been made.

When reading this volume, the reviewer was reminded of the book "Diseases of Old Age," written by Colonel Lipscomb in 1932, at the Royal Hospital, Chelsea. Both attempt to cover the whole gamut of disease in old age. Both quote extensively from the writings of general physicians and surgeons. Neither offer much original observation from their own material. As a simple text-book of the diseases of later life, "Medical Problems of Old Age" is quite useful. It gives a reliable account of what is already known in this field and can be commended to the senior student.

T. H. H.

MIDWIFERY BY TEN TEACHERS, 9th Edition.
Edward Arnold (Publishers) Ltd. 32s. 6d.

This book is intended for students and young practitioners and it fulfils this rôle very adequately. Coming as it does from a long line of previous editions, it is well planned. And the present edition has three new chapters on neo-natal paediatrics, which are very informative.

On first acquaintance, the book gives the impression of being a rather dull manual; but this impression is soon lost, since the text is in good style and full of concise and clear information. Alternate theories and methods of treatment are described shortly, and the authors are to be congratulated on limiting discussion to important and basic points, without discursive matter relating to interesting but debatable theories.

The chapters on albuminuria and pregnancy, and diseases associated with pregnancy, are very good. And if the short chapter on ante-natal care was read and remembered by students and practitioners, it would undoubtedly prevent unnecessary obstetric tragedies in general practice.

There are some minor criticisms that can be made, such as the very poor illustrations shown in figs. 4, 86, and 90. On the whole the illustrations are clear and accurate, and X-ray reproductions

are of good quality. Good use is made of a simple sub-titling layout, the printing is clear and the paper of good quality.

This book can be recommended as a concise and complete guide to current obstetric undergraduate teaching in London, and should help the examinee in any trial in the examination rooms.

S. F. HANS.

TEXTBOOK OF MEDICINE FOR NURSES, 2nd edition. By J. W. JOULE. H. K. Lewis & Co. Ltd. 27s. 6d.

The first edition of Dr. Joule's book was published three years ago, and he has needed to make few alterations to bring it up to date. The second edition has enabled the publishers to reduce their price, and the author to make two major changes. The chapter on nephritis is now in accord with general opinion on classification and nomenclature. The section on drugs has been considerably changed and improved by omission and inclusions, but a curious mistake still persists on page 461, where papaveretum (omnopon) is consistently described as "papaverine." The clear pleasant style of the author and the attractive format of the book remain its leading characteristics.

W. E. H.

AWARDS

JUNIOR SCHOLARSHIPS IN ANATOMY & PHYSIOLOGY 1955

1st Scholarship: G. M. BESSER.
2nd Scholarship: R. J. CHAMBERS.

BENTLEY PRIZE 1955

Awarded to
M. E. PLUMB.

TREASURER'S PRIZE 1955

Awarded to
T. H. HAYLE

Certificates:
B. N. Ballantine
B. M. Brookes



A Warbling of Words

"None of your medical jargon", patients sometimes say haughtily; "just tell me what's wrong".

Yet if I reply: "You've got a pain in your back", or "Medically speaking, I should call that a spot on the face", they are not really satisfied. They much prefer to be told they have lumbago, or a macule. Everybody, including the doctor, likes to give a nice dignified name to a thing: it seems so businesslike.

According to the Oxford English Dictionary, drowsing through the centuries, this contemptuous use of the word "jargon" for "the language of scholars, the terminology of a science or art" is quite recent, only dating from about 1651. Before that jargon meant, for the Old Frenchman, a warbling or twittering of birds, becoming nonsense or

Irritating of us to leave this delightful essay unfinished? Blame space—and send us a p.c. if you'd like to finish reading it. This is one of the now-become-famous "Praisings of Podalirius", written by an erudite doctor with a deliciously humorous pen, and collected in a booklet. Shall we send you a copy? Our address is below.

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ST. BARTHOLOMEW'S HOSPITAL JOURNAL

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EDITORIAL

*When a dog bites a man that is not news, but when
a man bites a dog that is news.*

What is News? C. H. Dana.

EVERY MONTH without fail there arrives at the Clerk's office a bundle of press cuttings; forwarded by those industrious people who, armed with nothing more than a pair of scissors and a bottle of aspirins, spend their days scanning papers and magazines for the words Bart's or St. Bartholomew's Hospital. These items, removed from the context of the front page of the *Daily Mirror* or the leader column of *The Times*, make a strange assortment; and would give an extraordinary impression of Hospital life to a future archivist denied, through some mishap, of other sources of information. Nevertheless, all the cuttings have, or had, one thing in common, namely, news value.

What makes a headline story is difficult to say, and one has only to glance through the morning papers to realise that editors differ widely in their opinions. A story considered good enough for the front page of one paper may get no further than the editorial waste-paper-basket of another. But after one has discounted the mere pandering to morbid appetites and the cataloguing of new facts, there remains the criterion proposed by Dana in the *New York Sun* many years ago, which is, in essence, unusualness. To be successful a story must have this quality. Even the every day and conventional happenings recorded in the society columns must seem unusual, if not downright bizarre, to the majority of the people who read about them.

News items are seldom of the "man bites dog variety" to begin with; on the contrary, they are mostly commonplace or, if unusual, only of interest to a particular section of the community. It is the art of the reporter which

by selection and emphasis gives them news value. The most innocuous remark can take surprising shapes when seen through the magnifying glass of the Press. We say this with some feeling, for not long ago some harmless (as we thought) *Journal* comments on Mrs. Dale's Diary were transmogrified into the headline: *Mrs. Dale so degrading say doctors*. A case, surely, of news hound biting news hound!

Some of the Press articles referring to the Hospital or the activities of its staff are factual—the opening of a new department and so on; but the majority are either human interest or vaguely scientific. One or two simply defy classification. For example, just how did our Professor of physics come to be rubbing shoulders with Dr. Strabismus in Beachcomber's *By the Way*? No one was more perplexed than we were except, possibly, Professor Rotblat.

Human interest stories are apt to prove embarrassing for the people concerned. It's rather a shock to realise that one's personal affairs provide, however briefly, a topic of conversation for millions. And we sympathise with a certain House physician who, so we are told, was too self-conscious to enter the wards because the patients had learnt with their morning coffee that he was to wed the daughter of an American millionaire.

The homage paid by facts to news value is most apparent in the reports of medical and scientific matters. Admittedly, a few papers maintain a fair standard of scientific reporting; but unfortunately these are not the ones with the widest circulation. In all fairness it should be pointed out that the fault lies more

in the public than the reporters. It needs considerable ingenuity to hit upon a headline that will impede the progress of a pair of eyes moving all too quickly from the bathing beauty at the front to the strip cartoons at the back. The reporter is forced to think in terms of headlines and it is only natural that the article will be tailored accordingly.

Science and medicine are not as prominent in our bundle of press cuttings as one would expect, for Science fiction has raised the premium of news value. These days children are better acquainted with the "Darfsteller of Beltegeuse" than with "Eric, or little by little." And the response of readers to the

Sir Geoffrey Langdon Keynes

We congratulate Sir Geoffrey on his Knighthood bestowed in the Birthday Honours. There can be no doubt that this was richly deserved, for his achievements are various and remarkable.

Sir Geoffrey came to Bart's from Cambridge, where he gained a first, and, after qualifying in 1913, saw service in the war as a major in the R.A.M.C. He was mentioned in dispatches. In the second world war he held the rank of Air Vice-Marshal and was senior consulting surgeon to the R.A.F. Early in his career he decided to specialize in surgery, becoming an F.R.C.S. in 1920. But he now possesses the unusual distinction of being a Fellow of all three Royal Colleges (R.C.S., R.C.O.G. and R.C.P.) His contributions to medical knowledge have been on subjects ranging from blood transfusion and the treatment of breast cancer to the surgery of the thyroid and thymus glands.

Few medical men can have completed a paper, say, on the surgery of the thymus and, turning over the page, begun work on the scenario of a ballet. But Sir Geoffrey has done just that, for, as an authority on the poet and artist William Blake, he collaborated with Vaughan Williams in the production of the masque 'Job'. As befits a President of the Bibliographical Society he has compiled the bibliographies of many famous people, among them John Donne, Sir Thomas Browne and Jane Austin. He is also a trustee of the National Gallery.

Sir Geoffrey is consulting surgeon to the Hospital, to the Mt. Vernon Hospital and Radium Institute, and to the New End Thyroid Clinic.

most astonishing scientific advance is likely to be: "Haven't I heard that before somewhere?" Nevertheless, Dr. Strauss had an easy winner with his researches on Diandronc — *New he-man drug makes a man get married*; so did Dr. MacDonald with the demonstration of his high-speed films at a Royal Society conversation — *Do falling cats use tails as air brakes?* The latter headline is a mild example of the "Mrs. Dale" treatment. The emphasis that Dr. MacDonald places on this aspect of his work can be discovered by reading his interesting article in this issue of the *Journal*.

Board of Governors

The Minister of Health, Mr. Iain Macleod, has made the following appointments to the Board of Governors:

REAPPOINTED: Mr. A. M. Belson-Barratt, Mr. F. C. W. Capps, Lady Ismay, Rear Admiral Piers K. Kekwich, Sir Denys C. F. Lowson, Sir James Paterson Ross.

NEW MEMBERS: Mr. J. I. Law Brooks, Mr. C. E. Nicol.

One appointment is outstanding.

Dr. G. W. Hayward and Dr. R. M. B. MacKenna have been reappointed to the Boards of the *National Heart Hospital* and *St. John's Hospital for Diseases of the Skin*, respectively.

Darkness at Noon

No sooner had members of the rugger club changed into their kit in preparation for the annual photograph one sunny June day than a great gloom fell over the square, and indeed over the whole city. The sky grew blacker and blacker and at length it was decided to take the photographs by flashlight, which incidentally, enhanced rugged features not a little. There was considerable speculation amongst the onlookers as to the meaning of this phenomenon, many holding that it was an ill-omen for the next season. Still, the Club can take some comfort from the meteorologists, who explained it away in terms of cloud levels and trapped smoke. But they can't fool us. Whoever heard of smoke without fire?

Wix Prize Essay

The subject for this year's Wix Prize is John Freke (1688–1756), surgeon to the Hospital. Freke was renowned in his day as a man of parts, learned in science and a judge of painting. Hogarth and Fielding were among his friends and he is mentioned

elected an F.R.S. His *An Essay on the Art of Healing* shows that he was aware of the dangers of incomplete removal of the lymphatics in the treatment of breast cancer. Freke was clever with his hands and a carved oak chandelier made by him hangs above the staircase to the Great Hall. He is buried in St. Bartholomew's-the-Less.



John Freke, M.D., F.R.S.

by name in the latter's Tom Jones. Whilst at the Hospital he was charged by the Governors to care for those persons with afflicted eyesight, thus becoming our first ophthalmic surgeon. He was also the first curator of the pathological museum.

Freke's published works include a monograph on the causes of electricity. In this he considers its *Influence in the Blasts on Human Bodies, in the Blights on Trees, in the Damps in Mines, and as it may affect the Sensitive Plant*. Not surprisingly he was

The life and works of John Freke are fascinating and will amply repay any investigation. Those interested who desire references and further information should speak to the librarian, Mr. Thornton, who will be glad to assist them.

There is good evidence that this striking bust, which shows Freke to be a man of character, was by a contemporary artist. It may be seen in the library gallery. The Department of Medical Photography took the photograph.

No wonder!

We are indebted to Dr. Harold Royle for sending us this amusing letter, which he received from one of his patients.

Dear Doctor,

Will you please leave me a proscru-
tion for some lint as the gorse you gave me
is irritates the skin.

Thanking you,
Yours respectfully,
— (Mrs.)

The *Journal* would like to hear from other readers who possess notes of this genre.

Cups and Pots

The magnificent silver cups that have made a transitory appearance on the refectory table in the last few weeks are the spoils of the Sailing and Boat Clubs. They have now joined their fellows in the relative anonymity of the library display case.

The Sailing Club have won the Sherren cup, the inter-hospitals race, for two consecutive years; whilst the Boat Club, in winning the Junior-Senior IV's at the Walton Amateur Regatta, have completed a hat-trick. The Captain of Boats is grumbling because this is the only event at Walton for which no cup is presented—four pewter pots only. But, after all, toasting your victory in beer, instead of the customary champagne, must represent a considerable saving over the years.

