of all doubtful cases. A significant degree of anaemia is a usual finding in myelomatosis, but is rarely seen in uncomplicated cases of hyperparathyroidism.

Summary

A case of multiple myelomatosis presenting with a spontaneous fracture is described. Hypercalcaemia, hypercalcuria, normal serum phosphorus in the presence of severe impairment of renal function, and an elevated urinary clearance of phosphate led to the diagnosis of hyperparathyroidism. The parathyroid glands were found to be normal, and at necropsy myelomatous replacement of two vertebral bodies, invasion of liver sinusoids, and myeloma kidney were found.

This condition resembles hyperparathyroidism in that there may be an increased urinary excretion of phosphate as well as hypercalcaemia and hypercalcuria.

The possible causes of the hypercalcaemia are discussed.

The differential diagnosis between multiple myelomatosis and hyperparathyroidism is considered. The most important point would appear to be to remember how closely the two diseases may resemble each other.

Our thanks are due to Mr. Ian Fraser, who referred the patient to one of us (D.A.D.M.) and who, with Mr. E. Morrison, operated on the patient. The advice and guidance of Professor G. M. Bull are gratefully acknowledged. We are grateful to Miss Eileen Martin for the estimations of inulin and phosphorus, to Dr. G. Gibson for the post-mortem examination, to Dr. J. A. Smyth and Mr. D. Neill for some of the biochemical determinations, and Mr. George Smith for the diagram. One author (M. G. McG.) wishes to acknowledge a grant from the Medical Research Council.

REFERENCES

- Albright, F., and Reifenstein, E. C. (1948). *Parathyroid Glands and Metabolic Bone Disease*. Williams and Wilkins, Baltimore.
- Anderson, J., Harper, C., Dent, C. E., and Philpot, G. R. (1954). *Lancet*, 2, 720.
- Bodansky, A., and Jaffe, H. L. (1934). *Arch. intern. Med.*, 54, 88.
- Caylor, H. D., and Nickel, A. C. (1933). *Ann. Surg.*, 97, 823.
- Cosgrove, K. E., and La Tourette, K. A. (1953). *Amer. J. Med.*, 15, 862.
- Gutman, A. B., and Gutman, E. B. (1936). *Proc. Soc. exp. Biol. (N.Y.)*, 35, 511.
- Tyson, T. L., and Gutman, E. B. (1936). *Arch. intern. Med.*, 57, 379.
- Jaffe, H. L., and Bodansky, A. (1942). *J. Mt Sinai Hosp.*, 9, 901.
- McGeown, Mary G., Martin, Eileen, and Neill, D. W. (1955). *J. clin. Path.*, 8, 247.
- Nassim, J. R., and Crawford, T. (1950). *Brit. J. Surg.*, 37, 287.
- Naylor, A., and Chester-Williams, F. E. (1954). *British Medical Journal*, 1, 120.
- Rawson, A. J., and Sunderman, F. W. (1948). *J. clin. Invest.*, 27, 82.
- Schwartz, S. O., and Cataldo, M. (1953). *Ann. intern. Med.*, 39, 1267.
- Snapper, I. (1948). *J. Mt Sinai Hosp.*, 15, 156.
- Wallerstein, R. S. (1951). *Amer. J. Med.*, 10, 324.

According to a leading article in the *New England Journal of Medicine* (August 11, 1955, p. 256) there has been a decline in the number of suitable applicants for admission to medical schools in the U.S.A., and some schools are already finding it difficult to fill vacancies with properly qualified students. "This phenomenon appears to be symptomatic of the declining interest of American students in mathematics and in all types of physical and biologic sciences." It is suggested that the shortage of teachers of science subjects in the secondary schools may have accelerated this trend. Half the high schools in the U.S.A. now do not offer courses in chemistry, and there are no courses in physics at an even higher proportion of schools. "The tendency in high schools is for increasing numbers of students to take 'easy' courses, such as social studies, vocational education, and 'how-to-live' subjects, while side-tracking the 'hard' subjects, such as mathematics, physics, and chemistry. This trend is carried over into the colleges and may be largely responsible for the increasing emphasis that universities and medical schools are placing on the 'behavioural' and 'social' sciences. This tendency has dangerous potentials for the future of scientific medicine."

