velvety appearance of the anal mucosa and lower third of the rectum. Above this area the surface was normal. Some form of self-infliction was suspected, and close observation was kept for several weeks without result. All this time the patient was kept in bed on a milk diet. It might be mentioned that he was most co-operative in treatment, grateful for all that was being done, and often expressed a profound wish to get better. He was alert, intelligent, and an ardent book reader. At length the mystery was solved. While the patient was in the theatre for a final proctoscopy an intensive search, one of many, was being made of his bed and belongings. Concealed in the binding of a library book were found two pieces of twisted wire, 2 to 3 inches in length, with the ends set apart at one extremity—designed to create trauma and haemorrhage. The wire had a faecal odour. Confirmatory examination by microscope and spectroscope revealed blood cells, *B. coli*, and a haemoglobin absorption band. From this moment the patient rapidly got well.

I should like to express my thanks to the Commissioners, H.M. Prison Commission, Home Office, for permission to publish this paper, though it does not necessarily represent their views.

PERIODIC MEDICAL EXAMINATION

BY

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Since periodic medical examination was suggested by Dobell (1861) it has made little or no headway. This may be due to medical apathy, since it is easier to work as individuals in medicine, but almost impossible to carry out such examinations without organization. On the other hand, it may be due to the fact that considered medical opinion disapproves of the principle, regards the procedure as scientifically unsound, ineffective, or impracticable, or regards the necessary administration and organization as too difficult under conditions hitherto existing in medicine and its relation to society. There is such attraction, however, in the idea that by periodic examinations minor tendencies to major maladies can be detected and thus corrected relatively easily before breakdown of the organism occurs that I think the evidence on the question should be reviewed, and the possibilities of the applicability and value of such examination assessed.

The great fault of the present method of bringing the doctor to the patient is that in most cases the doctor is not called at the beginning of ill-health, but when the compensation which is characteristic of the vital organism is failing the individual in his attempt to live up to his usual standard of efficiency. Periodic examinations, if they offered an opportunity for detection and correction before this failure of compensation occurred, would constitute an important branch of the preventive medicine which is rightly emphasized in the Medical Planning Commission's interim report (1942) as one of the most important functions of the medical practitioner.

Studies from the Literature

Sir James Mackenzie was able to make his contribution to modern cardiology as a result of carrying out regular examinations, and he emphasized the necessity for a systematic study of the beginnings of disease. Apart from the work of his disciples at St. Andrews, however, nothing on the subject has been reported in this country except from the Peckham Health Centre (1938). In America, following recommendation of the procedure by Dr. Gould in 1905, various sporadic individual attempts have been made to carry out such examinations, the most noteworthy being those of the Life Extension Institute, an account of which is given by Fisk (1923) and Fisk and Crawford (1927). Like the Peckham group, they report a high incidence of unsuspected defects in the apparently healthy. They assess the ratio of major to minor maladies as 1:10, and stress the fact that considerable relief follows the correction of minor complaints. Other published work is mostly American, and the relatively high incidence of defects in apparently healthy individuals is supported by Page (1938), Faught (1939), Ryan

(1927), Griswold (1940), Brandabur (1937, 1940), Harrison (1938), and Emerson and Irving (1938). From the Continent comes similar evidence (Kattentidt, 1933).

Assuming that such defects can be found, it is important to know if they can be corrected. The Peckham report says the course of many maladies has been arrested with success and with satisfaction to the sufferer. Improvement in various conditions on subsequent examination is reported by the workers mentioned above, correction of from 50 to 70% of defects of all kinds being recorded. Noteworthy among these are reports of improvement and disappearance of hypertension following hygienic measures only (adjusted habits of life, etc.) by Brandabur and by Emerson and Irving. The former reports a recovery to normal in 114 out of 382 railway workers, and the latter report an average reduction in blood pressure of 18 mm. of mercury in 78 out of 120 sufferers found in 1,020 examinees. When it is remembered that the actuarial assessment of actual to expected deaths of men aged 40 to 49 is improved from 138 to 97% as a result of 10 mm. difference in blood pressure, the importance of these results can be appreciated (Actuarial Society of America, 1939).

Improved Expectation of Life

This appreciation based on ordinary life insurance examinations nullifies possible criticisms of the significance of these blood-pressure estimates. Caution because of possible inaccuracies in ordinary estimates is necessary, as emphasized by Bethea and Hardy (1932). The thoroughness of the periodic examinations determines the number and the nature of the defects recorded, but Mishler (1939) reports on the employees of a "Truck Line" system, 40% of whom were found to have defects on examination by general practitioners distributed over a wide area, while the Life Extension Institute (Fisk, 1923) found some defect in all of 10,800 males of an average age of 34 from typical industrial groups. That improvement in expectation of life results from such examinations is shown by a report of the Metropolitan Life Insurance Company of New York (Fisk, 1923). It is stated that instead of a mortality rate for seriously impaired life of 2½ times the tabular rate, it was only 82% of the tabular rate, and 38,000 lives were saved for the company in 1920.