A Bart's crew also won the Senior VIII's in the Putney Town Regatta; the first time the Hospital has won a Senior VIII event in an open Regatta. At Henley they were less successful, but nevertheless managed to win the Spare Men's Pairs (known in rowing jargon as the Minor's Bowl). This honour was shared with Balliol College, Oxford, who provided the other spare man. Balliol and Bart's: Brains and Brawn—truly an unheatable combination.

* * *

Abernethian Society

Inaugural meeting on September 22nd. Mr. Duncan Fairn (H.M. Director of Prisons) will speak on: "Prison—An Adventure in Paradox."

Art Exhibition

We remind readers that the exhibition will be held at the Hospital in October. Anyone connected with the Hospital may exhibit work. Those interested who desire further information should write to the Secretary, Art Exhibition Committee, care of the Abernethian Room, St. Bartholomew's Hospital.

* * *

Golfing Society

The 20th autumn meeting of the *St. Bartholomew's Hospital Golfing Society* will be held at the South Herts Golf Club, Totteridge, on Wednesday, September 28. The Society is open to all qualified Bart's men and holds spring and autumn meetings on a Wednesday afternoon in May and September at various golf clubs in and around London. New members are always welcome; the life subscription being five shillings to cover the cost of sending out notices. Anyone wishing to join should communicate with the secretaries: M. B. McLlroy, Dunn Laboratories, and W. J. Hanbury, Pathology Department, at the Hospital.

* * *

Catholic Society

Evening Mass will be celebrated at 8.30 p.m. on Wednesday, August 24, the Feast of St. Bartholomew, at St. Etheldreda's Church, Ely Place, E.C.1.

* * *

Medical College**TRAINING POSTS FOR GENERAL PRACTICE**

Applications are invited for two posts being instituted in the Medical College as from October 1, 1955. They will be called *General Practice Clinical Assistantships* and will be for one year, or for eighteen months if the successful candidate wishes to include Midwifery. They will be paid at the rate of £745 per annum.

The posts will be essentially for training in General Practice and will take the form of Clinical Assistantships in various Special Departments.

Applicants should write to the Dean as soon as possible, they will not be expected to have higher degrees or qualifications.

THE HORMONAL BASIS OF PERSONALITY

by A. W. SPENCE

OUR KNOWLEDGE of the functions of the endocrine glands has been acquired by studying the manifestations of disease of these organs and by observing the effects of removing a particular gland and of administering extracts of the gland or the hormone itself. In considering the hormonal basis of personality we can only analyse it by adopting similar methods, namely, by observing in man the changes in personality which arise when a particular gland is over-active or underactive and when the gland is removed or the hormone administered. But studying personality is not so simple as this, for we have to take into consideration two complicating factors: (1) the change in personality that may result from a given procedure or from a certain disease may be different in different individuals and in some there may be no evidence of a personality change at all; and (2) any change in personality which may arise may not be directly due to excess of the hormone or to the lack of the hormone itself, but may be a secondary reaction brought about by some symptom which is disturbing to the patient.

What is personality? Perhaps I may define it as our temperament, bearing and behaviour which are the sum result of civilisation, our stock and forebears, our upbringing and our education, our environment, genetic influences and the secretion of certain of our endocrine glands. As we shall see, glandular disturbances may cause profound changes in personality, but as I have said our glandular secretions are not the only factors which mould our personality.

The glands which are worthy of consideration in our subject are the anterior lobe of the pituitary gland, the thyroid gland, the adrenal cortex and the gonads. The other ductless glands, namely, the posterior pituitary, the parathyroid glands, the adrenal medulla and the islets of Langerhans are probably of lesser importance in determining personality and therefore I shall deal with these very briefly.

Posterior pituitary. Any disturbance of personality which arises from deficient secretion of the posterior lobe of the pituitary, namely, diabetes insipidus, is the result of the symptoms which lack of anti-diuretic hormone produces and is not due to the deficiency *per se*. On account of thirst and excessive frequency of micturition sleep is disturbed; hence there may arise such neurotic symptoms as irritability, depression and even suicidal tendencies.

Parathyroid glands. In parathyroid deficiency psychoses arise in only a few cases and these are probably due to failure of the brain to adjust promptly to the rapid chemical changes which lack of parathyroid hormone induces and which are characterised mainly by the marked fall in the level of the blood calcium. These parathyroid psychoses have no characteristically specific type; they consist of delirium, anxiety, depression, delusions, hallucinations, dementia and suicidal tendencies. On the other hand, hyperparathyroidism produces few if any disturbances of the psyche apart from depression which is a secondary reaction to the illness.

Islets of Langerhans. Hyperinsulinism, due to hyperplasia or an adenoma of the islets of Langerhans, in producing a hypoglycaemic state may damage the cells of the higher centres and thereby produce such psychological disturbances as loss of memory, emotional instability, automatism, stupor, hysteria, depression and manic, confusional, paranoic and hallucinatory states.

Adrenal medulla. In phaeochromocytoma of the adrenal medulla the excessive secretion of adrenaline may give rise to feelings of anxiety and fear.

Thus while there is no doubt that hypofunction of the posterior pituitary and of the parathyroid glands and hyperfunction of the islets of Langerhans and of the adrenal medulla do produce in some cases marked

changes in personality, one cannot say that the minor differences in personality which one may observe in people are due to slightly excessive or slightly deficient secretion of these organs. It is more likely that from the endocrine aspect personality is dependent partly on the secretions of the anterior pituitary gland, the thyroid gland, the adrenal cortex and the gonads.

THE ANTERIOR LOBE OF THE PITUITARY GLAND

So far as is known at present the anterior pituitary gland secretes six hormones: the growth hormone, the thyrotrophic hormone which controls the activity of the thyroid gland, the adrenocorticotrophic hormone which regulates the function of the adrenal cortex, two gonadotrophic hormones on which the function of the gonads depends and the lactogenic hormone. Variations in the secretion of thyrotrophin, corticotrophin and gonadotrophin produce corresponding variations in the secretions of the target organs which they stimulate. Any changes in personality which arise through dysfunction of the anterior pituitary are therefore due to the increase or decrease of the secretions of the thyroid, the adrenal cortex and the gonads. Thus psychological disturbances which may occur in Simmonds's disease, caused by destruction of the anterior lobe, are produced by thyroid and adrenal cortical deficiency, and those occurring in Cushing's syndrome, often caused by excessive secretion of corticotrophin by a basophil adenoma, are produced by hyperactivity of the adrenal cortex. In order to save repetition it is expedient to discuss the effect on personality of the hormones of these target glands, bearing in mind that sometimes the gland primarily at fault is the anterior pituitary.

THE THYROID HORMONE

There is no doubt that the thyroid hormone exerts a profound influence on the higher centres of the nervous system. The cretin, born without a thyroid or with a gland which does not function, is an imbecile, unresponsive to physical and mental stimuli and incontinent of urine and

faeces. In less severe cases mental development is greatly retarded. In still less severe cases, slowness and torpor are the characteristic features; cretins are slow to understand or to do what they are told, however simple. They have no initiative and may have to be asked each day to do the same daily task. They are placid, stolid and amiable, but sometimes they are spiteful and bad-tempered or they may have occasional bouts of irritability and aggressiveness. Obstinacy is a frequent trait and many cretins have obsessional psychological features, such as excessive care about order and cleanliness, with a proneness to repeat their behaviour. It is thought by some observers that although the torpor is probably due to hypothyroidism the mental defect in sporadic cretinism is not the result of lack of thyroid, but is congenital and is probably produced by the same cause as the thyroid aplasia.

In myxoedema the mental processes are slowed and the memory is poor; the patient becomes less efficient, forgetful, leaves undone those things which should have been done, takes less interest in affairs and in work and has a failing power of concentration. Later the patient becomes listless, lethargic and apathetic and in the still later stages may lead a vegetative existence, paying little attention to his or her surroundings and to external events. Psychoses sometimes occur; they consist of a wide variety of mental changes and include hallucinations, delusions of persecution, disorientation, acute or chronic mania, dementia, melancholia, and paranoid and schizophrenic states. Treatment with thyroid corrects all these disturbances of personality in a remarkable way. One of the first patients treated has been reported by Raven (1924); this was a woman who developed myxoedema in 1870 when she was aged 41; as there was no effective treatment at that time, she became bedridden, bald and imbecile and remained in that condition for over 20 years. Treatment was begun in 1893 when she was aged 64; within 15 months she became practically normal and lived a happy, healthy and active life until she died of bronchitis in 1924, at the age of 94.

In the opposite condition, hyperthyroidism, nervousness, excitability and restlessness are common manifestations of this disease, and, even when these symptoms are not obvious, on closer questioning the patient may admit that "she keeps her emotions pent up inside

her" and worries over trifles. The more serious psychological disturbances of hyperthyroidism are melancholia, delusions, hallucinations and mania; it is, however, unlikely that these features are caused primarily by excess of thyroid hormone, but they may be considered to be the reaction of a psychopathic personality to thyroid intoxication.

The thyroid hormone thus plays an important part in maintaining a balanced mental state and hence in determining our personality.

Now in perfectly normal people the amount of hormone secreted by certain of their ductless glands may vary considerably from one person to another. The shift from the normal to the abnormal is not necessarily clear-cut, but it is gradual like an inclined plane, thus it may be difficult to say where normality ends and abnormality begins. This normal variation in secretion is especially seen in the thyroid gland: the dead-line normal basal metabolic rate is zero, but the normal variation ranges from minus 15 per cent. to plus 15 per cent. Variations in personality in perfectly normal people may sometimes be due to a slight increase or a slight decrease of thyroid secretion. A slight increase will cause an individual to be keen and alert, somewhat highly strung, energetic and rather a worrier; he does not feel the cold and has a regular action of his bowels once or twice a day. On the other hand, the opposite is somewhat phlegmatic, takes things as they come, is usually calm, is not a worrier, is not a "go-getter," feels the cold and may be constipated.

THE ADRENAL CORTICAL HORMONES

We now come to the adrenal cortex and the adrenocorticotrophic function of the anterior pituitary gland. Under the influence of corticotrophin the adrenal cortex secretes (1) glucocorticoids, such as corticosterone, hydrocortisone and cortisone, (2) mineralocorticoids exemplified by deoxycortone and aldosterone, (3) androgens and (4) oestrogens and progesterone. Adrenal cortical deficiency may be primary or secondary to deficient secretion of A.C.T.H.; similarly adrenal cortical hyperactivity may be primary or secondary to excessive secretion of A.C.T.H.

Destruction of the adrenal cortex gives rise to easy fatigue and later to asthenia or weakness; the psychological changes which occur are depression, apathy, listlessness and irritability. All these symptoms disappear with the administration of deoxycortone and cortisone. Through deficiency of androgens there may be loss of libido and impotence.

There are two main types of adrenal cortical hyperfunction—Cushing's syndrome, due to excess of glucocorticoids, and the adrenogenital syndrome or adrenal virilism, due to excess of androgens. Cushing's syndrome is characterised by plethoric obesity, hirsuties, purpuric striae, hypertension, hyperglycaemia, amenorrhoea and osteoporosis and is caused by a basophil adenoma of the anterior pituitary gland or by a benign or malignant tumour of the adrenal cortex. The commonest personality changes in Cushing's syndrome are mental depression and dullness. Starr (1952) has analysed the psychological changes in 53 cases of this disease and found that they were present in 60 per cent of the patients. Thirteen (25 per cent) showed frank psychoses either necessitating their admission to a mental hospital or resulting in attempted suicide. An additional 19 (35 per cent) had definite and marked personality changes. The frequency of significant mental and emotional disturbances was as follows:—

Severe depression	...	...	25 per cent
Frank psychoses	...	...	15 " "
Nervousness and irritability	15	"	"
Mental retardation and dullness	...	...	11 " "
Attempted suicide	...	...	10 " "
Anxiety and insomnia	...	...	10 " "
Chronic confusion	...	...	4 " "
Convulsions	...	...	4 " "
Euphoria	...	...	2 " "

In the past these psychological disturbances have been considered as being secondary reactions arising from the changed and grotesque appearance of the patient rather than being due to any direct hormonal effect. While this view may be true in a number of cases, it has to be modified in the light of experience in the use of A.C.T.H. and cortisone in general medicine. Treatment with these hormones often results in mental changes of varying degree: the commonest of these is euphoria, while other changes are garrulousness, giggling, excitement, restlessness, apprehensiveness, anxieties, phobias, depression and, less commonly, hypomania,

schizophrenic states and suicidal tendencies. These personality changes usually disappear within three weeks after administration of the hormone has been stopped (Derbes and Weiss, 1951). We must conclude, therefore, that the adrenal cortical hormones do have a direct effect on personality. What is confusing, however, is that whereas euphoria is the commonest mental change induced by A.C.T.H., it is rare in cases of Cushing's syndrome. Whether the normal differences in personality can be attributed to varying degrees of secretion of A.C.T.H. and the adrenal corticoids it is difficult to say.