CAT-SCRATCH FEVER

BY

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In 1932 Lee Foshay, of Cincinnati, whilst investigating tularaemia, recognized a separate disease entity in individuals who had been scratched by cats (Daniels and MacMurray, 1951a). The condition was characterized by an initial lesion at the site of inoculation, followed by regional adenitis and fever, the adenitis progressing to a bacteriologically sterile suppuration. In 1945 F. M. Hanger and H. Rose, of New York, developed an antigen from a similar case (Hanger himself), which gave a local reaction when injected intradermally, and was successfully tried by Foshay on his own cases (Daniels and MacMurray, 1951a).

Meanwhile this condition had been well recognized in France, and in 1947 R. Debré, of Paris, following a meeting with Foshay, introduced the antigen into France. Its use in suspected cases gave results similar to those experienced by American workers (Debré *et al.*, 1950). During the past five years the condition, under various names—for example, cat-scratch disease, cat-claw disease, cat-bite fever, and benign inoculation lymphoreticulosis—has also been reported in Switzerland, in India, and on four previous occasions in Great Britain (Campbell and Wheaton, 1952; Cox, 1952; Garai, 1952; Bettley and Fairburn, 1953).

Case 1

A schoolgirl aged 7 was admitted to St. Woolos Hospital, Newport, on December 27, 1954. Eighteen days previously she had been bitten on the right thumb by the family cat, and a few days later had developed some local inflammation followed by a mild lymphangitis and axillary adenitis. This was treated by her own doctor with oral penicillin and rest, with apparent benefit, the inflammation subsiding.

He was recalled 15 days after the bite, as her temperature had risen to 102–104° F. (38.9–40° C.), the axillary glands had increased in size, and she was complaining of considerable pain in the right arm. This was accompanied by a generalized pleomorphic rash and classical erythema nodosum of both legs, with a few smaller nodes on the arms. Treatment with chlortetracycline resulted in an improvement in her general condition and a subsidence of her temperature. However, it was apparent that two of the axillary glands were becoming fluctuant, with reddening of the overlying skin, and so she was admitted to hospital.

There was nothing relevant in her past history, but she had always been subject to bouts of papular urticaria.

Examination showed her to be well nourished, with no abnormal physical signs detectable in the throat, the ears, or the cardiovascular, respiratory, and alimentary systems. There was a moderate general lymphadenopathy, but no enlargement of the epitrochlear glands, and the spleen could not be palpated. The site of the original bite showed some local indolent induration but no discharge. There was no lymphangitis in the right arm, but in the right axilla there was a tender soft bubo. Both shins and forearms showed

erythema nodosum, and there was a generalized pleomorphic rash composed of maculo-papular and papulo-vesicular elements. The latter consisted of small papules 2-6 mm. in diameter, surmounted by a pinhead vesicle.

The bubo was aspirated and thick greenish-yellow pus obtained.

Investigations.—December 29:—Chest x-ray examination showed no pulmonary lesion. Hb, 86% (12.7 g. per 100 ml.); white cells, 18,000 per c.mm. (neutrophils 75%, lymphocytes 13%, monocytes 10%, eosinophils 2%). E.S.R., 45 mm. in first hour (Westergren). Urine, no abnormality. Wassermann reaction and Kahn test negative. Paul-Bunnell test negative. Pus from bubo: Films were stained Gram, Ziel-Neelsen, and Giemsa. The cells were scanty, and were chiefly polymorphonuclear leucocytes with a few lymphocytes and other mononuclears. No inclusion bodies were seen. No tubercle bacilli or other organisms were identified. Blood-agar and chocolate-agar plates were inoculated and incubated aerobically, anaerobically, and in an atmosphere of 10% CO₂. No organisms were isolated. To exclude *Brucella tularensis* an agar plate containing blood, cystine, and dextrose was inoculated, but this also remained sterile. No tubercle bacilli were isolated after eight weeks' incubation on Löwenstein-Jensen medium. Serum agglutination tests against non-specific salmonella—*Salm. typhi*, *Salm. paratyphi A*, *Salm. paratyphi B*, *Salm. paratyphi C*—*Br. melitensis*, and *Br. abortus* were all negative. Blood culture: No organisms were isolated after 72 hours' incubation at 37° C. Mantoux 1:10,000 initially gave a weak positive reaction, but three subsequent tests down to 1:100 dilution were negative. January 8, 1955:—Frei test was negative. Cat-scratch intradermal test (Colindale solution) produced a weal 2.5 cm. in diameter, with a central papule. Autogenous intradermal test produced a weal 3.5 cm. in diameter with a central papule. January 17:—Complement-fixation tests: psittacosis-lymphogranuloma venereum less than 1:8; Q fever less than 1:8.

