doses in people with lowered resistance. Another, uncommon, origin is a bronchogenic sequel to a progressive chronic dissemination in the lungs.

Early bronchogenic tuberculosis is generally *not* associated with symptoms or signs (including sedimentation rate and blood picture), and can be detected only by radiological examination of the apparently healthy, particularly among groups exposed to massive infection or circumstances lowering resistance.

The focus of early bronchogenic tuberculosis must be differentiated from other tuberculous lesions: a primary pulmonary focus, apical Simon foci, "round foci" of dissemination, and the healed residua of a previously unsuspected bronchogenic tuberculosis. It is found as often above as below the clavicle, and appears as a group of small foci or as a non-homogeneous shadow as frequently as in the form of a homogeneous cotton-wool shadow (*Frühlinfiltrat*, or "early infiltration"). Help in deciding whether the lesion is active or not must often be obtained from serial radiographs.

Help in assessing the outlook for the lesion is obtained from serial radiographs and by finding the causative factor or factors; mode of origin, massive contact, and lowered resistance must be considered.

Treatment will depend to some extent on these factors. Treatment in the home may be considered under certain circumstances, but institutional treatment is usually essential.

Rest in bed until the lesion is quiescent is indicated whenever institutional treatment is advised. Collapse therapy should be used in addition when there is no evidence of regression of the lesions within a very few weeks. Reasons for these conclusions are discussed.

The relations of tubercle bacilli in the sputum to the definition of early bronchogenic tuberculosis and the classification of tuberculosis are discussed, as well as the significance of this finding in connexion with treatment.

The importance of mass radiological examinations in connexion with the detection of early bronchogenic tuberculosis is stressed, but the method to be used is critically examined. The conditions under which mass radiological examinations are likely to play a decisive part in the eradication of tuberculosis of human origin are brought forward.

REFERENCES AND SELECTED BIBLIOGRAPHY

- Alexander, J. (1937). *The Collapse Therapy of Pulmonary Tuberculosis*, London.
 Braeuning, H. (1938). *Der Beginn der Lungentuberkulose beim Erwachsenen*, Leipzig.
 Hart, P. D'A., Hilton, G., and Morland, A. (1940). *Lancet*, 1, 263.
 Hilton, G. (1941). *Tubercle*, 22, 135.
 Ickert, F. (1939). *Ueber exogene Reinfekte und die Superinfektion bei Tuberkulose* (Tuberkulose-Bibliothek, No. 71), Leipzig.
 Kayne, G. G., Pagel, W., and O'Shaughnessy, L. (1939). *Pulmonary Tuberculosis: Pathology, Diagnosis, Management and Prevention*, London. (Part 1: Pathology—bibliography under various sections.)
 Malmros, H., and Hedvall, E. (1938). *Studien ueber die Entstehung und Entwicklung der Lungentuberkulose* (Tuberkulose-Bibliothek, No. 68), Leipzig.
 ——— (1940). *Amer. Rev. Tuberc.*, 41, 549.
 Myers, J. A., and Levine, I. (1935). *Ibid.*, 31, 518.
 O'Brien, E. J. (1933). *Amer. J. Roentgen.*, 30, 315.
 Schemmel, J. (1935). *Beitr. klin. Tuberk.*, 86, 248.
 Turner, G. C., and Collins, L. L. (1936). *Amer. Rev. Tuberc.*, 34, 792.
 Uehlinger, E. (1938). *Beitr. klin. Tuberk.*, 92, 170.
 Voigtman, S. (1935). *Ibid.*, 87, 35.

The papers by Hart, Hilton, and Morland deal with tuberculosis in medical students detected by radiological examination. The papers by Schemmel, by Uehlinger, and by Voigtman deal with "round foci."

J. Fénéon (*Thèse de Paris*, 1940, No. 189) states that it has been well known since Fournier's time that syphilis may give rise to osteo-articular lesions. They are rare, however, and occur in the course of active syphilis. The part played by syphilis in the aetiology of chronic rheumatism is much more important, hydrarthroses and arthritis of the hip-joint being the most frequent manifestations. It is often difficult to determine the existence of syphilis in an old-standing case which has been inadequately treated and may be associated with other infections. Inconstant results are yielded by chemotherapy, which should be employed with caution as the patients are affected by diffuse sclerosis. Orthopaedic surgery is important in the correction of deformities.