By adrenal virilism is meant the development in children and in women of secondary sexual characteristics resembling those of the adult male as a result of the excessive secretion of androgens by the adrenal cortex. In women there are increased growth of the hair on the face, trunk and extremities, amenorrhoea and enlargement of the clitoris. In children the condition is characterised by pseudo-sexual precocity. It is caused by a tumour or by hyperplasia of the androgen-secreting cells of the adrenal cortex. Should this disturbance arise in foetal life the result is pseudohermaphroditism in the female and macrogenitosomia praecox in the male.

In adrenal virilism psychological changes are not uncommon. Here again, as in Cushing's syndrome, some of these disturbances are secondary and are brought about by the changed appearance of the patient and others may be due to the direct action of androgens. Of the secondary disturbances are the avoidance of the company of others through embarrassment and an obsessional neurosis that she is changing into a man. The personality changes produced by androgens are lack of modesty, a masculine outlook and occasionally a deviation of the sexual instinct to homosexuality. Yet in spite of the excess of androgens many patients with adrenal virilism have a normal female psyche.

The masculinity of the male is partly determined by androgens secreted by the adrenal cortex and by the Leydig cells of the testes and we have seen that masculine traits may be produced in women as a result of the excessive secretion of androgens by the hyperactive adrenal cortex. The somewhat masculine type of woman, without hirsuties and with normal menstruation is not uncommon; her dress, while not that of the opposite sex, is severe and plain, her hair is cut after the fashion of the male, the hands tend to be of

the male type and sometimes the fingers are stained with the juice of tobacco, she is forceful and energetic and perhaps to some males a little frightening, she may be a leader of some cause or of her profession, a public speaker or a politician and when or if she marries, the cartoonist usually depicts her husband as the docile worm that never turns. I should hesitate to say that this masculine type of personality is due to an hormonal imbalance with androgens predominating or that it is due to genetic factors affecting the psyche.

THE SEX HORMONES

Testosterone. I shall now turn to the effect on personality of lack of testosterone, the male sex hormone secreted by the interstitial tissue of the testes. Gibbon has given an account of the character of the eunuchs who held sway over the court and councils of the Roman Emperor Constantius, about A.D. 350. According to Gibbon, *the aversion and contempt which mankind has so uniformly entertained for that imperfect species appears to have degraded their character and to have rendered them almost as incapable as they were supposed to be of conceiving any generous sentiment or of performing any worthy action. The eunuchs were skilled in the arts of flattery and intrigue; they intercepted the complaints of injured provinces; they accumulated immense treasures by the sale of justice and of honours and they disgraced the most important dignities by the promotion of those who had purchased at their hands the powers of oppression.* In spite of these statements, history has shown that the attainments of eunuchs in art, government and military affairs have been high. One of the most famous was Narses, the statesman and general in the time of the Emperor Justinian.

A far more common cause of lack of testosterone than eunuchism is failure of testicular function; this may be primary through an inherent failure of the testes to develop, a condition known as eunuchoidism, or it may be secondary to deficient secretion of gonadotrophins by the anterior lobe of the pituitary gland (hypopituitary hypogonadism). Common personality changes in testicular deficiency are diminished power of concentration, lack of mental drive and energy and lack of aggressiveness or pugnacity. These

individuals are passive and accommodating and yet at the same time they may exhibit phases of obstinacy and irritability. All these personality traits appear to be due to lack of testosterone and are much improved by its therapeutic use. The intelligence of these people is normal and sometimes well above normal; they are often artistic; they rarely show skill in games and their mannerisms may be somewhat feminine. Lack of libido and impotence are usual and on this account they may have a sense of inferiority; this aspect of their personality is also greatly benefited by treatment with testosterone.

Oestrogens. The universal condition in which there occurs a physiological reduction of oestrogen is the menopause. The psychological disturbances which may arise at this period of life are emotional instability, irritability, insomnia, nervousness, depression and failing memory and power of concentration. More severe disorders are involuntal psychoses, melancholia and suicidal tendencies. Since the vast majority of women, however, go through this phase of their life without any psychological disturbances or personality change whatever, it would appear that oestrogen is not an important factor in determining personality. It is generally considered that the psychological disturbances which may arise may be largely produced by the feeling of dread which some women experience as they approach the change of life and realise that they are ageing. On the other hand, psychotic and psychoneurotic trends may have been present before the menopause, but may have been kept under control: the menopause may have been the trigger which upset the previous adjustment.

Ovarian infantilism, in which the genitalia remain in the infantile state, is due to oestrogen deficiency caused by failure of ovarian development. Mental development and personality may be normal, but often an adult outlook on life is not acquired in these women, who may strike one as being somewhat immature mentally. It is difficult to decide whether this mental immaturity is the direct result of oestrogen lack or whether it is the result of the genetic disturbance which may be responsible for failure of sexual development. Libido and attraction to the opposite sex are usually absent and, through their knowledge of their physical shortcomings, they may have a sense of inferiority.

a self-consciousness and even an anxiety state.

It is thus doubtful what part oestrogen plays in determining personality directly or whether it plays any part at all. Oestrogen deficiency arising in adult life appears to produce little if any change, but it is possible that during the period of growth it may cause some degree of mental immaturity.

Premenstrual tension. Mention should be made of the peculiar condition known as premenstrual tension or the premenstrual syndrome. Not uncommonly during the premenstrual week women experience an indescribable feeling of tension which develops into marked physical unrest and constant irritability. The disturbance may mimic an oncoming mental disease, characterised by exhausting periods of motor activity followed by brief periods of depression and lethargy. Frequent symptoms are extreme annoyance over trifles, unreasonable emotional outbursts, causeless crying spells, painful tingling of the breasts and constant headache; nymphomania may also be a feature. The condition is thought to be due to water retention and the evidence available suggests that this in its turn is due to abnormal elevation of the oestrogen/progesterone ratio (Greene and Dalton, 1953). It is undoubtedly true that many cases are benefited by the administration of progesterone during the second half of the menstrual cycle.

INTERSEXUALITY

Intersexuality means the presence of variable mixtures of male and female sexual structures. The occurrence of both an ovary and a testis or of the combination of these two tissues in one gonad (ovotestis) in an individual is commonly referred to as "true hermaphroditism." (This term is thus not used in the strict biological sense.) When a person possesses the gonads of one sex and the other sexual structures, wholly or in part of the opposite sex, the condition is termed pseudohermaphroditism — male pseudohermaphroditism when the gonads are testes, and female pseudohermaphroditism when they are ovaries. Female pseudohermaphroditism is produced by excessive secretion of androgens by the foetal and sometimes,

possibly, by the maternal adrenal cortex. In male pseudohermaphroditism congenital hyperplasia of the adrenal cortex is rarely found. Greene (1944) has suggested that male pseudohermaphroditism is brought about by temporary excess of maternal oestrogens, but other observers maintain that it is always caused by a genetic disturbance. Whether true hermaphroditism is caused by a genetic or by an hormonal disturbance is controversial: either may be the factor in different cases.

True Hermaphroditism. In true hermaphroditism it is not possible to determine anatomically whether such persons are feminised males or masculinised females; as Cawadias (1946) has suggested, the only way out of the difficulty is to rely on the patient's will to be male, or will to be female, as the case may be. These individuals may have the habitus, mannerisms and sexual desire of the male or of the female depending on their psychological make-up. They may have sexual intercourse with persons of either sex, but those of the male type experience greater pleasure with women and those of the female type with men. Now is this type of personality produced by the dominant sex hormone or is it genetic with no relationship to the hormonal secretions? The following case of two sisters illustrates the problem (Witschi and Mengert, 1944):—

Aged 26 and 24 these persons were predominantly female and had smooth skin, no hirsuties and well-developed breasts. The older patient went to hospital to have two lumps removed which "got in her way when she danced with a man." These were testes, proved by section, contained in a bifid scrotum. She possessed a penis, but the meatus of the urethra opened at the base; vagina, uterus, tubes and ovaries were absent. The seminal tubules of the testes contained spermatogonia, but no spermatozoa, and in many of the tubules there were large numbers of follicle-like vesicles. The urinary oestrogens were present in considerable amounts and the urinary androgens were low. Psychologically the patient was female, had never been attracted to girls and had married twice.

Her sister was also basically female in spite of nearly complete male sexual organs.

Male Pseudohermaphroditism. Psychologically patients with male pseudohermaphroditism are usually predominantly male, but sometimes their psyche is female. Libido and potency vary; they may be absent or there may be an attraction to the male or to the female sex. If these individuals marry they usually marry as males, but sometimes they live socially as females and marry as such. The following is a case of male pseudohermaphroditism reported by Chapple (1937):—

This was a beautiful woman, aged 18, with a well-developed female body, female type of hair growth, large and full breasts and a rounded and well-developed pelvis. The clitoris resembled a small penis, the labia were larger than the average and the vagina was about 1½ inches in length and terminated in a smooth rounded extremity. There was no evidence of a uterus. She was very active sexually, her desires being invariably directed to males. During subsequent years laparotomies were performed for a painful lump first in the right groin and later in the left. They proved to be testes, and one of them, removed at the patient's request, had the histological appearance of the atrophied organ. Thorough examination of the pelvis on the occasion of three laparotomies failed to reveal any ovaries.

According to the definition, this case is one of male pseudohermaphroditism, however, I find it difficult to believe that because of the possession of testes and the absence of ovaries the patient was fundamentally male. The individual appears to be a masculinised female and it would seem to me that the female psyche was probably of genetic origin rather than due to the action of oestrogen.

Female pseudohermaphroditism. Psychologically persons with female pseudohermaphroditism have predominantly a female psyche, though the male psychological trends are often evident and occasionally they are dominant. Sexual attraction is usually toward the male sex, but the opposite has been observed. The following case, reported by Young (1937), illustrates this latter statement and demonstrates that the psyche can be profoundly influenced by androgens:—

The patient was originally seen at the age of 11 and was found to have a "hypospadiac penis," labia majora and a

perineal opening of the urethra. Exploratory laparotomy was performed and well-formed tubes, ovaries and uterus were found. There was no evidence of any testicular tissue. Physically the patient looked like a well-developed boy. The voice was coarse, there was hair on his face and upper lip, although the pubic hair was of female distribution. The breasts were of the male type, but the pelvis and thighs were of the female shape. Although the patient was conclusively demonstrated to be a female pseudohermaphrodite, his parents continued to rear him as a male. At the age of 14 he grew a moustache and at 16 he began to have frequent coitus with women. The coitus was always accompanied by ejaculation.

By the time he reached the age of 31 he had established himself as a successful business man. He had the appearance of a short, but well-formed man. He had fallen in love with an attractive woman with whom he led an apparently normal sex life. His attempt to marry his fiancée was frustrated by his religious adviser who was aware of the true nature of his sex. In despair he committed suicide. At autopsy the previous operative findings were confirmed and in addition there was found marked hypertrophy of the cortex of the adrenal glands.

Transvestism. While we are dealing with the subject of intersex mention should be made of the peculiar condition of transvestism or eonism, which means that the individual has an urge, which he or she gratifies, to dress in the clothes of the opposite sex. The term eonism is derived from the Chevalier d'Eon who was a victim of this disorder. In more advanced forms the person, who is perfectly normal physically, wishes to be converted into the opposite sex by hormonal therapy and by plastic surgery. The end-result of such a procedure is mutilation. The condition, as I see it, is a psychological derangement and is not the result of any hormonal disturbance.

Homosexuality. Homosexuality, like transvestism to which it is allied, is an abnormality of personality and should, therefore, probably not be included in this discussion. The

question is whether it has an hormonal basis. Swyer (1954) has discussed this problem and has concluded that there is no convincing evidence that human homosexuality is dependent upon hormonal aberrations and that the use of sex hormones in the treatment of homosexuality is mainly disappointing. With this opinion I entirely agree. As Armstrong (1955) has pointed out, passive (female-role) male homosexuals have a female outlook and may present certain physical feminine characteristics, such as a somewhat feminine appearance, feminine type of voice, deficient beard and female type of pubic hair. Of the two patients he has reported, one had a high output of 17-ketosteroids (22.2 mg. per 24 hours) and the other a low output (8.5 mg. per 24 hours). Armstrong considers that it is extremely likely that in this passive or female type the homosexual characteristics are of genetic determination, but that active male homosexuality presents a different problem.