Progress.—Following aspiration of thick pus from the bubo, a small incision was made to permit free drainage. This healed in a week, and the glands gradually subsided. The erythema nodosum persisted for ten days and then faded, leaving some brown staining noticeable for a further fortnight. The other rashes faded two weeks after admission to hospital, leaving no mark, but subsequently a few isolated papules reappeared on the limbs and abdomen. No further rashes were seen after six weeks. The patient made an uninterrupted recovery, and the sedimentation rate and white-cell count were normal after a month. Three months later she was re-examined, and found to be in excellent health, with no rash but with some residual induration of the right axillary glands.

This case was shown at a clinical meeting in Newport on January 27, 1955, following which the two cases reported below were thought, in retrospect, to have been cases of cat-scratch fever, and skin-testing was carried out.

Case 2

A housewife aged 53 was bitten by her cat on the right shin in July, 1954. The wound was superficial and about $\frac{1}{4}$ in. (1.9 cm.) in length. This healed slowly, but without any constitutional upset or regional adenitis.

Seven weeks later she felt unwell, had a mild fever, and complained of pain in the right groin. The latter she attributed to a "strain." She improved, but felt unwell again a fortnight later, and was seen by her doctor, who found very enlarged glands in the right inguinal region. A diagnosis of pyogenic inguinal adenitis was made, and treatment with intramuscular injections of penicillin instituted, but without response. Within a week the glands became fluctuant with redness of the overlying skin. She was admitted to hospital on November 15 for surgical treatment.

Incision of the abscess was followed by the evacuation of thick pus from which no pathogenic organisms were grown. The wound did not heal, but a further swab taken

five days later grew *Staphylococcus aureus*, coagulase-positive and resistant to streptomycin and chlortetracycline. The incision eventually healed after a course of erythromycin.

In hospital her blood count showed a polymorphonuclear leucocytosis and her Wassermann reaction was negative. Four months later she had a positive reaction—a weal 2.5 cm. in diameter—to cat-scratch antigen prepared from Case 1, and a negative Frei test.

Case 3

A housewife aged 56 was referred by her doctor to the surgical out-patient department in May, 1954, with fluctuant glands in her right groin. The glands were tender but not painful, and there was a purulent discharge. A peripheral source of infection was not apparent, and there was no lymphangitis. A healed ulcer on the right ankle which had been treated three years previously had not troubled her since. She gave no history of any previous similar complaint.

She was admitted to hospital and the abscess incised and curetted. The evacuated pus was not cultured. The Wassermann reaction and Kahn test were negative, as was the psittacosis-lymphogranuloma venereum complement-fixation test. The glands healed satisfactorily, but slowly. No antibiotics were given.

Nine months later an intradermal test with cat-scratch fever antigen prepared from Case 1 produced a weal 1.5 cm. in diameter.

The patient has always kept cats. She volunteered that she had quite often been scratched by them.

Discussion

The aetiological agent of cat-scratch fever has not yet been identified. It is thought to be a virus of the lymphogranuloma-psittacosis group. The disease has been transmitted to a human volunteer and to monkeys, and inclusion bodies, thought to be a visible form of the virus, have been described in the lesions (Mollaret *et al.*, 1951). Winship (1953) states that the inclusion bodies are non-specific, and claims to have found them in glands obtained from cases of tuberculosis, pyogenic adenitis, lymphogranuloma venereum, and tularaemia. It has not been possible to produce the disease or a positive intradermal reaction in the cat, which suggests its role is that of a vector (Winship, 1953).

Mollaret *et al.* (1951) postulate that the virus is widely distributed in plant and vegetable life. Lange (1951) points out that the cat sharpens its claws on tree-trunks, bones, and even garbage cans, and because of its habit of frequently licking its paws, the transference of the virus from mouth to claw, or vice versa, is easily accomplished, thus explaining how the disease may follow scratch or bite. The disease has also been known to follow local lesions due to wood, thorns, bone, mosquito bites (Mollaret *et al.*, 1951), and even inhalation of contaminated material (Daniels and MacMurray, 1951a), but a history of contact with cats is almost always found. Of 160 cases described by Daniels and MacMurray (1954), only in 12 was a history of contact with cats lacking.

The pathological changes have been described in detail by Winship (1953).

The primary lesion shows a generalized infiltration of the corium by lymphocytes and polymorphonuclear leucocytes, with perivascular concentrations. Plasma cells and eosinophils are prominent in the early stages. Histiocytes appear as the disease progresses and multinucleate giant cells are seen adjacent to the granulomatous area.