In spite of the value of the procedure as indicated by these published findings, and although the American Medical Association publicly endorsed the principle of periodic medical examinations in 1922, the apparent popularization of such examinations in the United States is only relative. This is shown by Collins (1934), senior statistician to the United States Public Health Service, who, in a survey of a cross-section of 8,758 families, found that only 3% of the population at the age of 60 underwent periodic examinations, and that this was the maximum proportion after the age of 20. Thus it would seem that unorganized voluntary examinations only touch on the problem, and that a national effort is needed to make examinations an important part of preventive medicine. Organized examinations have been reported from France, Germany, Turkey (Asim Arar, 1938), and Russia (Fredlyand, 1938), while in Canada, Harrison (1938) states, "recent Canadian Provincial Health Insurance Acts make provision for periodic health examination."

It is my contention that all this evidence calls for the serious consideration of periodic medical examination on a national scale as part of our post-war medical organization. In addition to the immediate benefit to the individual which can reasonably be expected, it is anticipated that with adequate statistical analysis of these findings carried out at central bureaux the significance of hitherto unappreciated facts in clinical history and examination will be assessed, with the result that early diagnosis of disease will be facilitated, and the emphasis in medicine will be on the physiological rather than, as at present, on the pathological. Such a scheme is not beyond the bounds of practicability. The cost should be a national concern, and it must not be forgotten that the saving of life and health would, taking the long view, probably more than pay for it. Fisk shows that for 105,000,000 people in America the gain, after deducting the cost of examinations and treatment, represented about \$1,500,000,000; a proportional figure for the United Kingdom would be £100,000,000 a year.

A Suggested National Scheme

Any such scheme should be run by the general practitioners. In Detroit the school medical service sent school children to their family doctors for periodic examinations, 37,348 being sent in 3 years, and Shurley (1937) reports that it is intended to make this a routine procedure. The examinations should be routine, and preferably more than one doctor should be present, so that each acts as a check on the other to ensure that the work is well done. A consultant should be readily available. Practitioners should be adequately paid for their services, and nurses and clerical staff should relieve them of routine duties. They should be able to work in groups and at suitably arranged health centres, and postgraduate study should be insisted upon. The health centre should provide routine laboratory and x-ray facilities with specialist assistance for interpreting radiographs. The emphasis should be on abundant vitality as the normal state, and the general practitioner should be in a position also to observe the usual mode of life of the individual; as the Peckham group express it—his reaction to his environment.

The treatment of the sick (private and panel practice) should be carried out at the same centre, which might well be a part of the community centre of an estate, closely associated with its recreational facilities. Adequate records should be kept and duplicates sent to a central statistical bureau, which would be able to provide morbidity statistics, and, by correlating early symptoms with later events, facilitate early diagnosis. This advance in medicine is especially desirable in connexion, for instance, with cancer of the stomach. It may be that conditions such as Paget's disease and the aetiology of juvenile spondylitis might become better understood.

The national identity cards would provide a suitable basis for classification and making contact with individuals. It would be necessary to see that future generations of practitioners were taught the routine and value of periodic examinations. The public should be induced to come voluntarily, and taught through the Press, the wireless, and lectures to realize the importance to their children, themselves, and the nation of such examination. It is suggested that the present civil defence services, the Home Guard, first-aid parties, and schools and universities offer a method of rapid and wide diffusion of such instruction. The frequency of the examinations would be dictated at first by the limits of practicability, but even an examination every 3 years has been shown to be of considerable value. Irregular spacing might be found with experience to be best. It is considered, for instance, that during the first year of life (Peterman, 1937) very frequent examinations are desirable, and between the ages of 5 and 15 fewer may be necessary than later.

As a safeguard against the breakdown of a national scheme through practical difficulties, experiments could be conducted in which medical, administrative, and financial experience could be gained. Two types suggest themselves: (1) An experiment on an estate of about 5,000 people. This would be relatively inexpensive and capable of control because of the ease of contact between doctors and the public. It would provide useful information of the detailed working of individual health units. It could precede (2) an experiment for a large city. This would require a considerable organization, and mistakes might be relatively costly unless the preliminary experiment had been carried out. It would provide enough information to run a national scheme perfectly, but would have to be conducted by the Ministry of Health, probably through the local authority.

That the idea of periodic examination has an appeal even without knowledge of all the foregoing evidence is shown by the fact that a group of doctors on an estate in Sheffield are eager to carry out the first experiment. The success of the school medical service, with its necessarily rather perfunctory examinations, in improving the health of school children in this country is an argument for periodic examinations. With such a scheme should go some form of adequate social insurance as recommended in the Medical Planning Commission's report. The possibility of neuroses being caused by such examinations may influence the opinion of practitioners. Faught (1939), Sensenich (1938), Fisk and Crawford (1927), and Pokorny (1940) state specifically, however, as a result of

experience, that neurotics are fewer rather than increased in number. It seems reasonable to suppose that children, if examined at regular intervals, would grow up as unconcerned at the prospect of a medical examination as they are of the dentist's chair, occupied at regular intervals.