CONCLUSION

In conclusion I suggest that from the endocrine aspect personality depends upon the secretion of thyrotrophin, corticotrophin and gonadotrophins by the anterior lobe of the pituitary gland, upon the thyroid hormone, hydrocortisone, cortisone and the androgens.

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AN EXHIBITION OF HOSPITAL ARCHIVES

by MISS M. V. STOKES

(Assistant Archivist)

THE RECENT DISPLAY in the Great Hall on May 13th and 14th, arranged at the request of the National Art Collections Fund, included many exhibits shown in Coronation Year. There were, however, two new sections illustrating the beauty of the medieval documents and the estate plans. The former were in the Great Hall on View Day, forming an important part of our theme—the care with which the Hospital records have been drawn up, an extension of the previous year's theme when we had concentrated on the Governors' concern for the safe custody and physical preservation of their Archives.

Since the attention of most visitors had already been drawn to the XVIIIth century buildings as they walked up the Great Stairs past Hogarth's murals (painted after 1734 when he became a Governor), the first tables displayed records of the reconstruction of this period. For contrast with the engravings of the orderly square designed by James Gibbs, there was a reproduction of the XVIIIth century plan of the Hospital. The history of the building was illustrated by an entry recording the acceptance of Gibbs' plans in 1729; by Ralph Allen's estimate for supplying Bath stone; by several bills presented by the plumber, smith, stone mason and bricklayer, and by John Baptist St. Michele who plastered and painted the ceiling of the Great Hall; and by the Governors' vote of thanks in 1754 to Gibbs for all his services freely rendered. Separating this section from the next were some XVIII century Delft tiles taken from the old plunge bath when Gibbs' South Wing was demolished to make way for the George V Building.

The Hospital records displayed included a fine series of plans of both its city and country property. The detailed plan of Hatfield Broadoak in Essex, made by Ralph Treswell in 1587, was shown beside the XVIIth century copy and the plan of the estate in 1892. Another country estate, Chipping, was mapped in 1848. This one is particularly interesting because the Hospital's land was scattered in strips in the

old open three field system. From the city property two plans of Smithfield houses were selected. The first was of XVIIIth century George Inn with its coffee room, bar, tap room and stables. The third item of London property was the plan and elevation of the Lock Hospital in Southwark. This, one of the six leper hospitals of the medieval City, was administered by St. Bartholomew's after the Refoundation.

Another case contained the Cartulary with Rahere's deed, the seals of Priory and Hospital, the royal seals of Henry III, Edward I, Edward II and Edward III, all of which must be familiar to the readers of this *Journal*. The original grant of Michael de Valecins was placed beside Cok's copy in the Cartulary.

Among the medieval seals on display, the finest impression was that of the Chapter seal of Ely Cathedral showing St. Etheldreda with her two husbands standing under a beautifully carved canopy; every detail is clear. Another lovely design, though simpler, as it dated from earlier in the XIIIth century, was the first seal of St. Thomas' Hospital. There were several fine XIIIth century seals, those of St. Alban's Abbey, Clerkenwell Priory and St. Giles' Hospital for lepers, being remarkably well preserved. Though these lack the detailed intricacy of the later designs, the figures of the saints without canopies or niches have an impressive dignity. Also on view was a fine group connected with the diocese of London and the Chapter of St. Paul's. Contrasted with these ecclesiastical seals were the equestrian devices used by noblemen. Many visitors remarked on the armoured knights and their spirited horses shown on the seals attached to deeds of the Albemarle family and on that of Walter Fitz Robert of Essex. A few seals of London citizens had also been selected; that of Henry de Hortun, butcher, illustrated his calling, for his device consisted of cleaver and knife; while the device of Henry the Farrier was a horse shoe with nails. To the grant of Robert de Lalieffonde,

Warden of the Fleet Gaol, allowing free passage to all ships carrying goods for the Hospital, was appended his seal with its fine



The Second Hospital Seal. St. Bartholomew stands on a lion, a slaying knife in his right hand; at the sides are shields with the Royal Arms (13th-14th cent.)

boar's head. The device of William Fitz Reyner's seal was an early armorial one—a shield of arms with a fess and in chief three rondels. Though I must pass over the other seals I cannot leave out of this account three deeds which were exhibited because they had been written by three of the Hospital's own scribes in the early and mid XIIIth century: Hugh the Clerk, William de Ripa, and Alexander de Smithfield. The latter wrote out many grants in his clear regular hand between 1226 and 1265. On each deed the clerk's name follows those of the witnesses.

The next case contained records of the Hospital after the Refoundation. A XVth century ledger had large initial letters in strapwork, and the pages of the XVIIIth century *Journal* and *Rental* were well set out. The latter, though it was not a final fair copy, had the street names in red ink. In the *Repertory*, into which original deeds were copied, the clerk had written out a

“Final Concord” in the appropriate legal hand of the Common Pleas records.

A group of documents had been chosen to illustrate the life of the parish of Little St. Bartholomew. They ranged from the baptismal entries for 1573 with the names of Dr. Lopez's son and of Inigo Jones, and the Scavengers' Book with Sir Thomas Bodley's name, to entries in the Vestry Minutes where the shortage of bread during the Napoleonic wars was discussed. The beautiful XVIIth century silver plate and pewter platters of the Church were also on display.

The remainder of the exhibition was devoted to various aspects of the Hospital's history. Here were the inventories of goods in Matron's hands in 1558, which included 77 feather beds, 306 sheets and a joynd bedstead with a testor of yellow and red hokeram; a list of ward utensils two hundred years later; and a petition from a Matron in 1771 for more pay, setting forth all her work. Problems of cleanliness were represented by two bills, one from the man who removed the night soil and the other from Roberts who cleared the beds of bugs.



The Hospital Seal of Brother Stephen's mastership. The lettering enclosing the noble figure of the Apostle reads: Sigillum Hospitalis Sancti Bartholomei (1198-1301)



The seals of the Bucuinte family attached to a grant bequeathing land to the Hospital. The seals are of dark green wax fastened to vellum tags. The first bears an eagle with half opened wings; the second, a man on horseback with a conical helmet and large shield; the third, a horseman with a falcon on his wrist.

The effects of the Great Fire were illustrated by the order removing the records to a Governor's house in the country and by a report, thirty years later, on the grievous financial state of the Hospital. The medical staff were represented by the order of 1553 compelling the surgeons to attend at 7 a.m.; by the regulations for operations, for which they received 6s. 8d.; and by the receipts of Percivall Pott and others for their fees. Also to be seen were the rules drawn up by Harvey in 1633, which placed the surgeons under the control of the physicians. Their less learned colleagues, the apothecaries, were not forgotten and beside the entries dealing with the apothecaries' shop in the XVIIth and XVIIIth centuries were crucibles, retorts and early syringes.

Patients were represented by the earliest existing register and ward book as well as by documents connected with the care of wounded soldiers and sailors in 1688 and 1914. Interspersed among these books and papers were objects that had some connection with the entries: a XVIth century pipkin, XVIIIth century candlesticks and lunatic restrainers, and a XIXth century sisters' teapot and a feeding cup.

This account is indeed only a brief catalogue of the exhibits and in this hurried description they will have lost much of their vividness and freshness; nevertheless it will, I hope, give some idea of the richness of the Hospital's Archives.

Photographs by the Department of Medical Photography

AT LAST HE SLEEPS ALONE

Slowly, sadly, the evening twilight fades
No cry disturbs the sleeping earth's repose,
The shadows fall in ever darkening shades
On him whose bed to Mother Earth he owes.
No heaving is perceived beneath his chest
No feeble pulse, no snore or gentle groan;
He came not of his own accord to rest —
At last he sleeps alone.

No flush upon his cheek detects the spark
That once in life kindled that inner fire,
His hollow eyes stare up into the dark
Dulled now, though once the windows of
desire.

He'd lived his life and died as he had lived,
Here he has time to linger with the past;
Within his narrow tomb o'ergrown with
weed

He sleeps alone at last.

No friends lay blossoms on the barren spot
Or stay awhile and breathe a muttered
prayer.

No one recalls — it seems the world forgot —
That once he lived and shared their native
air.

He needs no pity now that he is dead
But one thing is far harder to condone:
Because throughout his life he had one dread
Which was to sleep alone.

'He was a good sort' one would hear them
say,

We used to see him on a Sabbath morn
Watching the children after church at play
Or reading quietly on the village lawn.
But who shall judge by outward signs
displayed?

His lonely hours eclipsed when day had
flown
Night dropped her shroud and loneliness
betrayed —

But now he sleeps alone.

Wait! What is this? In yonder chapel grey
A figure plies her beads with eyes cast low,
Her lips move slowly — she begins to pray —
The whispered name of one she used to
know.

But sorrow may deceive, devotion dupe,
A woman's wiles may reach a pitch
unknown:

Is she grieved — or is she relieved because
She wants to sleep alone?

HOW DOES A FALLING CAT TURN OVER?

by D. A. McDONALD

THE ELEPHANT'S CHILD got his trunk as an unexpected result of his 'satiabile curiosity. For the same reason I have come upon quite unanticipated results when I recently made some very slow-motion films of the acrobatic manoeuvres performed by a cat when it is dropped. My motive was not entirely idle curiosity. The righting reflexes have a time-honoured place in the physiology lecture syllabus and a cat is always, equally traditionally, dropped upside-down to illustrate them. For though the way a cat does it has long been a physiological riddle, Magnus described it in terms of the head and body reflexes he originally discovered — and this is now repeated in all the text-books. I suppose I must be slow-witted, for I confess that I could never see what I was supposed to see. So last autumn I planned to make a short slow-motion film of the movement with an ordinary cine camera.

Now slow-motion films depend on taking a greater number of pictures per second than are projected. The fastest taking speed normally used is 64 pictures (frames)/sec. and when projected at 16 frames/sec. this slows up the motion four times. The cat turns over in about one-seventh of a second so that even on this slow-motion film it still only took about half a second to turn over, and it was still not clear how he did it. So we projected at only 2 frames/sec. on a special analysing projector and found that the individual pictures were too blurred by the fast movement. This is not very surprising for the individual frame exposure is only 1/120th second, and anyone with experience of still cameras knows that an exposure has to be a lot shorter than that to get a clear photograph of a fast movement. Obviously one needed much faster photography. As it happens I have been using a high-speed cine-camera for recording the pulsatile variations in arterial blood flow; so, with my colleague John Hadland, who is a specialist in this sort of cinematography, we filmed the same movements at 1,500 frames/sec. These films show the turning of the cat with great clarity and that has meant starting a research project,

because the first thing that is apparent is that the cat does not turn over in the way the text-books say it does.

The cinematograph technique

Before discussing the problems arising from the interpretation of the film it would be as well to say a few words about this photographic technique and also to refresh your memories about the scientific problem. The orthodox cine-camera relies on an intermittent movement of the film, so that it is stationary at the moment of exposure and is protected by a revolving shutter while it is moving on. This intermittent traverse of the film sets a limit on the speed of taking (about 200 frames/sec. has been achieved but nowadays 64 f.p.s. is the usual limit). The high-speed camera uses a quite different principle. The film is run continuously through the camera and, instead of a shutter, a block of glass is rotated between the film and the lens. Making use of the refraction of light the image from the lens is made to follow the moving film and is then cut off by a pair of hoods (like a horse's "blinkers") while the next picture comes into position. The principle is beautifully simple and the problems of design are purely technical, resulting from the high speeds involved. To illustrate this I should point out that 1 foot of 16mm. film has 40 pictures on it, thus at 3,500 f.p.s. (which is about the top speed of the camera) the film is running at 60 miles per hour. It has to accelerate to this speed in about one second. This takes up to 20 to 30 feet of film and the event one can photograph at full speed can only last some 2/3 seconds, so that split-second timing is required. Furthermore a lot of light is required, for, even at the slower speed of 1,500 f.p.s. which we have been using, the effective exposure is only about 1/5,000th of a second or less on each frame. Indoors we use eight or ten 5kW tungsten lamps, though bright sunshine is sufficient (but is harder to get when you want it).