Macroscopic examination of the affected lymph nodes shows them to be enlarged and usually densely adherent, appearing red and homogeneous or necrotic on section. Microscopically, the initial change is a peripheral reticulum-cell hyperplasia followed by local infiltrations of polymorphonuclear leucocytes and plasma cells. These areas develop into abscesses containing polymorphonuclear leucocytes and debris, in which the lymphocytes appear to be

destroyed. As the inflammation progresses adjacent follicles enlarge and undergo similar changes. Shortly after the development of the peripheral lesions, similar but larger granulomata form in the medullary portion of the node. Epithelioid cells then appear and form a collar around the periphery of the abscess. The lymphocytes surrounding the epithelioid ring stand out in contrast to the abscess centre. Multinucleate giant cells are usually found, and very occasionally simulate the Sternberg cell of Hodgkin's disease. In some instances mononuclear giant cells were scattered throughout the entire node. Caseation as seen in tuberculosis is absent. No endarteritis is demonstrable.

The clinical picture is that of a non-fatal systemic illness, most commonly with a local lesion, followed by regional lymphadenopathy, fever, and malaise. There is almost always a history of contact with cats and a primary site of inoculation, usually a cat scratch. The primary lesion appears seven to fourteen days after inoculation; it may heal rapidly or persist for some weeks as an inflamed scratch, papule, or, rarely, a small discharging ulcer. In approximately a quarter of the cases no history of inoculation can be obtained (Daniels and MacMurray, 1954). The primary lesion is followed in 7 to 21 days by regional adenitis, usually without any intervening lymphangitis, but with systemic symptoms. Mild fever is usual at this stage, but is sometimes both persistent and high.

Complaint may be made of malaise, anorexia, nausea, generalized aching, headache, and abdominal pain. Skin manifestations may appear. The incidence of the latter in Daniels and MacMurray's series (1954) was 7%. The rashes may be maculo-papular, morbilliform, or a fine papular lesion and are of short duration. In Case 1 the rash was both maculo-papular and papular-vesicular, the latter persistently waxing and waning throughout the whole illness. Erythema nodosum has been reported (Cox, 1952; Daniels and MacMurray, 1954). Pain associated with developing adenitis was noted in the cases we report, but this is not always so, although the glands are usually tender. The adenitis often progresses to suppuration and bubo formation. Pus obtained from the latter is thick, greenish in colour, and characteristically sterile. Suppuration may continue for many weeks before the adenitis resolves, leaving enlarged glands that persist for months and even years.

Laboratory investigations show a polymorphonuclear leucocytosis and a raised erythrocyte sedimentation rate in the acute phase. Complement-fixation tests for lymphogranuloma venereum have occasionally given low positive titres, but the Frei test in these patients was negative (Mollaret *et al.*, 1951; Daniels and MacMurray, 1954). Cultures of pus obtained from the bubo are sterile. Sections of excised nodes stained by the Giemsa method show large numbers of intracellular and extracellular bodies similar to the elementary bodies of psittacosis. The diagnosis can be confirmed by the intradermal test. The antigen is prepared in the following manner, as described by Hanger and Rose (Winship, 1953). Pus obtained from a case is diluted 1:5 with isotonic saline and heated to 56° C. for one hour on two consecutive days. Then 0.1 ml. of the material is injected intradermally and the reaction is read in 48 hours. A positive reaction consists of a papule 0.5 to 1 cm. in diameter or an area of erythema 1 to 6 cm. in diameter, or both (Daniels and MacMurray, 1954). This indicates an active or previous infection. Peterman (1954) has obtained a positive reaction 28 years after the disease was contracted.

Differential diagnosis will include chronic pyogenic adenitis, tuberculous adenitis, glandular fever, lymphogranuloma venereum, Hodgkin's disease, and, where endemic, tularaemia. The cat may be a vector for other conditions, too. Collier (1924) and Beaumont and Gill (1935) described cases of Sodoku (rat-bite fever) due to *Spirillum minus* infection which followed cat-bite. Cats are well recognized as sources of infection by *Pasteurella septica*, which also causes chronic suppurative adenitis, but the organism can be easily cultured from the pus. Daniels and MacMurray (1954) point out that, when the disease affects the cervical

glands, thyroglossal cyst and neoplastic disease of lymph nodes may be closely simulated.

Complications are few, but encephalitis is increasingly reported, so far with complete recovery (Thompson and Miller, 1953; Daniels and MacMurray, 1954). Parinaud's syndrome of unilateral conjunctivitis and pre-auricular adenitis is another unusual manifestation of the disease (Clément *et al.*, 1951; Daniels and MacMurray, 1954).