EMPLOYMENT OF AIR-RAID NOISES IN PSYCHOTHERAPY

BY

F. L. McLAUGHLIN, M.D., D.P.M.

Major, R.A.M.C.

AND

W. M. MILLAR, M.D., D.Psych.

Major, R.A.M.C.

Specialists in Psychological Medicine at a Military Hospital

A large proportion of patients admitted to a neuropathic military hospital revealed that their neurotic breakdown was either determined or in part precipitated by the unaccustomed stress of noises, such as gun-fire, shell-bursts, exploding bombs, sirens, planes, and dive-bombing. Some of these soldiers were Dunkirk casualties, but the majority were men who had not served outside England. Experience showed that treatment along orthodox psychotherapeutic lines, which included physical training, occupational therapy, route marches, games, etc., was impeded in these cases by too quiet an environment in hospital. While other symptoms had been resolved there remained a certain hypersensitiveness to air-raid noises.

The type of patient who came into this group and who formed the material for the treatment here outlined consisted of those in whom anxiety was the main presenting symptom. Their symptoms were related closely to experiences of a traumatic nature—physical or psychological—when in the "front line." It was considered that a close approximation between hospital life and life in the Army was necessary if these men were to remain well when returned to their units. An attempt was made to "de-condition" the state of hypersensitiveness to warfare sounds by reproducing the disturbing noises till the patients gradually became more normal in their reactions.

Method

At first the apparatus used for reproducing these noises was rather crude, consisting of a small portable field siren and an assortment of tin boxes and sticks. Later, with the helpful co-operation of the B.B.C., it was possible to make use of gramophone records of actual warfare. Technicians made to our specification records of sirens, the firing of A.A. and machine guns, sounds of planes, dive-bombing, and explosions. Individual sounds or a composite effect could be reproduced when required. Records combining reassurance talks with actual bombing noises were also made. The following technique was employed:

The patient was given a simple explanation of the treatment and its object. He was placed in a state of relaxation, and details of the pulse rate, respiration, blood pressure, presence of tremors, restlessness, and the like were recorded. He was then subjected to the particular sound deemed to be the precipitant in his case. Notes were made of changes occurring in the physical and mental state, and after a short rest period the stimulus was again given. Depending on the response obtained, this was repeated three to seven times at each session, at the end of which the mechanism and meaning of fear were explained. The record chart, revealing a gradual improvement in responses—a phenomenon almost invariably present—was shown to the patient after the first session.

Reassurance and encouragement on common-sense lines were given to certain patients. They were told: "Men, women, and children in our badly bombed cities have developed a new lease of life. They are in better mental trim than those in safe areas. They have faced the raids, have found them not so bad as anticipated, and have got over them. They carry on with their jobs

and take a pride in being fit for fire-fighting and other duties. You can do the same, and this treatment will help you to get accustomed to raid noises."

Conditioning and Abreaction

Though the procedure was intended to be a means of "conditioning" cases to noxious sounds, it soon became evident that it could be used as a speedy and practical method of abreacting patients. The process of letting a patient re-live terrifying emotional experiences has a therapeutic effect. As a measure for producing abreaction the employment of war noises is much simpler than hypnosis or hypnarcosis. It is quick, effective, and does not demand too great technical skill. The patient is enabled to recall terrifying incidents which had determined his symptoms, and by expressing them in the secure atmosphere of the hospital his self-control and confidence are helped. The following case illustrates the use of the method as an abreactive agent.

A private aged 22 who was in good health until shelled badly in France developed acute anxiety symptoms, thereafter tending to become worse when in bombing raids in this country. After admission to hospital he was given a course of "sound-therapy," and on the first application he became very agitated, volunteering the information that the noise "brought it all back again." The blood pressure and pulse rate showed marked increase after hearing warfare noises. Though the patient was aware that the sounds were artificial, he reacted briskly when the stimulus was given, vivid memories of the initial traumatic experience being recalled.

It was established in a number of cases that this procedure could easily reveal a wealth of psychological material, and by releasing emotional tension have a beneficial effect.