Previous studies of the falling cat

This type of high-speed camera (Hadland uses the Eastman camera but two or three different ones are made) has been available for at least 15 years, however, I do not think it has ever been used before to study the falling cat. The first investigation of the problem was by Etienne Marey in Paris. His work as a pioneer of the biological applications of cinematography has not been appreciated fully in this country; but he invented a cine-camera for the express purpose of studying animal movement. This was functioning by 1890 and I have seen one of his original films of a bird in flight. His camera took pictures about the size we call "vest-pocket" (2½ x 1¼ in.) at a rate of 60/second but only took relatively short lengths. The turning cat was one of the first things he studied and this film was shown to the French Academy of Sciences in 1894. The film caused a furore, for several physicists present declared that it was manifestly impossible for a freely-falling body to rotate or, more technically, to acquire angular momentum, and that it must have derived a twist from its take-off. Other physicists, notably a M. Guyot, deduced a description of the movement that would fit in both with physical theory and the observations. Briefly, this was that the forepart of the body would be rotated using the inertia of the hinder part as a counter force, a net rotation being gained by flexing the fore-limbs and extending the hindlimbs. To bring the hind part into line the reverse procedure would be adopted. This description is not in fact satisfactory. I mention it to emphasize that the rotation of a falling cat presents a considerable problem of pure physics in addition to the physiological one.

In 1894 concepts of nervous reflexes were very crude (Sherrington only defined the knee-jerk as a reflex in 1891) and the function of the labyrinth as a balancing organ was quite unknown. The next investigation of the subject I have been able to trace was made by Magnus in 1922. Rudolf Magnus was a great Dutch physiologist whose interest, in what we now know as righting reflexes, had been stimulated by Sherrington in 1908. During an experiment on a decerebrate cat, Sherrington showed Magnus how turning the head caused extension of one forelimb and flexion of the other, and suggested it might be worth investigating. Magnus did so and

found that it absorbed his research for the rest of his life. This work was summarized in the magnificent monograph "Körperstellung" (Body posture) in 1924. Two years later Magnus died at the age of 54. In the 1922 paper Magnus described the movements of the falling cat, having filmed it at about 200 pictures/sec. The individual frame exposure (on 35 mm film) was probably about 1/1000th second so that the published photographs are satisfactorily clear. (These photographs were also reproduced in "Körperstellung" and by Camis (1930).) His description, and it has been repeated in all the text-books, is as follows: the head is reflexly rotated on the body until it is horizontal and the right way up, turning the head twists the neck and neck-body reflexes cause the fore-part of the body to rotate, then the twisting of the body causes the hind-limbs to be rotated. Thus there are three successive stages analogous to the tonic labyrinthine, neck and body righting reflexes, Magnus had previously described. He did not discuss the physical problem.

Rademaker, one of Magnus' pupils, and Ter Braak reopened the problem in 1936. In a lengthy paper illustrated by films rather similar to Magnus's they were much more concerned with the physical aspects of how the cat turns. They stressed the point that the cat always bends the body at the waist before turning, either into dorsiflexion or ventriflexion. They then said that by a contraction of the lateral trunk muscles of one side, the bent body, behaving like two cylinders jointed at the waist, is pulled over so that fore- and hind-limbs come over together. (Fulton's Textbook of Physiology reproduces one of their figures.)

As regards the essential receptors, Magnus and Rademaker agree that it is the otolith organ of the labyrinth which is the gravity receptor, but that the eyes can perform the same function. An animal without labyrinths and blindfolded cannot turn over.

To summarize the main points: Marey described a preliminary flexion of the fore-limbs and extension of the hind-limbs; Magnus said there was successive rotation of the head, the shoulder-girdle and the pelvis; while Rademaker and Ter Braak described as flexion of the body and a rotation of fore- and hind-limbs together.

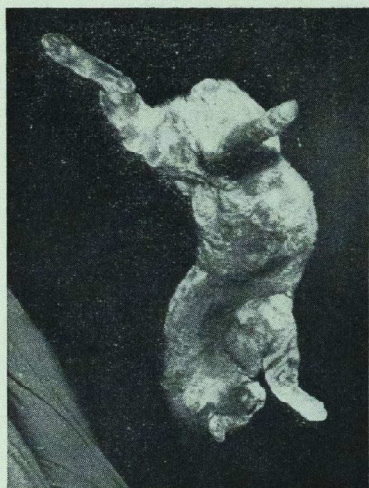


Fig. 3

The fore-part is rotated and the fore-legs are beginning to extend. The hind-part is rotating and the back is being straightened at the same time.

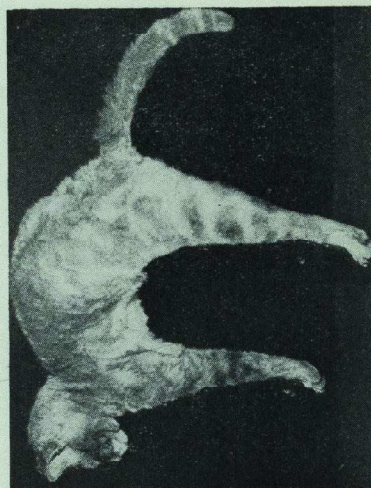


Fig. 4

The landing-position with back arched upwards and legs fully extended.



Fig. 1

The moment of release—the body is ventrified to a right angle.



Fig. 2

The head and fore-limbs have rotated nearly $\frac{1}{4}$ of the way round. The 90° angle at the waist is still present.

My own observations

One may well wonder how three different observers could see such varying pictures. To know the answer would be to understand a great deal about the progress of research and the psychology of research workers. My own observations are somewhat different again from these other workers, but in describing them I will try to emphasize the points on which we agree. In defence of what might be thought a condescending attitude I will repeat that the present films are taken some 7-8 times faster than any previously described.

The first movement made by the cat is to bend at the waist. In most cats this is usually a ventriflextion (Fig. 1), but some dorsiflex and turn from a position of opisthotonos. Both positions have equal mechanical advantages as we will discuss below. The second stage is a rotation of the forepart of the body through a full half-circle (180°). Thus the head and fore-limbs are rotated together. The fore-limbs are usually held straight out in line with the body but some cats hold them flexed close to the body (Fig. 2). The third stage is the most complex to describe. It is apparent that if a cat which is ventrified rotates both fore- and hind-parts of the body through 180° it will then be dorsiflexed (as you can see in Figs. 2 and 3). However, it has to land with its back arched and legs fully extended for the touch-down (Fig. 4). It combines these two movements, rotation and flexion, into one manoeuvre. The hind-limbs are extended (one can be seen clearly in Fig. 3) until they are in line with the body, which is rotated to follow the fore-part. At the same time the body is pulled rapidly into full ventriflextion. This completes the reversal of position. The whole sequence of turning taking less than 150 milliseconds.

From the cat's point of view this does not end its problems, for if you twist suddenly in mid-air you have a tendency to go on spinning. Overshoot may occur and is corrected by two means. Firstly, pushing the legs out at right angles to the body increases the moment of inertia and will also tend to act as an air-brake. Secondly—and I am more doubtful about this—the tail

These photographs were taken with an electronic flash on different drops. The fall of a given cat is remarkably stereotyped.

can be rotated independently of, and faster than, the body, often in the opposite direction to the turn. Again, the air resistance of a fluffy tail may be appreciable. (Note the different positions of the tail in the Figs.) Some cats, however, do not rotate the tail; others thrash it around from the time they are picked up, which suggests that, in part, it is merely an expression of irritation. Nevertheless, in two films there is definite evidence of purpose in the tail movement; in one the tail only starts to rotate when the hind-limbs swing over too far, and in the other the tail is rotated and suddenly reversed when the cat had got into an awkward situation. However, I also filmed a tailless cat and it turned over neatly enough; thus a tail is not essential.

In comparison with the previous workers I am in definite disagreement on two points only, but they are rather important. There is no evidence for the statement of Magnus that the head is rotated before the fore-limbs. While it is held a cat will often tend to turn its head (Fig. 1) but even so its shoulders go round with it in the turn (Fig. 2). When the cat is held with the head unable to turn, one fore-limb is usually leading in the turn. This is clearly shown in Magnus's own photographs. It is an example of convincing oneself that one sees things that fit in with a preconceived theory or diagnosis—all too common even among men who should know better.

The other point of disagreement is with Rademaker and Ter Braak. They rightly describe the ventriflextion (Fig. 1) and lateral flexion (Fig. 2), and then state that the fore- and hind-limbs are brought over together, i.e. parallel to each other. This has never been seen in my films. In Fig. 3 the hind-limbs are at least 100° behind the forelimbs in the turn. This was a heavy tom-cat. In more agile cats with slimmer waists the two sets of limbs may be pointing in almost opposite directions at this stage. Incidentally, we have films of rabbits and guinea-pigs turning over in the same way and it is quite amazing to see a fat little guinea-pig twisted through 180° like this.

The flexion of the fore-limbs and extension of the hind-limbs as described by Marey is seen in Fig. 2. In other cats the same reduction or angular momentum is achieved by extending the limbs in the axis of the body. Marcy, however, laid no emphasis on the bending at the waist. Without enlarging on

the mathematics of the moments of inertia we may simply say that by bending the trunk at right angles the cat uses it at its greatest mechanical advantage. The forepart is rotated around an axis parallel to its vertebral column. The inertia of the hind-part supplies the equal and opposite reaction that the force of this action requires. Actually in the one cat where I weighed all the component parts the rotation of 180° of the fore-part could be attained by counter-rotation of only 6° of the hind-part. This was, in fact, close to the observed value.

The importance of the eyes in informing the cat that it is upside-down have not perhaps been stressed enough, because most work has concentrated on the function of the labyrinth. Professor J. B. S. Haldane has a white cat which has been in his family for 15 years and was known to be deaf. White cats are prone to have congenital inner ear disease but this one could turn over in mid-air as nimbly as any other. Prof. Haldane very kindly lent us this treasured cat and we filmed it. While it was blindfolded it made no attempt to turn over and fell flat on its back. This shows that it had, in fact, a congenital lesion of the inner ear and also emphasizes that in the cat the eyes alone will provide the stimulus for the righting sequence. A normal cat when blindfolded turns over in the usual way, though the reaction is delayed by about 1/10 sec. or so. More striking is the observation that a blindfolded cat makes a "pancake" landing. Without vision the cat lacks information of the floor's position. It is only when the paws touch the ground that it gets this and the proprioceptive reflexes are not fast enough to save it from going flat. This fits in with our knowledge that a parachute landing is much more difficult at night.

The function of the labyrinth as a gravity receptor also raises another physical problem. When a body is falling freely under gravity such a receptor should, theoretically,

be unable to function. The probable answer is that the otolith organ of the labyrinth provides the stimulus when the animal is being held prior to falling and the delay time before it turns in the fall is the reflex latent period. This point, however, needs further investigation. It is mentioned here to emphasize that the scientific investigation of something as apparently frivolous as looking into the old proverb "a cat always falls on its feet," can lead one into some surprising problems. It raises fundamental queries about how the labyrinth acts as well as the reflex movements resulting from labyrinthine stimulation; and also a quite different set of physical problems as to how it turns over and, having turned, how it stops at the right place. If we want to draw a moral, perhaps it is that in science no unexplained phenomenon is too trivial to be worth looking in to.

ACKNOWLEDGMENTS

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CHARTERHOUSE — THE MEDIEVAL FOUNDATION

A BOOK REVIEW*

TO THOSE who stood by helpless watching the flames spread from the Preacher's House and destroy most of the ancient buildings of Charterhouse, the morning of 11th May, 1941, was one of unrelieved disaster. Yet from this devastation came the discoveries which have established the correct outline of the medieval buildings, sweeping away all earlier attempts at reconstruction. In this the long delays in post-war building were a disguised blessing. It was during this period of enforced inactivity for architects, of opportunity for archaeologists that I rambled round to Charterhouse to see what was happening. My first attempt ended ignominiously; the fact that the Hospital owned this land in the XIVth century carried no weight with the Porter. Later I was more fortunate and several times saw the excavations which had revealed the site of the church and other buildings. I remember particularly clearly the diagonal buttress of Sir John Popham's chapel, the burials within that same chapel, and the old floor level of the great cloisters. It was a fascinating site and I awaited eagerly the promised account of the work, "Charterhouse; the Medieval Foundation in the Light of recent Discoveries" by Professor David Knowles and Mr. W. F. Grimes. This description of the findings of the architects and the archaeologists cannot fail to be interesting; the book is attractively produced and has excellent illustrations; but it remains in certain ways disappointing, and Professor Knowles' contribution seems too slight for a scholar of his renown; it is an essay rather than a book.

