made for anaemia. This may most conveniently be done by using the sedimentin index of Day.

I wish to express my sincere thanks to Dr. S. C. Dyke, director of the department, for his advice and much helpful criticism; and to A. W. Farmer for his technical assistance.

REFERENCES

- Day, G. (1939). *Tubercle*, **20**, 364.
 — (1940). *Lancet*, **1**, 1160.
 Fahraeus, R. (1921). *Acta med. scand.*, **55**, 1.
 Ham, T. H., and Curtis, F. C. (1938). *Medicine*, **17**, 447.
 Heller, V. G., and Paul, H. (1934). *J. lab. clin. Med.*, **19**, 777.
 Linzenmeier, G. (1920). *Arch. Gynäk.*, **113**, 608.
 Ponder, E. (1925). *Quart. J. exp. Physiol.*, **15**, 236.
 Reichel, H., et al. (1936). *Blutkörperchensenkung*, J. Springer, Vienna.
 Rourke, M. D., and Ernste, A. C. (1930). *J. clin. Invest.*, **8**, 545.
 Schuster, N. H. (1938). *Tubercle*, **19**, 529.
 Walton, A. C. R. (1933). *J. lab. clin. Med.*, **18**, 711.
 Westergren, A. (1920). *Acta med. scand.*, **54**, 247.

THE PREPARATION OF HOUSE-DUST EXTRACTS

BY

CHARLES SUTHERLAND, M.B., M.R.C.P., F.R.A.C.P.

Major, R.A.M.C.; Physician to Asthma Clinic, Alfred Hospital, Melbourne, Australia

Although hypersensitiveness to house dust occurs quite commonly and is an important factor in producing symptoms—e.g., in asthmatics and some types of chronic bronchitis—its existence is often completely missed by clinicians, partly because many of the extracts produced commercially for testing and treatment are either feeble or inert. The incidence and significance of this form of allergy will be properly assessed, therefore, only when potent and stable extracts become readily available. Such extracts should be so potent that they produce a large, irregular, itching wheal when used in a "scratch" test, and they should be quite inert when similarly tested on the skin of normal individuals. The "scratch" test offers a ready means of comparing the activity of different fractions isolated from dust, and was used in preference to the intradermal method throughout this work.

Since Cooke (*J. Immunol.*, 1922, **7**, 147) first demonstrated that some ingredient in house dust acted as an allergen, many attempts have been made to establish its identity, but this still remains a mystery. At first it was assumed that the activity might be simply due to a mixture of known allergens, but subsequent work has made this seem unlikely, and it appears that it originates from a single substance. Investigations made during the past two years suggested that this active substance might be adsorbed on to the particles of dust, and it was found that N/100 ammonia, which is often used in eluting adsorbed substances, did, in fact, bring the active fraction readily into the aqueous solution. Samples of dust from different houses vary considerably in activity, but by the scratch test it is easy to select a satisfactory sample. Five hundred grammes of this is just wetted with N/100 ammonia and left for 24 hours. It is important not to add excess of the fluid. The mass is then wrapped in cloth and squeezed in a powerful press, and the muddy fluid so obtained is filtered through paper and the pad of a Seitz filter until a clear yellowish filtrate is obtained. Sodium benzoate (20 g. per litre) is now added, and this dissolves readily. Hydrochloric acid (1:5) is then gradually added until the mixture becomes just acid to Congo red. A very finely divided precipitate of benzoic acid appears, and after 12 to 24 hours this is filtered off in a Buchner filter and sucked as dry as possible. Much of the active substance is held in an adsorbed form in this mass of benzoic acid, and it is readily released when the benzoic acid is dissolved in acetone. An amorphous precipitate remains, and is removed by centrifugalization. It is washed repeatedly in acetone and finally in dry ether and allowed to dry. This brownish amorphous powder shows great activity and appears to provide an ideal test reagent, as it is quite inert when tested on "control" normal individuals. This method of adsorption does not remove the whole of the active substance from solution, so it is usually worth while to neutralize the filtrate and to repeat the process of precipitating benzoic acid at least once.

Samples prepared six months ago have remained very potent, but it is too early yet to decide on the keeping properties of the substance. It is of interest that Dr. C. Rimington of the National Institute for Medical Research, Hampstead, who carried out preliminary tests on a sample, reported that it appeared to be largely carbohydrate in nature and failed to give the usual reactions for proteins. If subsequent tests with purer samples confirm this they may throw a new light on the nature of allergens.

Tests on 100 asthmatic soldiers show that roughly 80% react strongly, and in 20 cases treatment by desensitization with a 1% solution produced spectacular improvement in almost every instance. Initial subcutaneous doses as small as 0.05 c.cm. produced marked swelling, redness, and itching within half an hour, but after a dozen weekly doses of increasing quantity even ten times the initial dose often produced little reaction, and this increase in tolerance was usually associated with a considerable lessening of the symptoms.

Exigencies of war have prevented further work on this substance at present, but the preliminary results have been so interesting that a note on this incomplete work seemed justified.