Some people cannot stand up to the stress of noises without help. It is not a question of "scrimshanking" but of constitutional make-up. They can be helped by realizing that knowledge and a sense of security will see them through. Giving them sane simple explanation and advice and getting them accustomed to disturbing stimuli increases their stability and sense of security and relieves apprehension and exaggerated fears. Our experience would indicate that the repetition of noxious stimuli is of value in restoring function in these cases. The principle of conditioning is very much that of the horseman who mounts immediately after a fall in order to prevent the association of fear and riding.

One man who complained of trembling, palpitation, and loss of control during air raids since the Dunkirk evacuation was conditioned to warfare noises in a week, and during subsequent air-raid alerts was no longer disturbed, being finally discharged to duty. Another soldier, with a similar history, at first reacted so strongly to the sounds given that he rushed screaming from the room. At the end of six days' treatment he was perfectly calm and showed no reaction whatever.

Conclusion

Air attack is being employed on all fronts to demoralize our people. It is now evident, however, that the anticipated number of psychiatric casualties as a result of air raids has not been justified. Actually there has been no increase in the incidence of neurosis or psychosis in our bombed cities. A corporate sense of discipline, preparedness, and individual effort has maintained morale. Fear has to a large extent been dissipated by the activity of fire-fighting and other defence measures. Fear, which is simply a normal protective instinct, can be countered by enlightenment, and aerial bombardment is unlikely to achieve its demoralizing object if the experience is not a complete surprise. Apprehension and anxiety concerning air raids are more likely to affect those who are inactive and have

not been accustomed to warfare noises. Repetition of bombardment noises would appear to assist in raising the power of endurance and in enabling the individual to stand up to this new form of attack.

Our thanks are due to various members of the B.B.C. staff for their valuable help in producing the records used in this investigation. We are also indebted to Colonel G. W. Will, O.B.E., for permission to investigate cases under his care.

CHEMOTHERAPY IN ACUTE MIDDLE-EAR DISEASE: "MASKED MASTOIDITIS"

BY

C. A. HUTCHINSON, F.R.C.S.Ed.

Major, R.A.M.C.; Otolologist to a Military Hospital

I have recently had three cases (quoted in detail below) referred to me in quick succession which have much exercised my mind on the subject of chemotherapy in acute disease of the middle ear.

In view of Dr. J. B. Jessiman's (1941) article on the subject, which drew forth prompt criticism from Mr. Lionel Colledge (1941), it would seem that there is ample justification for uttering a warning against putting *too* great reliance on drugs of the sulphonamide group. They have admittedly proved of marked value in the control of infections of the middle-ear cleft, but it is a mistake—which may have tragic consequences—to assume that, quite irrespective of whether myringotomy has or has not been done, all is of necessity well with the patient because the temperature has fallen, mastoid tenderness has disappeared, and the other symptoms and signs have cleared up. Such cases, indeed, call for very careful watching, since the sulphonamides can "mask" a mastoiditis most effectively, while serious complications may develop in the most alarmingly sudden manner.

Furthermore, it should be noted that in each of the cases quoted below sulphapyridine has been employed. Now, this agent is excellent for pneumococcal infections, but even its most enthusiastic supporters must admit it to be of very considerably less value than sulphanilamide where the infection is of streptococcal origin. After all, pneumococci are, it is true, responsible for many cases of middle-ear infection, but a number of cases *are* undoubtedly due to streptococci or other organisms. We should therefore be on our guard against thinking as it were in terms of sulphapyridine to the exclusion of sulphanilamide. Such blind faith can only result in a proportion of failures, and these will inevitably bring quite unwarranted discredit on a group of most valuable therapeutic agents.

It is suggested that the correct procedure in every case of threatening or frankly developed middle-ear infection is to take swabbings from the tonsils, nasopharynx, and/or purulent discharge itself (whether the result of perforation or myringotomy) and, if bacteriological examination reveals the presence of streptococci, then sulphanilamide (and not sulphapyridine) should be administered. It is only by such conscientious use of the appropriate member of the group that we can secure more consistently satisfactory results and so gain for these agents that confidence in them which is their just due.

Lastly, while agreeing with most of the relevant comments by Mr. R. Thomas (1941), I cannot find myself in agreement with his expressed wish that "the day will soon come when this simple operation [he specifies "paracentesis"] will become part of the armamentarium of every general practitioner." In the first place, paracentesis has been rightly