It can be said that this criticism is unfair, a *magnum opus* was not intended. As Professor Knowles states in his introduction, there are already several good books on the history of the London Charterhouse: G. S. Davies' *Charterhouse in London*, Sir W. H. St. John Hope's *History of the Charterhouse*, and Miss E. M. Thompson's *The Carthusian Order in England*. However, the

*Charterhouse; the Medieval Foundation in the light of recent discoveries by Professor David Knowles and Mr. W. F. Grimes, 1954. Longmans Ltd.

Governors of Charterhouse wished to mark the sixth centenary with some publication. And it was essential that the recent developments should be made available because they rendered useless the topographical descriptions in the account of the Royal Commission on Historical Monuments and in the previous histories. To meet these requirements, Professor Knowles has written chapters on the history of the medieval community and of its buildings, on the recent architectural discoveries, and on the literary evidence for the state of the fabric at the Dissolution; while Mr. W. F. Grimes, of the London Museum and Director of Excavations to the Roman and Medieval London Excavation Council, has contributed the section on the excavations. The appendices include valuable reports printed in full. This is a good feature. Unfortunately the index is poor, a bad fault. The divided authorship, though the introduction speaks of "complete collaboration," may in part account for the impression of unevenness. Another cause may lie in the fact that the author, in the section on the architectural discoveries, has had to rely on the help of the architects, Lord Mottistone and Mr. Paul Paget, who undertook the work.

The historical sketch of the foundation of the Medieval Charterhouse is slight, but it is clear and makes a valuable introduction for any further reading. Moreover, it is not limited to the London Charterhouse but discusses briefly the history of the order. The Carthusian order throughout its existence has remained austere and exclusive, and has never degenerated from its high ideals. It sprang in the late XIth century in the country of the Grand Chartreuse Burgundy from a small band of hermits under St. Bruno of Cologne. When they became a regular order the eremetic life was not lost. Carthusian monks remained solitary, living in individual cells, only meeting their fellows for certain offices in church and for certain meals. Their material needs were served by lay brothers whose quarters were set apart. Professor Knowles surveys the slow growth of the order in England and discusses the sudden rapid expansion in the second half of the XIVth and early XVth centuries. The well known

history of the foundation of the London Charterhouse by Sir Walter Manny is clearly recounted from his initial leasing in 1349, from St. Bartholomew's Hospital, of the land called Spitalcroft to the final act of foundation in 1371. The short survey of events during the earliest and the last years is followed by a review of the acquisition of property and of the gradual extension of the buildings, the cells and chapels are set forth in detail. Interesting indeed is the description of the Medieval plan of the water supply. This shows the central conduit, the pipes and the buildings supplied; elevations are included. This plan's value had been realised by past historians but they disregarded its evidence where it contradicts their pre-supposed placing of the buildings. Its accuracy has been vindicated by the recent work on the site and it has proved a reliable authority to those working there. Then follows a description of the changes in ownership and in buildings from the Suppression to the foundation of Thomas Sutton's two charities, school and 'almshouse.' All this to a great extent has been a re-presentation of material already known and from sources used if not fully published. It is a well constructed account, easy to read and it holds the attention but it remains slight. Despite Professor Knowles' words in his introduction there are many who feel there is a place for a new and complete history of Charterhouse.

Now comes the description of the architectural discoveries, the important new evidence. Let me make it clear—nothing can destroy the fascination of this evidence, its value and the interest of the unfolding of this detective story in stones but the account by Professor Knowles has lost that vividness and excitement which was so striking when Lord Mottistone gave a paper on his work. This loss is inevitable for the tale is no longer related at first hand. Those who are interested in the Hospital's old buildings already know the work of Lord Mottistone and Mr. Paul Paget for they restored the church of St. Bartholomew-the Less and are now busy in the Clerk's House. Had it not been for their alert interest—they had made themselves thoroughly conversant with all the accounts and contemporary references to the Charterhouse buildings—much would have been lost, for there was originally no intention of starting any antiquarian investigation, only of rebuilding. No one had questioned the tradition that the existing tower was that of the

original church or that the present chapel had formed part of that building. The chain of events which refuted this assumption is fascinating, an inevitable unfolding from the first discovery under the floor of the Great Hall of a medieval water course; it was identified with the pipe shown on the medieval plan leaving the south alley of the Cloister and running along the South wall of Cell A, the cell that Hope considered incorrectly drawn. This discovery was not to remain isolated for long and the tale of detection by the architects holds ones attention. But I cannot recount it here. It is all set forth in the book. The highlight of this portion of the work was the discovery of Sir Walter Manny's grave. Reports on the opening of the coffin and the examination of the contents are given in the appendices.

When the grant of a licence meant that rebuilding could start, the Governors, on the advice of the architects, obtained the help of Mr. Grimes in continuing the investigations. He has contributed chapter IV of the present book. It is an excellent, clear and concise account of the work undertaken, its aims and results. It has established the outline of the church with its chapels, the extent of the Little Cloister and to some degree the type of buildings round it. It is well illustrated by photographs and plans. The former have been well selected and the archaeological evidence is made plain for the layman who has never looked with puzzled eyes at the sides of a cutting. The latter are not only clear and illustrate their points but are also a pleasure to the eye.

All this work had taken place within the present day Charterhouse. But on that other section of Charterhouse land, where the school had once stood and where the Medical College now clusters, building was beginning. During the construction of the present Student Hostel the site was watched. The doorway of Cell T was exposed, the neighbour of the cell whose remains are preserved in the Anatomy Department. The North-east angle of the Great Cloister was established and the robbed foundation trench of the inner wall of the Cloister Alley was uncovered.

This will interest many besides those who daily walk past the College lawns that have succeeded the green garth of the Carthusians. But there was a connection between this site and St. Bartholomew's Hospital long before the purchase of the old school buildings which had belonged to the Charterhouse

School of Sutton's foundation, and after them to the Merchant Taylor's School. The land had been the property of the Hospital, though it is not certain whether or not it is that land granted by Ermengarde, Prioress of Clerkenwell. The Hospital owned a great deal of land in St. Sepulchre's parish and as yet the original deeds and the copies in the Cartulary have not been transcribed. Unfortunately neither the original deed nor a copy of the lease to Sir Walter Manny in 1349 has survived. However, Cok copied into the Cartulary (f.99v.) the grant of 1370, and attached to this folio are copies of three other deeds connected with the foundation of the Charterhouse. It is by the indenture of 15 November, 44 Edward III (1370) that Stephen de Maydenheth, Master of St. Bartholomew's Hospital granted to Lord Walter de Manny, Dom Nicholas de Evesham, clerk, and John Whitewell thirteen acres and one rood of land, which had been called Le Spitalcroft then named Newchirchewawe, by the Bar of Westsmethfeld, rendering annually £8 sterling. The first of the accompanying documents is a copy of the licence of Edward III to Lord Walter de Manny to establish in that place outside the Bar at Westsmethfeld a Carthusian house of the Salutation of the Mother of God. It is dated 6 February, 45 Edward III (1371). The second is the deed of foundation which relates all the circumstances that led to it from the

burial of the plague victims in Spytelcrofte because the parish grave yards were inadequate. This deed is dated 28 March, 45 Edward III (1371). The last document is later in date and deals with ecclesiastical matters, including altars and chantries.

These documents mark the end of the medieval Hospital's interest in this land. In 1933 it was the Medical College, not the Hospital, that purchased half of the Carthusian site and renewed the old connection. Of the many ecclesiastical foundations in this area, St. John's, St. Mary's of Clerkenwell, St. Giles' of Holborn, the Hospital and the Priory of St. Bartholomew, only the Hospital remains; but more of the Medieval buildings and outline, especially in Washhouse Court, have been preserved than at St. Bartholomew's.

The book has been restricted to those portions ruined in wartime. This is disappointing. Even if it was felt unnecessary to rewrite the history of Charterhouse, surely a full study of the buildings could have been provided. Nevertheless, in publishing, in a form more readily available than in an antiquarian journal, the recent architectural and archaeological discoveries, the book has made an important contribution to the history of Charterhouse, and none interested in Charterhouse or in old London should miss it.

Miss M. V. STOKES.

SPORTS DAY

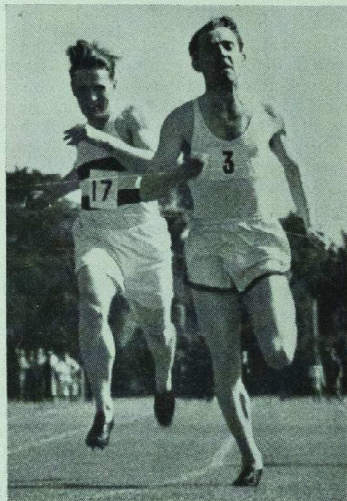
SPORTS DAYS possess a curiously evocative quality; they contain the substance of what appears in retrospect to be the long summer days which are always of the past and practically never of the present. There is the timelessness of the sunny afternoon, the springy close-cut turf, the hum of conversation from the gaily dressed spectators, and above all the white marquees with lines of fluttering flags.

This year at Chislehurst all the elements of a perfect sports day were present. The June sky was blue and the sun shone on the spectators, who were lulled to drowsiness by Viennese waltzes relayed softly over a quite unexceptionable loudspeaker system. The grounds had an inviting and well-ordered appearance bearing testimony to the care of the groundsman, Mr. White, and his staff.

Finally, and most essentially, the Committee provided a programme of events which, under the guidance of Dr. Oswald, President of the Sports, unrolled itself in an effortless and unhurried manner.

The first track event, the high hurdles, was won by D. O'Sullivan in the marginally new record time of 15.7 seconds. It is unfortunate that suspected lung trouble has prevented O'Sullivan from training in the early part of the year for, as an Irish International and Oxford Blue, he comes to the Hospital with a considerable reputation as a hurdler. Despite this handicap he has represented London University at Paris, Great Britain at the White City and ran in the finals of the A.A.A. championships 220 yards hurdles in which Vine set up a British all-comers, National and English native record.

In the furlong O'Sullivan, off to a suspiciously good start, accelerated round the bend and had a three-yard lead coming into the straight. Whalley, Thom and Birt fought every bump and dip of the Chislehurst track to reduce the lead, but they were unable to



Whalley and O'Sullivan fighting for the lead in the furlong

catch the flying Irishman who won comfortably with Whalley edging the others for second place.

The most interesting race of the day was without doubt the quarter mile. C. P. Roberts, secretary of the United Hospitals Athletic Club, who had won the half mile earlier in the afternoon, decided to run in this race rather than the mile, which might, however, eventually prove to be his best distance. On the gun, O'Sullivan and Whalley sprinted for the bend, Whalley just taking the lead. Roberts moved up to overtake round the bend to run in second place down the back straight with O'Sullivan five yards behind. Whalley's power running, Roberts' relaxed thrustful lope and O'Sullivan's sprint action contrasted interestingly. As the second bend was reached, Roberts opened up and attempted to pass. Whalley resisted the challenge making him run wide and they entered the home straight still abreast. This effort had clearly used up Whalley's reserve, for he was unable to hold Roberts, who drew

away into the lead fifteen yards from the tape. O'Sullivan had meanwhile been gradually closing on the leaders and, while Roberts was coasting in on the last pace, made a beautifully timed burst on the outside which carried him across the line first.

Roberts, outmanoeuvred by a more skilful opponent in this race, later made amends by giving a polished display of high jumping—clearing the bar each time with the slow grace of a really good diver. He retired, having won, at 5ft. 6in. Of the other field events one can say little; for it seems inevitable that when track and field events are taking place at the same time one's attention will be held by the more immediate competition of the former. Mention must be made of Christopher Craggs, however, who won both the discus and the weight with his improbable but none the less capable style.

If the quarter mile was the most interesting event, there can be no denying that the tug-of-war was the most exciting. The youngsters present enjoyed themselves enormously, urging their struggling fathers on to greater glory. And perhaps it was just as well that Mr. Winstone's team of housemen and registrars did finally triumph.

The afternoon closed with the deservedly popular novelty races and junior events, after which Mrs. Oswald presented the cups and prizes. The preliminaries with a large number of entries had no difficulty in winning the team competition and the barrel of beer, which they generously offered to share with anyone staying for the dance in the evening.

Congratulations to the committee, members of the hospital staff and those other helpers who by their efforts made the day a success.



Dr. Oswald and Professor Rotblat

Births

BOND.—On June 9, to Sheila (née Kynock Clark) and Dr. Geoffrey Bond, a son (Roger Mark).

CLARKE-WILLIAMS.—On June 8 to Shirley (née Hinton) and Dr. Michael Clarke-Williams, a son (Adam Richard).

EVANS.—On June 20, to Barbara and Dr. H. Evans, a daughter.