The results of therapy are difficult to assess, as the disease is a self-limiting one. Chloramphenicol, chlortetracycline, and oxytetracycline are thought to be of some benefit and often alleviate the early constitutional systems, as in Case 1, but do not seem to prevent the development of the regional adenitis.

Certain variations in pattern in the cases described merit further comment. The unusual occurrence of erythema nodosum in Case 1 brings to light yet another non-tuberculous aetiology for the condition. The papulo-vesicular rash of some weeks' duration has not been previously described so far as we are aware, the rashes in most cases lasting only 48 hours or so. It is possible that this patient's predisposition to papular urticaria may have been contributory to this. Subsequently she developed a bout of papular urticaria which was quite distinct from the rash described above.

Case 2 gave a history of cat-bite nine weeks before the onset of symptoms. It does not necessarily follow that inoculation occurred at that time. It is generally accepted that the interval between inoculation and adenitis is 7 to 21 days, but Daniels and MacMurray (1954) found that in 25% of these cases no history of inoculation could be obtained. Similarly, Case 3 had contact with cats but could give no history of a primary lesion. The subsequent progress of Case 2 is fairly typical of the disease, and the initial specimens of pus obtained from the bubo were sterile. Subsequently, a *Staph. aureus* was cultured in association with delayed healing. This could well have been due to secondary infection. Finally, the intradermal test with cat-scratch antigen was positive.

In Case 3 (diagnosed in retrospect) no record of examination of pus from the bubo could be traced. Since sterile suppuration is virtually a *sine qua non* of the condition, this omission was unfortunate. However, the skin test for cat-scratch fever was positive, a bubo was present, and the patient could not recall any previous illness simulating the disease. In our opinion the history and clinical picture justify the inclusion of this case.

A positive intradermal test is generally accepted as a reliable indication of active or previous infection. Daniels and MacMurray (1954) tested many hundred controls and found only three positive reactors. Willcox (1952) states that three cases of non-specific urethritis gave positive skin reactions with a cat-scratch antigen, but does not give details. The intradermal injection of antigen prepared from Case 1 showed no reaction with the remaining three members of her family and with five other controls known to have had close contact with cats. The cat concerned in Case 1 showed no reaction to the antigen.

Summary and Conclusion

Three cases of cat-scratch fever are described.

One case was fully investigated, and two were diagnosed in retrospect.

The natural history of the disease is traced and some of the literature reviewed.

The differential diagnosis is discussed.

There is no reason to believe that cat-scratch fever is a new entity. In the past it has no doubt been variously diagnosed as tuberculosis, lymphogranuloma venereum, chronic pyogenic adenitis, glandular fever, tularaemia, or other causes of persistent adenopathy, with or without suppuration. Soon after the presenta-

tion of our first case at a clinical meeting, two further cases came to light. We believe the condition is as common in Great Britain as it is abroad.

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REFERENCES

- Beaumont, G. E., and Gill, A. M. (1935). *British Medical Journal*, 1, 582.
 Bettley, F. R., and Fairburn, E. A. (1953). *Lancet*, 1, 520.
 Campbell, E. S. K., and Wheaton, C. E. W. (1952). *Ibid.*, 1, 975.
 Clement, R., Combes-Hamelle, A., and Meyer, B. (1951). *Bull. Soc. méd. Hôp. Paris*, 67, 1108.
 Collier, W. T. (1924). *British Medical Journal*, 2, 265.
 Cox, P. J. N. (1952). *Proc. roy. Soc. Med.*, 45, 456.
 Daniels, W. B., and MacMurray, F. G. (1951a). *Trans. Ass. Amer. Phys.*, 64, 137.
 — (1951b). *Arch. intern. Med.*, 88, 736.
 — (1952). *Ann. intern. Med.*, 37, 697.
 — (1954). *J. Amer. med. Ass.*, 154, 1247.
 Debré, R., Lamy, M., Jammet, M. L., Costil, L., and Mozziconacci, P. (1950). *Bull. Soc. méd. Hôp. Paris*, 66, 76.
 Garai, O. F. (1952). *Lancet*, 1, 646.
 Lange, H. L. (1951). *J. Pediat.*, 39, 431.
 Mollaret, P., Reilly, J., Bastin, R., and Tournier, P. (1951). *Presse méd.*, 59, 681, 701.
 Peterman, M. G. (1954). *J. Pediat.*, 44, 563.
 Thompson, T. E., and Miller, K. F. (1953). *Ann. intern. Med.*, 39, 146.
 Willcox, R. R. (1952). *Lancet*, 1, 470.
 Winship, T. (1953). *Amer. J. clin. Path.*, 23, 1012.