I wish to thank Prof. D. C. Harrison of the Department of Biochemistry, Queen's University, Belfast, for much helpful advice and hospitality, Dr. Cope for advice on the method of adsorption, Mr. W. Buick of Queen's University for much technical assistance, and Dr. Rimington for carrying out the preliminary biochemical tests.

Medical Memoranda

Subdiaphragmatic Collection of Bile following a Perforating Chest Wound

This case presents some unusual features which make it worthy of record.

CASE REPORT

The patient, a woman aged 36, sustained a penetrating chest wound from a bomb fragment on Sept. 8, 1940. She was transferred to our care two days later, an ill woman, cyanosed and dyspnoeic, with a temperature of 98.8°, pulse 92, and respirations 26. There was a small puncture wound on the right side of the chest in the mid-axillary line at the level of the eighth space. Movements of this side of the chest were poor, and there was a small area of dullness and diminished air entry at the right lung base. The abdomen was distended and rigid, and tender down the right side, especially in the hypochondrium. A radiograph of the chest showed a small opacity at the right base. A provisional diagnosis of pneumonitis and probable liver injury was made, and a blood transfusion and oxygen through a B.L.B. mask were given. The following day the signs, including a friction rub, suggested consolidation or haematoma in the right lung. Sulphapyridine was started in full doses. During the next few days the patient remained ill, with temperature 99°, pulse 100, and respirations 30, the main symptoms being a feeling of malaise, persistent abdominal pain, and an irritable cough, while the chief signs were dullness on the right side of the chest, which had gradually increased, with a correspondingly diminished air entry. At this time her conjunctivae were stained yellow and the urine contained bile. Further radiographs of the chest taken on Sept. 18, 8 days after admission, revealed what appeared to be an intrapleural collection of fluid, with a raised right diaphragm. Accordingly, on the same day a diagnostic puncture through the eighth space in the posterior axillary line was done; this yielded 20 c.cm. of sterile bile. The following day a further 100 c.cm. was withdrawn. Radiographs then showed the diaphragm to be considerably lower. After the second puncture the patient steadily improved, and radiographs taken at the end of October, about 8 weeks after admission, showed the diaphragm in normal position and a small bomb fragment situated in the centre of the liver area.

It was concluded that the missile had traversed the lower part of the lung, giving rise to the signs on admission, and after piercing the diaphragm had lodged in the liver. Following this liver injury an extravasation of bile had collected below the diaphragm, probably over the bare area. The exploratory puncture, although made in the eighth space, had gone through the pushed-up diaphragm into the subphrenic collection.

Commentary.—The main points of interest in this case are: (a) the difficulty in making an early accurate diagnosis; (b) the limitation of a large collection of bile to the subphrenic area;

and (c) the fact that this collection remained sterile. We believe that conservative treatment is correct in this type of case and that operative measures should be undertaken only if infection supervenes.

A. D. EVERETT, M.S., F.R.C.S.
B. WOOD, M.B., B.S.

Shock Treatment in Psychosis complicating Pregnancy

The beneficial effect of shock therapy in the treatment of the emotional mental disorders is now so firmly established that any possible contraindications should be critically examined before deciding to withhold treatment. Several conditions which were formerly considered to be a bar to shock treatment have since been found to involve very little risk. A consideration of the patient's age, for example, is not now regarded as important, and patients of 70 to 80 and children of 3 years have been successfully treated with induced convulsions (Hemphill and Walter, 1941).

Provided they are well compensated, cardiovascular disorders are not serious obstacles, even in cases of auricular fibrillation (Good, 1940). In fact, both cardiazol and electric convulsions act as cardiac stimulants, with apparent benefit in cases of circulatory asthenia and low blood pressure. But so far as I am aware, little mention has been made in the literature regarding the use of shock therapy in the mental disorders arising during pregnancy. Although such disorders are relatively uncommon, it is possible that in some quarters the pregnant state is thought to be a contraindication to shock therapy. The result in the following case, however, suggests that in suitable patients the treatment is fully justified and entirely harmless.

The stress of pregnancy may precipitate a mental breakdown in predisposed individuals, usually a state of depression, but as a rule the prognosis is good when mental disorders occur before the fourth month. If they appear later they tend to become increasingly severe until the birth of the child, when they usually disappear. In the late case shock therapy would be worth while if only to enable the child to be born at home instead of in a mental hospital, provided there are no risks to the mother or the child. The first consideration, however, is the possible risk of precipitating a miscarriage. But this appears unlikely when one thinks of the number of epileptic women who have fits during pregnancy with no untoward results. Goldstein *et al.* (1941) state that a review of the literature indicates that epilepsy does not influence pregnancy unfavourably other than by predisposing to injury from falls. (The spasms of epilepsy occur only in voluntary muscles.) Those workers also report the case of a schizophrenic, 3½ months pregnant, who was given 13 cardiazol seizures and insulin shock treatment for 13 days with no harmful effects on the pregnancy. They conclude that convulsive or insulin treatment is justifiable in pregnant women because of the apparent harmlessness of convulsive seizures due to these drugs and to epilepsy.

The following description of a similar case would seem to support the above conclusion.

