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.

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THE PREPARATION OF HOUSE-DUST EXTRACTS

BY

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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 justifiable.

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;