THE INTELLIGENCE OF 100 NEGLECTFUL MOTHERS

BY

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Early in 1945 the Women's Group on Public Welfare in association with the National Council of Social Service set up a committee under the chairmanship of the late Mrs. Eva Hubback to inquire into the problem of the neglected child. The terms of reference are given in the preface to their report, "The Neglected Child and his Family" (Women's Group on Public Welfare, 1948). "What we set out to do was to collect together that which is already known about the neglected child in his own home, to collect new material with regard to this problem, to consider its fundamental issues, and to set out some aspects of the problem which demand further investigation." Representatives of the Home Office, Ministry of Health, and Assistance Board attended the committee in an advisory capacity.

Three special studies were conducted on behalf of the committee. The first of these contained much useful information collected with the co-operation of Dr. Charity Taylor, Governor of Holloway Prison, concerning the health and social history of twelve mothers committed to prison for wilful neglect of their children.

At this time, in cases where a fine or an ordinary probation order was considered inadequate, the courts had no means of dealing with mothers convicted of child neglect other than by the imposition of a prison sentence. This often led to the break-up of the family, the father being left to fend for himself, unless he were jointly charged, when he would probably also be sentenced to prison while the children were taken into public care and placed in children's homes. In many cases the families thus disrupted were never able to achieve reunion. Parents coming out of prison discouraged and resentful were not always able to obtain work or living accommodation within their means. At that time it was not even always possible for brothers and sisters taken into care to be admitted to the same children's home

and brought up together. The need for a more constructive and humane approach to the whole problem was obvious.

As a result of discussions at the Home Office it appeared that a solution to the problem might be to provide a residential course of training at a special centre, which a neglectful mother might be induced to undertake under the requirement of a probation order. The Society of Friends and the Salvation Army were eager to give the plan a trial. The growing success of Brentwood, Cheshire, a "recuperative centre" for mothers and children where tired, debilitated, or ignorant housewives were given a short period of rest combined with informal training in home-making and child care, indicated the lines on which rehabilitation might be attempted. A simple but more systematic training than that given at Brentwood was accordingly designed. This included the elements of child care, budgeting, cooking, housework, needlework, laundry, and shopping.

Selection of Mothers

After further discussion it was decided that only children under 5 years of age should accompany the mother for three reasons. First, it would be impossible for the staff or the mother herself to cope with the care of more than two or three children in addition to her training in home-making, and it was considered that the needs of the youngest were greatest; second, it would be necessary to arrange temporary schooling for children over 5 years, and their attendance at outside schools would increase the risk of bringing infection back to the large group of younger children in the home; third, it would be less difficult to explain to older children the temporary nature of their separation from their mother, while in every case efforts would be made to keep mother, father, and children in touch with each other by visits and letters, so that the family links need not be weakened. These proposals have proved satisfactory in practice.

Mayflower, the Salvation Army home at Plymouth, was opened in March, 1948, but owing to technical difficulties the Society of Friends was obliged to delay the opening of Spofforth Hall, near Harrogate, until November, 1952.

Following court proceedings, the mothers are usually placed on probation for a period of two or three years with a "requirement to reside" in one of these training-homes for a period of four months. This period of residence was originally decided upon because it was considered to be the minimum time in which the mothers could learn the elements of home-making, while it was also probably the maximum time that the husbands could be expected to tolerate separation without losing hope and incentive or seeking consolation in other directions. Also, it approximated the usual length of prison sentence for child neglect.

It is hoped to describe more fully elsewhere the findings of this valuable medico-social experiment observed over a period of seven and a half years. This paper is intended as a preliminary communication concerning one aspect only—the intelligence of a straight series of 100 mothers interviewed and tested between March, 1948, and June, 1954. Although the mothers in this series were unselected admissions the women studied do not represent a complete cross-section of neglectful mothers, since a certain degree of preliminary selection was operating. Because the scheme involved considerable expenditure of public funds it was decided that only those women whose families were likely to benefit directly from the training should be taken. For this reason admission was restricted to married women who had some sort of permanent dwelling of their own to which they could return and in which they could put into practice what they had learned. On medical grounds women suffering from epilepsy or any infection such as tuberculosis and venereal disease were excluded. Mothers known to be pregnant were also excluded, as it was considered too difficult to combine