CASE REPORT

The patient, a married woman aged 23, was admitted to Wadley Mental Hospital on March 7, 1941, as a voluntary patient suffering from melancholia of pregnancy. There was no history of mental disorder, although she had had a child 3 years previously, but it was stated that her father was of nervous temperament. The second pregnancy, however, had given rise to considerable emotional stress owing to the failure of a herbal abortifacient.

On her admission the pregnancy was 4½ months advanced, and she was in a state of acute agitated melancholia, emotional and weeping, crying out that she was wicked and had done a grievous wrong. She felt that people were talking about her and that something terrible was about to happen to her. She was in good physical health. Her mental state showed no improvement during the first 5 weeks of her stay in hospital, and she was therefore given a course of electric convulsion therapy with a view to effecting her discharge from hospital before the birth of the child. She received 13 convulsive shocks during the ensuing six weeks, and there was a progressive improvement in her mental condition. She was discharged recovered on May 29, 11 weeks after admission, and a subsequent follow-up on March 4, 1942, found her in good mental health and with a healthy 7-months-old baby. The latter was born on Aug. 8, 1941, after a normal and easy confinement.

F. T. THORPE, M.R.C.S., L.R.C.P., D.P.M.

Wadley Mental Hospital, Sheffield.

REFERENCES

- Goldstein, H. H., Weinberg, J., and Sankstone, M. I. (1941). *Amer. J. Psychiat.*, **88**, 201.
Good, R. (1940). *British Medical Journal*, **2**, 624.
Hemphill, R. E., and Walter, W. Grey (1941). *J. ment. Sci.*, **87**, 256

Reviews

HAEMATOLOGY

Diseases of the Blood and Atlas of Hematology. By Roy R. Kracke, M.D. Second edition, thoroughly revised, reset, and enlarged. (Pp. 692; illustrated. 90s.) Philadelphia, Montreal, London: J. B. Lippincott Company.

This work, of which a second edition has appeared within the relatively brief space of four years, is a very satisfactory textbook of haematology, which is in no way too advanced for the practitioner or the postgraduate student. It gives an extremely well-balanced presentation of the subject, without over-stressing the rarities, which is the chief pitfall in this field. It is beautifully produced and clearly printed on a thin matt paper instead of the horrible heavy glossy stuff which American publishers so often use, and it weighs only 4 lb. Its only serious fault is the price, which is 90s. This works out at 22s. 6d. a lb. We may compare this with Piney's *Synopsis*, which works out at 16s. a lb., and Janet Vaughan's *Anaemias*, which works out at 6s. a lb. These differences do not seem reasonable in terms of weight of text. On the other hand Kracke provides 54 colour plates for 90s., Janet Vaughan 4 for 12s. 6d., and Piney 4 for 10s. 6d. It is therefore clear that what the buyer is paying for is colour plates. It seems very doubtful whether it is economical to bind expensive colour plates with text which rapidly goes out of date, for the cells of the body remain the same however much our opinions about them may change. Atlases of haematology, like those of ophthalmology, would be better published without text, and one of the post-war desiderata is an international atlas of haematology, with an agreed terminology, which would be kept up to date by a standing committee, and of which a pocket edition would be published for the student. Such a student's atlas, with an international demand numbered in tens of thousands, could probably be produced for a few shillings, and its existence would be an incentive to writers of textbooks of haematology to describe the patient rather than the blood picture. For (*pace* some professors of medicine) the more we know about diseases and the more we can describe them in physiological terms, as we can the diseases of the blood, the less interesting they become to read about. No one can imagine "Kracke," or any other modern textbook of haematology, being treasured like "Trousseau" or "Osler" or read for its own interest a hundred years hence. Perhaps this is inevitable, and the textbooks of the future must be as dull and matter-of-fact as accounts of entropy or integral calculus. But in the meantime some of us feel that the drama of haematology still awaits its inspired author.

SCHIZOPHRENIA

Schizophrenia: The Cinderella of Psychiatry. By Reg. S. Ellery, M.D., F.R.A.C.P. (Pp. 170. 12s. 6d.) Sydney: Australasian Medical Publishing Co., Ltd. 1941.

This is not a textbook but an essay expressing the opinions of the author without reference to the work of others. Some may be put off by the great exuberance of language, for he delights in words and loves to juggle with them. Others may be put off by his undoubted predilection for Marxian principles. Nevertheless, the reader should not be put off; for Dr. Ellery does know all about schizophrenia, and gives a very good description of all aspects of the disease.

It may be that he accepts the promise of the new forms of shock therapy a little too optimistically, but he rightly states that they are the only kinds of treatment which have raised the expectation of remission or recovery above the average of "natural remissions" and have changed the ultimate prognosis of inevitable dementia to one of guarded hope for some sort of adjustment to life, even though it may be at a humble level. He discusses the question of prevention and seems to think that this lies chiefly in social reform, but in his computation of the evils of family life and the delinquencies of the average parent he rather overreaches himself. No doubt all the blows to the security and proper development of the child mentioned in the book may fall upon him at some time or other, though seldom all together; but no one has yet found