disease three months' treatment is now, on the average, increased to six months. In the few instances of adults above the age of 21 the figures of the results roughly correspond with the figures of the younger patients.

CONCLUSIONS.

A study of this series of cases forces one to the conclusion that the opinion which many of the earlier observers had that artificial heliotherapy would prove an almost specific treatment for cases of surgical tuberculosis has not been justified.

Without placing too great weight on any of the figures, and without seeking to arrive at final conclusions, I think it may be stated that in the series here detailed the results of cases treated by heliotherapy do not show any marked improvement over the cases of a similar nature treated without heliotherapy. There are figures which suggest that spinal disease and abdominal disease have been benefited by the ultra-violet light treatment, but must we then conclude that the glandular disease in the neck and disease of the knee-joint are unaffected, while disease of the hip-joint is definitely made worse by the heliotherapy? I prefer to draw the simple conclusion that on the whole the results obtained by the use of artificial heliotherapy, when combined with routine sanatorium treatment and efficient local treatment, do not show any material improvement over the results obtained by treating cases by similar methods but without heliotherapy.

I believe that the reason for the increased average stay in hospital is due to the fact that the patients look so well and tanned that we are inclined to give the local lesion, however resistant to treatment, "another chance." One is almost tempted to ask the question, What would the results of the earlier cases have been if they, too, had enjoyed the more prolonged sanatorium treatment?

The conclusion reached is that artificial heliotherapy does not change the fundamental principles of treatment of surgical tuberculosis. The efficient local measures taken to ensure rest and the general sanatorium treatment are the main methods to be adopted; heliotherapy is a useful aid to treatment, as are many drugs. This last point I would specially emphasize, because it is frequently observed that patients are moved in order that they may go to the sun-room; splints and other apparatus which are usually religiously kept in place and undisturbed are then regarded as merely a nuisance and a hindrance to the transporting of the patient to the health-giving rays.

I have to express my indebtedness to Mr. F. E. Jardine for his permission to use these figures.

TUBERCULOSIS AS SEEN BY THE GENERAL PRACTITIONER.*

BY

R. CAMERON, M.D., CH.B., D.P.H.,
Cardiff.

TUBERCULOSIS, from the general practitioner's point of view, embraces the whole range of this widespread and fatal scourge of man, from the predisposing and infecting agencies to the successful or unsuccessful termination. There is no one who has more opportunities to watch its inception and course, and there is no one who has more cause to regret lost chances of early recognition. Early diagnosis is in some cases tragically simple, in others as difficult as any which the physician has to make, since signs may be absent, and symptoms may be few, misleading, or equally applicable to other conditions of ill health. It is on early recognition that I wish to speak shortly.

It will be of service in considering our problem if one gets in focus some figures and conditions of the tuberculosis population in such a town as Cardiff and considers the relative numbers of those treated in their own homes and elsewhere. In the year 1926—according to the last available report of Dr. Ralph Picken, the medical officer of health—527 new cases were ascertained by notification and otherwise, and the number of deaths was 288, both being

relatively reduced numbers for this city on account of the absence of any serious epidemic of influenza during the year.

Those figures include both pulmonary and non-pulmonary cases, but they indicate only a small part of the question. The average duration of life of a phthisical person is roughly assumed to be about three years, and an actual survey of the proved cases at the end of 1926 showed that there were 1,274, while at least 150 cases of suspected tuberculosis were under the observation of the public health department.

The mortality mentioned (288) gives a tuberculosis death rate of 1.28 per 1,000, and it is important to note that the proportion of deaths from phthisis alone to deaths from all causes in Cardiff, between the ages of 15 and 65 years, was roughly 20 per cent. (or one-fifth of the whole).

A further investigation revealed a serious condition, which is probably equally prevalent in other towns, and may not be well known to doctors who visit by day; only 46.1 per cent. of the patients slept by themselves or in a separate room, and therefore at least an equal number of contacts were exposed to infection, for eight out of every twenty-four hours, from that class of carrier who is chiefly responsible for dissemination.

It is chiefly of importance to recognize that of the 1,274 patients with frank tuberculosis known to exist in December, 1926, 96 were in institutions and the rest were in their homes. Some of these were having treatment from the general practitioner alone, or in consultation with the tuberculosis physician, but a larger number were quiescent cases. It is obviously desirable that a larger number of beds should be available in hospital for active and advanced stages of the disease.