REFERENCES

- Actuarial Society of America and Association of Life Insurance Medical Directors (1939). *Blood Pressure Study*.
 Asim Arar (1938). *Bull. Off. Int. Hyg. publ.*, **30**, 1956.
 Bethea, O. W., and Hardy, W. R. (1932). *New Orleans med. surg. J.*, **85**, 259.
 Brandabur, J. J. (1937). *Ohio St. med. J.*, **33**, 651.
 — (1940). *Southern med. J.*, **33**, 638.
 Collins, S. D. (1934). *Pub. Hlth. Rep.*, Wash., **49**, 321.
 Dobell, H. (1861). *Lectures on the Germs and Vestiges of Disease and the Prevention of the Invasion and Fatality of Disease by Periodic Examination*, London.
 Emerson, W. R. P., and Irving, J. G. (1938). *J. Amer. med. Ass.*, **111**, 1174.
 Faught, F. A. (1939). *Med. Rec.*, **149**, 77.
 Fisk, E. L. (1923). *Health Building and Life Extension*, New York.
 — and Crawford, J. R. (1927). *How to make the Periodic Health Examination*, New York.
 Fredlyand (1938). *Sovetsk. Vrach. Zh.*, **42**, 849.
 Griswold, M. H. (1940). *Connecticut med. J.*, **4**, 471.
 Harrison, H. M. (1938). *Med. Off.*, **69**, 97.
 Kattentidt, B. (1933). *Z. Tuberk.*, **69**, 161.
 Medical Planning Commission: Draft Interim Report (1942). *British Medical Journal*, **1**, 743.
 Mishler, W. E. (1939). *Indust. Med.*, **8**, 73.
 Page, R. C. (1938). *Illinois med. J.*, **73**, 343.
 Peckham Health Centre (1938). *Biologists in Search of Material*, London.
 Peterman, M. G. (1937). *Wisconsin med. J.*, **38**, 895.
 Pokorny, P. (1940). *Wien. klin. Wschr.*, **53**, 169.
 Ryan, quoted by Fisher, I. (1927). *Amer. J. publ. Hlth.*, **17**, 1.
 Sensenich, R. L. (1938). *J. Indiana med. Ass.*, **31**, 437.
 Shurley, B. R. (1937). *J. Amer. med. Ass.*, **108**, 169B.

Medical Memoranda

Congenital Diverticulum of the Common Bile Duct

This condition, sometimes called cystic dilatation of the common bile duct, is so rare (less than 100 cases have been reported) that any case of it is worthy of record. The pathology, aetiology, and variations in symptomatology, as well as the literature, have been fully considered by Sir James Walton (*Brit. J. Surg.*, 1939, 27, 295).

CASE REPORT

The patient was a married woman aged 39. In her medical history there was nothing to suggest disease of the gall-bladder or bile ducts. She had, in fact, been remarkably free from illness of any kind. It should be noted that her first pregnancy terminated in Caesarean section three months before her admission to hospital. Ten days before admission she developed a severe colicky pain in the right hypochondrium, radiating through to the back and up to the right shoulder. On account of this pain she was admitted to hospital under the care of Mr. J. E. Paterson.

Examination revealed tenderness and guarding over the gall-bladder region. The liver edge could not be felt, and there was no palpable swelling. She was not, and never had been, jaundiced. Vomiting did not occur. There was no rise of temperature. A diagnosis of gall-stone colic was made, and an x-ray examination carried out. "Straight" x-ray films gave negative results, and cholecystography showed no evidence of gall-bladder shadow. The clinical diagnosis was considered to be substantiated and operation was advised.

At operation the gall-bladder was found to be healthy in appearance and of normal size. The first and second parts of the duodenum were lifted forwards and pushed down to the left by a large cystic swelling. This swelling, covered by peritoneum, was somewhat pear-shaped. The upper narrow portion extended up to the portal fissure lying in the gastro-hepatic omentum. About 1½ in. above the duodenum the cyst became more globular and measured some 4 in. in diameter. It extended down behind the first and second parts of the duodenum almost to the ampulla of Vater. The right border was definite and rounded, and extended beyond the limits of the duodenum. The left border was indefinite. Aspiration through a fine needle proved that the cyst contained pale-green bile in which there was a fair amount of mucus. There was no gross sepsis of the contents. The cyst was gradually decompressed by aspiration, but even when empty it did not collapse completely owing to the fibrous nature of its walls. No obvious obstruction to the duct was found.

A two-layer anastomosis between the cyst and the second part of the duodenum was made and the suture line reinforced with an omental graft. A drain was inserted into Morison's