JACKMAN.—On May 26, to Kathleen (née Simmons) and Dr. Clive Jackman, a brother for Jeremy (Nicholas Clive).

LEVERTON.—On June 22, to Rosemary and Dr. Jeffery Spry Leverton, a daughter, a sister for Peter, Julia, and Harry.

PATUCK.—On June 19, to Margaret and Dr. F. Patuck, a daughter, a sister for David and Anne.

REES.—On June 10 at Bartholomew's Hospital to Eluned and Dr. Ernest Rees, a daughter (Alison Jane Gwenllian).

ROWSON.—On May 30, to Angela (née Bovill) and Dr. Kenneth Rowson, a son (Christopher George Edmund).

Deaths

CHOLMELEY.—On June 2, Dr. Montague Abye Cholmeley, aged 81. Qual. 1897.

LYSTER.—On June 3, Dr. R. A. Lyster, aged 82 (for many years Lecturer in Public Health at St. Bartholomew's Hospital)

VAUGHAN.—On April 28, Dr. Arthur Llewellyn Vaughan, aged 81. Qual. 1899.

WAYLEN.—On June 25, Dr. George Henry Hitchcock Waylen. Qual. 1908.

Engagements

BATT—SUTTLE. The engagement is announced between Dr. B. J. Batt and Miss S. E. Suttle.

CASSELLS—MCANDREW. The engagement is announced between Dr. M. J. Cassells and Dr. I. M. McAndrew.

JACKSON—HARRIS. The engagement is announced between Dr. P. G. Jackson and Miss M. J. Harris.

THOMAS—COVER. The engagement is announced between Dr. Duncan Thomas and Miss P. Cover.

Change of Address

IRVING.—Dr. J. Kenneth Irving, to Colonial Hospital, Port of Spain, Trinidad.

Marriages

PARRISH—BERESFORD-CLARKE. On June 1, at Epsom, Surrey, Dr. John Parrish to Mrs. Janet Beresford-Clarke.

STOKER—KINSEY.—On June 8, at Hythe, Dr. Graves Ernest Stoker to Mrs. Joan T. Kinsey.

* * *

Royal College of Surgeons

Mr. Frankis Evans has been appointed Dean of the Faculty of Anaesthetics.

Sims Commonwealth Travelling Professor

The Royal College of Surgeons has announced the appointment of Mr. Geoffrey Langdon Keynes as one of the Sir Arthur Sim's Commonwealth Travelling Professors for 1956. Mr. Keynes will visit Canada and parts of Africa.

* * *

HONOURS

Knighthood

GEOFFREY LANGDON KEYNES, M.D., F.R.C.P., F.R.C.S., F.R.C.O.G., Consulting Surgeon, St. Bartholomew's Hospital.

O.B.E. (Military Division)

ALISTER ROBERT CAMERON YOUNG, M.R.C.S., L.R.C.P., D.M.R.D., Wing Commander R.A.F.

The Order of the Brilliant Star of Zanzibar (3rd Class)

Richard Hugh Purnell, M.B., B.S., F.R.C.S. (Ed.), Surgeon specialist in the Colonial Medical Service, Zanzibar.

* * *

OBITUARY

We regret to announce the deaths of two of the Hospital's Consulting physicians.

Dr. Horatio George Adamson, aged 90, on July 6th; and **Thomas Jeeves Horder (Lord Horder of Ashworth), aged 84,** on August 13th. Full obituaries will be published in the September *Journal*.

ST. BARTHOLOMEW'S HOSPITAL

HOUSE APPOINTMENTS 1st JULY to 31st DECEMBER, 1955

		WARDS	
Dr. G. Bourne Dr. Bodley Scott	D. A. Andrewes D. A. O. Cairns (until 30.9.55) J. S. Malpas (from 1.10.55)	Smithfield	Mary
Dr. E. R. Cullinan Dr. K. O. Black	R. C. Nainby-Luxmoore J. C. T. Church (until 30.9.55) R. A. Bugler (from 1.10.55)	Rahere	Colston
Dr. A. W. Spence Dr. Neville Oswald	G. H. Fairley T. A. Boxall (until 30.9.55) I. H. Backhouse (from 1.10.55)	Dalziel	Annie Zunz
Dr. E. F. Scowen Dr. W. E. Gibb	K. A. Clare P. V. Rycroft (until 30.9.55) R. A. Stroud (from 1.10.55)	Harvey	Luke
Prof. R. V. Christie Dr. G. W. Hayward	D. P. Thomas T. A. Evans (until 30.9.55) Miss M. E. Staley (from 1.10.55)	Stanmore	Garrod
Mr. J. B. Hume Mr. A. H. Hunt	P. Y. N. Forget J. S. Malpas (until 30.9.55) D. A. O. Cairns (from 1.10.55)	Fleet Street	Harmsworth
Mr. R. S. Corbett Mr. A. W. Badenoch	J. W. Maltby R. A. Stroud (until 30.9.55) P. V. Rycroft (from 1.10.55)	Bowlby	H. Harrison
Mr. J. P. Hosford Mr. E. G. Tuckwell	E. F. D. Gawne R. A. Bugler (until 30.9.55) J. C. T. Church (from 1.10.55)	Rees Mogg	Paget
Prof. Sir J. P. Ross	R. C. Taylor Miss M. E. Staley (until 30.9.55) T. A. Evans (from 1.10.55)	Percivall Pott	Lawrence
Mr. C. Naunton Morgan Mr. D. F. Ellison Nash	P. Bliss I. H. Backhouse (until 30.9.55) T. A. Boxall (from 1.10.55)	Waring	Abernethy
CHILDREN'S DEPARTMENT Dr. Charles Harris Dr. A. W. Franklin	G. Scott-Brown D. H. Bergel	Lucas Kenton	
E.N.T. DEPARTMENT Mr. Capps Mr. Jory Mr. Hogg. Mr. Cope.	H. R. Dingle E. L. Rees	Rees Mogg	Paget
SKIN & V.D. DEPARTMENTS Dr. McKenna. Dr. Nicol	Miss H. P. S. Foulds	Harvey	Luke
EYE DEPARTMENT Mr. Philps. Mr. Stallard.	M. D. Heyman	Smithfield Bowlby	Mary H. Harrison
GYNÆ. & OBS. DEPTS. Mr. Beattie Mr. Fraser. Mr. Howkins.	R. D. Clements } Interns P. J. Burrows }	Martha Elizabeth Sandhurst Butlin	
DENTAL DEPARTMENT Mr. Hankey. Mr. Cowan. Mr. Cambrook.	Miss M. J. Witt, Junior H/S I. N. Swallow (until 31.7.55)	Fleet Street	Harmsworth

ANAESTHETISTS

Dr. Langton Hewer R. P. Holmes
Dr. Frankis Evans Miss R. Hutchinson

CASUALTY H.P. J. L. Struthers

ORTHOPAEDIC DEPT. A. P. Wyatt
(Accident Service)

HILL END HOSPITAL

ORTHOPAEDIC DEPARTMENT

Mr. Higgs. Mr. BUIROWS. W. S. S. Maclay
Mr. Coltart. B. A. L. Hurn

THORACIC DEPARTMENT

Mr. O. S. Tubbs J. T. Snow
Mr. Hill W. G. Harris

NEURO-SURGICAL DEPT.

Mr. O'Connell J. E. A. Wickham

E.N.T. DEPARTMENT H. R. Dingle

ANAESTHETICS Miss Hutchinson
R. P. Holmes

EXAMINATION RESULTS

University of London

Final M.B., B.S., Examination, April 1955

AMENDED NOTICE

OBTAINED DEGREE Burton, M. F. D. Marshall, L. J.
PASSED PART II Ashworth, E. J.

Primary F.R.C.S.

June, 1955

Ball, M. J. Fiddian, R. V.
Painter, N. S. Gracey, L. R. H.

Final F.R.C.S.

May, 1955

Watson, D. A. Bhattacharyya, B.
Myers, N. A. A. Jacob, J.
Cronin, K. Keynes, W. M.
Gordon, W. F. Joshi, S. B.
Freeman, P. A. Joshipura, J. N.
Warren, D. W. Shawe, G. D. H.
Toync, A. H. Chakravorty, R. C.
Cornish, B. L. Slack, W. W.
Bottoms, R. W. A.

STAFF APPOINTMENTS

ANAESTHETICS DEPT.

Registrar
Mr. R. S. Atkinson from 1.9.55 (vice
McIntyre)
Mr. W. R. Daniel as locum until 31.8.55

Senior House Officer
Mr. L. Langdon (vice Daniel)
CHILDREN'S DEPT.
Senior House Officer
Miss M. Raynor from 1.7.55 (vice Cook)

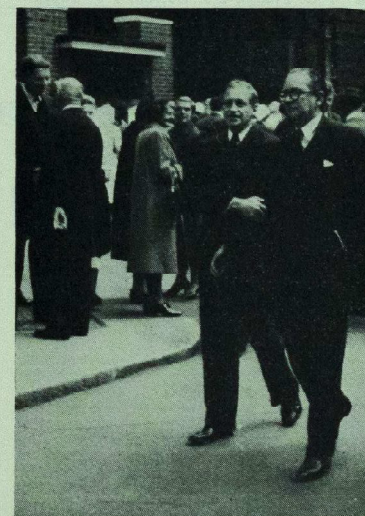
DENTAL DEPT.
Registrar
Mr. J. M. Leitch from 1.7.55
MR. HUME'S FIRM

Chief Assistant
Mr. R. B. W. McGrigor (vice Lawrence)
THORACIC DEPT.

Senior Registrar
Mr. M. Paneth from 1.6.55 (vice Hurt
for one year)
DIAGNOSTIC X-RAY DEPT.

Registrar
Mr. M. M. Schecter from 1.6.55

* * *
CANDID CAMERA



Too much tennis on the Country Club?

SPORT

ATHLETICS

Sports Day Results

- 100 Yds.—1 D. O'Sullivan, 2 B. Thom, 3 R. C. Whalley. Time: 10.4 secs.
 220 Yds.—1 D. O'Sullivan, 2 R. C. Whalley, 3 B. T. Thom. Time: 23.8 secs.
 440 Yds.—1 D. O'Sullivan, 2 C. Roberts, 3 R. C. Whalley. Time: 53.6 secs.
 880 Yds.—1 C. Roberts, 2 C. Charlton, 3 A. Tabor. Time: 2 mins. 13.6 secs.
 1 Mile.—1 R. Thomson, 2 J. Lewis, 3 B. Hill. Time: 4 mins. 52.4 secs.
 3 Miles.—1 C. Roberts, 2 R. Tomson, 3 C. Charlton. Time: 16 mins. 20.2 secs.
 120 Yds. Hurdles.—1 D. O'Sullivan, 2 A. Tabor, 3 P. Ernst. Time: 15.7 secs. (New Record).
 120 Yds. Handicap.—1 G. Renn, 2 M. Tyrrell, 3 B. Thom. Time: 12.4 secs.
 High Jump.—1 C. Roberts, 2 P. Ernst, 3 J. Garrod. Height: 5 ft. 6 ins.
 Long Jump.—1 A. Tabor, 2 M. Birt, 3 J. Sugden. Distance: 19 ft. 10 ins.
 Javelin.—1 J. Garrod, 2 P. Maingot, 3 G. Renn. Distance: 143 ft. 2 ins.
 Discus.—1 C. Craggs, 2 J. Garrod, 3 P. Taggart. Distance: 93 ft.
 Weight.—1 C. Craggs, 2 P. Taggart, 3 D. Mulcahy. Distance: 33 ft. 9½ ins.
 Inter-year Relay.—1 Introductory Course and First-time Clerks and Dressers.
 Housemen's 100 yards.—1 Dr. W. H. Havard.
 Tug-of-War.—1 Dr. N. Winstons Staff Team.
 Ladies 80 Yds.—1 Miss B. Barnard, 2 Miss J. Chambers, 3 Miss J. Swallow.
 Ladies Invitation Relay.—Preclinical Students.
 Inter-Year Competition Result
- | | | |
|---------------------|-----|------------|
| 1. Pre clinical 'A' | ... | 248 points |
| 2. Clinical 'B' | ... | 141 points |
| 3. Clinical 'A' | ... | 135 points |
| 4. Pre-clinical 'B' | ... | 24 points |

The Committee of the Athletic Club wishes to thank all those who in any way contributed towards the success of these Sports.

ROWING

Walton Regatta—Junior—Senior IV's.

1ST HEAT v. Molesey B.C. Bart's led from the start, and although they never had a commanding position won the heat by two lengths.