The practitioner may therefore be said to have his full share, in co-operating with the Welsh National Memorial, in treatment, and it is to be hoped that he will share also, so far as lies in his power, in the responsibility for preventive measures. These include incessant vigilance for indications of the disease, especially in the finding of any material which may be used for laboratory examination, early notification, and early consultation with the tuberculosis physician, in and behind whom lies the whole strength of the tuberculosis service and organization. This includes services of pathologist, radiographer, hospital, and sanatorium. The general practitioner can assist to improve the patient's physique, his habits, and personal hygiene, and note and try to remedy domestic conditions.

To recognize pulmonary tuberculosis when physical signs are well established and sputum abundant is to be wise after the event; to diagnose the disease at such an early period of its course as to afford a reasonable prospect of its cure is an investigation requiring many factors. Two of these are: patience to collect all symptoms which point to the condition, and such knowledge of other diseases with similar onsets as to be able to exclude them. Pottenger's classification of all the well-known symptoms into three groups seems to me of great significance when we are aiming at the diagnosis of an obscure early case. They are: (1) Pulmonary—catarrh, expectoration, haemoptysis, and pleurisy. (2) Reflex—pain, hyperaesthesia, cough, and laryngeal irritation. (3) Toxaemic—pyrexia, malaise, loss of weight, tachycardia, anaemia, indigestion.

Any or all of these may appear in every case of phthisis, but the order of their appearance in the march of events is certainly not always the same. In some they are frankly pulmonary from the beginning—cough, sputum, or haemoptysis—though even here those obvious signs probably obscure our observation of toxic effects. In the others—the larger number, and those most easily overlooked—the only evidence of tuberculosis in the early stage of the disease is toxæmia, with the train of symptoms I have already mentioned. This superficial difference between two groups is due to the one being mainly a local reaction of the pulmonary tissue to the presence of a toxic foreign substance, while the other is chiefly, but not entirely, a poisoning of the tissue cells of the body generally. In reality both processes are taking place in both groups, though not in the same degree of intensity. Even in the catarrhal group physical signs are later in appearing than symptoms, while in the remaining cases reliance has to be

* Read in opening a discussion in the Section of Tuberculosis of the Annual Meeting of the British Medical Association, Cardiff, 1928.

placed on symptoms alone, mainly those of toxæmia, for directing attention to the possibility of pulmonary tuberculosis. For this reason it is well to consider the various modes of onset and how these vary in detail, since one of the chief pitfalls is found in concentrating on the discovery of physical signs which probably do not yet exist.

Some cases begin without any localizing signs, and only pyrexia, loss of weight, and cardiac and muscular weakness are present. In others anaemia is marked in addition, and such are frequently treated on the lines of chlorosis. Some complain of digestive disturbance, with extreme fatigue at some part of the day. In others again the neurones seem so susceptible to the toxin that neurasthenia fills the picture. Some patients have repeated attacks of something which resembles influenza—even to the pains of limbs and back. I have personally overlooked it in patients who had attacks like ague, and who had a history of malaria during the war.

The less ambiguous onsets, of course, are those in which bronchitis, pleurisy, or haemoptysis is the first symptom. Even when all pulmonary symptoms are latent, the persistence for a time of pyrexia, malaise, and loss of weight should point strongly to tuberculosis. It is true that, in the complete absence of sputum, without which at an early stage diagnosis is never complete, the group of blood diseases must be excluded—Addison's and the secondary anaemias, leukaemia, and even typhoid—but each of these has distinctive tests which can be easily applied.

Of the symptoms mentioned rise of temperature is perhaps the most important. A constant use of the thermometer will save many mistakes in this, as in other branches of medicine. As pyrexia may not be present to a marked degree a proper method of observation must be practised. Skin temperature has no constant reliable value, and I object personally to the routine use of the rectum. A half-minute thermometer should be placed under the tongue for at least five minutes, with the lips quite shut. If the patient takes the evening temperature himself the thermometer need not be shaken down, but may be left for the doctor to read in the morning. Occasionally it may be necessary to take it several times a day. In such circumstances, or in any case, the patient should be provided with a thermometer, and his intelligent co-operation obtained.

The maximum temperature generally occurs between 5 and 8 p.m., but in acute miliary tuberculosis it may be higher in the morning. Exercise augments the temperature. A long walk—say, three miles on a level road—will raise the temperature of a normal individual. In convalescence, in anaemia, and in some debilitated conditions it will raise it to 100° F., and a temperature above this is indicative of tuberculosis.