SEMI-FINAL v. Maidenhead R.C. Maidenhead soon cleared Bart's, but during the second minute the Hospital crew settled down to their best rowing

of the afternoon which enabled them to get back on terms. From then on the rowing worsened, the steering of both crews became indifferent, and the result was uncertain. About three hundred yards from the finish the crews collided in Bart's water and Maidenhead were disqualified.

FINAL v. Linden R.C. Bart's led from the start and drew away to about three lengths. Linden challenged strongly at the finish though Bart's won by two lengths.

CREW: Bow and steers B. Harrold; 2 I. Bolton; 3 P. Ormerod; stroke D. Chamberlain.

Willesden Regatta—Maiden IV's.

1ST HEAT. Four crews raced in this heat, Bart's coming second to Putney Town by ¼ lengths. But later in the afternoon this win was disallowed and five bewildered Bart's men were rescued from the refreshment tent to row in the final. They claimed to row well—though this might well have been mere euphoria—but came third out of four, losing by 1½ lengths to Linden R.C., and by ½ length to Excelsior R.C.

CREW: Bow G. Hall, 2 M. Besser, 3 A. Ellison, 4 R. Marshall, COX C. Birt.

TENNIS

Barts 1st VI v. West Heath L.T.C. on Saturday, June 18, at Clislehurst. Lost 4-5.

This was a new fixture and it proved to be a most exciting and enjoyable match, the result of which was in doubt right up to the last game. Bart's unfortunately were not at full strength due to the absence of C. S. Goodwin and W. S. S. Maclay, but W. J. Walton and I. A. Worthy playing as 1st pair successfully beat the opposing 1st and 3rd pairs. They lost to the 2nd pair in a very long three set match which extended well into the evening. In this match the 1st set was won quite easily by the Bart's pair who looked all set for a comfortable win. However, this was not to be, and they slackened off considerably losing the 2nd set through a series of missed chances and careless shots. The final set was level pegging all the way with each player holding his service until at 9-8 there was a break by the opposing pair who went on to take the set and match 10-8.

The remaining two Bart's successes were gained by the 2nd and 3rd pairs, each of whom won one of their matches. The result was a win for West Heath L.T.C.

TEAM: W. J. Walton (Capt.), J. A. Worthy, J. Mellows, P. Sharer, J. Bench, J. Lemon.

RECORD REVIEWS

MANTOVANI PLAYS THE IMMORTAL CLASSICS. Mantovani and his Orchestra. 10 Decca L.F. 1161.

Side 1: Prelude in C sharp minor (Rachmaninoff), Minuet in D (Mozart), Simple Aveu (Thomé), On Wings of Song (Mendelssohn), arr. Mantovani.

Side 2: Barcarolle from 'The Tales of Hoffman' (Offenbach), Cradle Song (Brahms), Etude in E (Chopin), Waltz from Serenade for Strings (Tchaikovsky), arr. Mantovani.

Mantovani and his Orchestra have achieved great popularity in recent years, particularly in America; this has largely been due to the truly fascinating effect produced by his 'shimmering strings'. For this recording Mr. Mantovani has taken a number of the short popular classics and arranged them, allowing his shimmering strings to live them up now and again. I wish he had left most of them in their original form. The Rachmaninoff Prelude seems to be characterless when played by strings, the percussive quality is lost; as for 'On Wings of Song,' I have always liked the quiet simplicity of this melody, but listening to the Mantovani's arrangement I think he must have had a rather large, noisy, screechy bird in mind.

RENATA TEBALDI (soprano) with L'Orchestre de la Suisse Romande conducted by Alberto Erede. 7", 45 r.p.m. Decca 71073.

In quelle trine morbide (from 'Manon Lescaut'—Puccini)
 Tocco la notte placida (from 'Il Trovatore'—Verdi)

These two operatic arias are sung here with impeccable technique, and excellent dramatic feeling. Apart from a little hardness of quality in the upper register of Miss Tebaldi's range, this is a very good recording.

KATHLEEN FERRIER (contralto) with John Nemark (piano). 7", 45 r.p.m. Decca 71072.

Ca' the Yowes (arr. Jacobson, Burns)
 O Waly, Waly (arr. Benjamin Britten)

Two beautiful simple songs, beautifully and simply sung. Ca' the Yowes, a Scottish folk-song, makes an immediate appeal, whereas O Waly, Waly, a folk song from Somerset, grows on one. The recording is excellent—I need not say more. I wonder how long it will be before we hear again such a magnificent voice under such superb control.

BOOK REVIEWS

People ask you for criticism, but they only want praise.

Somerset Maugham.

TEXTBOOK OF GYNAECOLOGY by J. H. Peel. 4th Ed. Heinemann. 27/6.

Peel's Textbook of Gynaecology should be very popular with senior students and practitioners. The book bears the stamp of authority and common sense, yet at the same time is very readable. The author has very sensibly limited operative gynaecology to the essentials of common operations and their indications, so that the reader is given an idea of how any particular problem might be dealt with but is not worried by technical details. The illustrations in this section have been re-drawn and are quite adequate for their purpose.

The comprehensive nature of the rest of the work reflects a deep knowledge of all aspects of the subject, and the experience of the author is

used to evaluate the various therapeutic measures available.

The illustrations, which include some excellent histological reproductions and anatomical diagrams, are on the whole clear and plentiful. One or two of the older illustrations suffer from reduction in size and loss of clarity and might be replaced in future editions.

In the chapter on menstrual disorders anovular menstruation is given an unduly prominent position, but otherwise the classification and sifting of this mixed bag of dysfunctions is undertaken with a very useful result.

The author and publishers can be satisfied that they have produced a book which will fill its purpose adequately without too great an outlay in reading time or money.

S. F. HANS.

Spot Diagnosis—Vol. II. Harvey and Blythe Ltd. 8/6.

This volume is up to the standard of its predecessor. It consists of photographs, X rays, and E.C.G.'s together with some 'Notes on Therapy.' The photographs are good, but it is doubtful whether a black and white photograph is sufficient for making a diagnosis in some of the skin cases. Inevitably, a few conditions which are outside normal experience, such as Geographical Tongue, have been included because of their photogenic quality. Twenty minutes or so spent in looking

through this book should provide a welcome change from the customary pages of solid type.

Aids to Surgical Anatomy, S.A.S., by D. B. Moffat and J. S. Baxter. Baillière Tindall and Cox. 8/6.

The fourth edition has been revised throughout and a new chapter on the spine added. The figures are clear and the text concise. Recommended for quick revision before operations and examinations.

SHEARER'S MANUAL OF HUMAN DISSECTION (3rd ed.). Edited by Charles E. Tobin. pp. 287 + xv. McGraw-Hill Book Co. Inc.: New York. 49s.

In British anatomy departments the student serves a fundamental apprenticeship to the constitution of the human frame and is expected to acquire a sufficient, personal familiarity with that machine which, as a medical practitioner, it will be his duty to tend or mend. In American anatomy departments the tradition is, for historical reasons, quite other: therein the enthroned idol is the serially-sectioned pig embryo, around which moves the elaborate departmental liturgy. Time and opportunity for acquiring even a minimal acquaintance with human anatomy are denied the student: atlases of anatomy have great vogue; most of the anatomy teachers are unqualified medically. Hence, from the hands of those gravely concerned at this state of things, books like the present, designed to offset the defects of the system and to assist the medical student in his time-pressed efforts in gross anatomy. Such a work, therefore, must be judged against its transatlantic background and, with its laudible aim in mind, it would be unfair to assess it wholly by British standards, though some such comparison is inevitable.

Its dissection instructions are sometimes inadequate and its anatomical descriptions not infrequently insufficient—e.g. four lines only are devoted to the trachea, without mention of its length, structure or relations. Portal-systemic anastomoses are omitted; the inferior mesenteric vein is sketchily described and without reference to a possible paraoduodenal fossa; the pelvic veins are mentioned merely in an instruction for their removal; and a curious gastric terminology is employed (the stomach 'body' being divided by the incisura angularis into 'cardiac' and 'pyloric' portions). Most surprising is the intentional omission of lymphatic and joint anatomy, an omission justified in the Preface (p. viii) on the

grounds that the student 'has neither time nor the skill to demonstrate these structures in his own dissections,' and that knowledge of these parts 'is best supplied by lectures, reading and demonstrations provided.' One asks, automatically, what profit there be in dissecting the axilla if its contained groups of lymph glands be not sought, seen and studied; also, how adequate knowledge of such structures is to be obtained otherwise than by dissection. And so with the articulations; only by personal dissection can their three-dimensional anatomy be appreciated.

The uncoloured line drawings are well planned; some, however, (Figs. 24, 27, 44) are unsuccessful, while others lack depth or appear confusing because of inability to distinguish easily lines of muscle fibres from lines of shading. The illustration (Fig. 23) of the line of pleural reflection would gain from the inclusion of the outlines of the ribs and sternum.

A curious and pleasant surprise is the retention of anatomical eponyms, now so universally—and so unwarrantably—decried in an illusory attempt at easing the student's burden. Meckel's ganglion, Winslow's foramen, Valsalva's sinuses, the fasciae of Camper and Scarpa, Alcock's canal, the glands of Bartholin and Cowper—these and other eponyms reappear here, trailing their clouds of anatomical history and defying the impersonal uniformity of modernistic usage.

Obviously this book cannot appeal to the British student, but in many American institutions it may well prove a boon to the conscientious dissector in his attempt, against the time-limits of an ill-conceived curriculum, to equip himself anatomically for his future work in pathology and clinical medicine.

A. J. E. CAVE.

ST. BARTHOLOMEW'S HOSPITAL JOURNAL

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No. 9

EDITORIAL

LORD HORDER

By the death of Lord Horder at his country home, Ashford Chace, on August 13th, the Hospital has lost one of her greatest sons. For half a century Lord Horder has added lustre to the name of Bart's; and his seat of honour among the great physicians and surgeons of the past, who form the tradition of this place, is assured.

As a teacher of clinical medicine he will be remembered with gratitude by generations of Bart's men; as a physician and champion of causes he will be remembered by the world at large, for his name has long been a household word. If any corroboration of this were needed, one had only to witness the many people who travelled from all parts of the country to attend his memorial service in St. Martin-in-the-Fields. There were relatives and friends, colleagues and former patients, and representatives from almost every medical society and institution of note. The Earl of Westmorland represented the Queen and Lt.-Col. Sir Howard Kerr, the Duke of Gloucester. The fifteen ushers were former house physicians.

The service was conducted with simplicity by the Rev. Geoffrey Holland, assisted by the Rev. S. G. Bush, Hospitaller and vicar of St. Bartholomew-the-Less. In his address Sir Henry Dale recalled his long friendship with Lord Horder and said that they had come to commemorate and to give thanks for "the beautiful life, the great work and the wonderful personality of a great physician". Dr. Geoffrey Bourne read the Lesson, the parable of the Good Samaritan; and a passage from Pilgrim's Progress was spoken by Sir Malcolm Sargent. A few days previously Sir Malcolm had dedicated a broadcast performance of Fauré's Requiem to Lord Horder's memory.

The moving tributes which have been published in the medical and lay Press are

eloquent testimony to Lord Horder's humanity and wisdom. These have set forth the milestones of his brilliant career and described the protean nature of his interests. We shall not attempt to emulate them.

This *Journal*, too, feels his loss, for he was our most senior and distinguished Editor and was for many years Chairman of the Publication Committee. At the turn of the century, when he was 29 and a demonstrator in pathology, he wrote in an editorial (advising and welcoming the new intake of students):

"For once a Bart's man always a Bart's man is a feeling that appeals to all who have left the happy time of studentship behind them . . . *I have great confidence, Oliver Wendell Holmes once said, in young men who believe in themselves. When a resolute young fellow steps up to the great bully, the world, and takes him by the beard, he is often surprised to find it come off in his hand, and that it was only tied on to scare away timid adventurers.* And that front, which is best to face the world with, is also the most promising with which to face the facts of medicine, both known and unknown."

A precept which is as valuable today as it was then, and certainly one that Thomas Horder followed throughout his life. In still earlier *Journals* are recorded the prize-winning feats of his student days, while the later ones contain his lectures and collections of aphorisms, which remain a superb exposition of clinical medicine. More recently, in Coronation Year, there was the whimsical story of the Mayor of Burberry (did it, perhaps, have a basis of fact?) and the treasured letter he sent on our diamond jubilee. In looking back through all of these—and he was a prolific contributor one cannot fail to build up a picture of the man—fragmentary,