The loss of weight can easily be taken by the patient himself and recorded regularly on a card with the temperature.

An important point in considering the value of such symptoms is to elicitate a clear family and personal history—in the former, because of the influence of tissue susceptibility and still more on account of the opportunities of infection. The personal history may help when there is a record of repeated febricula, of attacks of asthma lately developed, of pleurisy however remote, and, above all, of slight or severe haemoptysis.

As lung tissue cannot be invaded without some damage to its elasticity, even at an early stage, deficient movement on the side involved may be present to a slight degree, and the other signs which may be present are cog-wheel inspiration, deficient respiratory sounds, and a slight relative dullness. The route of spread, from the apex along the anterior margin, does not help at this early stage—if indeed any signs at all are present. Radiology may be of service, especially in hilum or bronchial gland tuberculosis, but I have seen the lung screened only in the later stages when physical signs are markedly present. Like all forms of x-ray practice, it requires expert interpretation.

Of the other indirect methods of diagnosis, the complement-fixation test and the tuberculo-opsonic index have fallen into disuse on account of their uncertain value. The use of tuberculin for diagnosis, whether by injection,

skin inoculation, or the conjunctural route, has never found general favour, since in each case positive results have occurred in health or in healed lesions, while in certain cases of proved disease maximum doses have failed to cause a reaction (Madsen).

I have repeatedly said that the only real proof of tuberculosis is in producing the bacillus. This is comparatively easy when the case is one with cough and sputum, haemoptysis, or pleural effusion. In all these material can and should be got which will reveal the organism on examination or animal injection. There is sometimes difficulty in obtaining such material in the other group I have attempted to indicate, but it can be had eventually in every case. In some cases of fibroid phthisis in children, in the insane, and in the closed bronchial gland cases it may also take time and trouble, but it is the duty of the physician to find it as early as possible. Since the tubercle bacillus is not destroyed by the gastric juice or by the putrefactive state of the intestine, it may be recovered from the faeces when sputum has been swallowed.

Next as an aid to diagnosis come symptoms, but these are present at an earlier period. They also continue throughout the course of the disease as the only real evidence of its activity and intensity. They are present from the beginning, but are frequently overlooked or ascribed to some other cause.

Physical signs and radiography are of service in judging the extent and progress of the pulmonary changes, but may occasionally support at an early stage the supposition which the symptoms imply. Family and personal history are valuable for corroborating other evidence.

The Sections.

SUMMARY OF PROCEEDINGS.

(Continued from page 209.)

SECTION OF THE HISTORY OF MEDICINE.

Wednesday, July 25th.

IDEAS REGARDING THE NATURE AND TREATMENT OF DROPSY.

THE President of the Section, Mr. W. G. SPENCER, in opening the proceedings, referred to the fact that this was only the second year that the Section had been held; it was fitting that the inaugural meeting should have been held in Edinburgh, since the Edinburgh and Leith Division had been largely instrumental in bringing it to birth. Dr. J. D. COMRIE (Edinburgh) read a paper on the history of dropsy, which is published elsewhere in this issue (p. 229).

Discussing Dr. Comrie's paper Dr. J. A. NIXON (Bristol) referred to war oedema or famine dropsy, first mentioned by Hesiod and subsequently by other ancient writers. In the Middle Ages the earliest allusion to it was in 1528, when it ravaged the French army besieging Naples. It was also noted among the defenders in the siege of Breda in 1625, and it was mentioned by Sydenham: "Where scurvy leaves off, dropsy begins." In 1762 Lind quoted a letter from a British naval surgeon, necessarily familiar with scurvy, who notes as a novelty a form in which dropsy was an outstanding feature. Kollreuther saw famine dropsy during Napoleon's retreat from Moscow. In 1847 the Medical Society of Ghent first defined its clinical characteristics—a form of oedema associated with bradycardia, polyuria, and asthenia, unattended by albuminuria, cardiac dilatation, or neuritis. The speaker quoted an interesting case of official stupidity exhibited by Sir Richard Temple during the Indian famine of 1877-78. This official mistook for fat the dropsical swellings produced by the cutting down of the diet of the people. His medical officer, Cornish, pointed out his chief's mistake, with the result that Temple received the K.C.S.I., while Cornish's name was struck out of the list of officers to be decorated for fighting the famine! Famine dropsy was reported in Lille in 1914 among the French civilians during the German occupation. Since then it had been heard of more and more