treatment is indicated when retrograde venous pressure is not very marked. With both types of therapy the patient should be ambulatory since this is the best way to prevent complications. If each patient is individualized and treated according to specific indications, excellent results will be obtained both from injection therapy and from surgery.—We are, etc.,

ROBERT A. NABATOFF
DAVID C. C. STARK

New York

¹ Nabatoff, R. A., and Stark, D. C. C., *American Journal of Surgery*, 1972, 124, 634.

Suicidal Attempt with Propranolol

SIR,—With reference to the letter from Drs. P. Karhunen and G. Härtel (21 April, p. 178) dealing with the effect of a massive dose of practolol on a healthy heart we would like to report a somewhat similar case of suicidal attempt with propranolol.

We have recently observed a man aged 45 with occasional bouts of supraventricular dysrhythmia which had been treated with small doses of propranolol. In a suicidal attempt he took approximately 50 tablets of propranolol (2,000 mg) and arrived in hospital two hours later in good general condition. A vial which had contained 50 tablets two days previously was found empty in his lodgings and fragments of tablets readily identifiable as propranolol were recovered on washing out his stomach. The blood propranolol level was not measured. His heart rate was 80/min, pulse normal, blood pressure 120/80 mm Hg. E.C.G. showed normal sinus rhythm. He stayed in hospital for five days without any signs of cardiac disturbance.

Propranolol is known to possess the most potent negative inotropic and chronotropic activity of all beta-blockers. Nevertheless in our case a massive dose of propranolol produced no signs of depressive action on the heart. It seems therefore that the question of the effect of propranolol on the healthy heart needs to be reconsidered.—We are, etc.,

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Formylation of Folate

SIR,—We would like to comment on the paper of Drs. Janet Perry and I. Chanarin (9 June, p. 588) regarding folate absorption.

The synthesis of H_4 PteGlu by dithionite reduction of PteGlu at 75° C does not give a pure product; it always contains H_2 PteGlu, and possibly pteridine decomposition products.¹ Column chromatography does not permit unequivocal separation of the complex mixtures reported. In their own figures, the peaks for PteGlu and H_2 PteGlu overlap considerably and those for 5-CH₃- H_4 PteGlu are not in the same place on the two chromatograms.

The reduced folates were incubated for 1 hour at 37° C at very low concentrations and in the absence of an antioxidant. At 37° C in aqueous solution, with a partial O₂ pressure of 104 mm Hg, the half life of H_4 PteGlu and tetrahydrobiopterin is 20–50 min.²

The principal serosal material 10-formyl folate,³ fed to rats, showed no 5-CH₃- H_4

PteGlu-(2-¹⁴C) in the first three days in liver, faeces, or urine, starving the animals for three days prior to the dose made no difference.⁴ Neither 10-CHO-PteGlu nor 10-CHO- H_2 PteGlu is reduced by dihydrofolic acid reductase.⁵ Thus the alleged principal transport product is not converted to the major storage form of folates.

No mention is made of specific activity of the radioactive compounds isolated. In the absence of this information the microbiological assay reported means little since the large contribution of endogenous folate⁶ to the total cannot be calculated.

Smith *et al.*⁷ showed that folic acid transport occurred without metabolism as a prerequisite and this has been confirmed in a more recent paper.⁸ The results quoted by the authors are due to the oxidation of the endogenous tissue folate 10-formyl tetrahydrofolic acid to 10-formylfolic acid and have no relevance to the mechanism of transport of folic acid in the rat small intestine.—We are, etc.,

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University of Aston in Birmingham,
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J. R. G. BEAVON

Sherborne School,
Dorset

- 1 Blakely, R. L., *The Biochemistry of Folic Acid and Related Pteridines*, Amsterdam and London, North-Holland Publ. Co., 1969.
- 2 Blair, J. A., and Pearson, A. J., *Tetrahedron Letters*, 1973, No. 3, 203. *Journal of the Chemical Society*. In press.
- 3 Beavon, J. R. G., and Blair, J. A., *Analytical Biochemistry*, 1971, 44, 335.
- 4 Beavon, J. R. G., and Blair, J. A. *In preparation*.
- 5 Bertino, J. R., Perkins, J. P., and Johns, D. G., *Biochemistry*, 1965, 4, 839.
- 6 Sotobayashi, H., Rosen, F., and Nichol, C. A., *Biochemistry*, 1966, 5, 3878.
- 7 Smith, M. E., Matty, A. J., and Blair, J. A., *Biochimica et Biophysica Acta*, 1970, 219, 37.
- 8 Binder, H. J., Olinger, E. J., and Bertino, J. R., *Gastroenterology*, 1973, 64, 700.

Detection of Hypertension in Childhood

SIR,—I beg to question the assumption, upon which your leading article (18 August, p. 365) seems to rest, that essential hypertension is a distinct disease entity of which the early preventive treatment may justifiably be discussed.

Essential hypertension is diagnosed by exclusion of all known causes of hypertension. We may well have to accept that it may be impossible to discover all the factors which produce it. The causes may vary with each individual case; they may be diverse and interrelated (genetic, biochemical, psychological, etc.). At present we can but consider essential hypertension as a clinical sign of some disturbance of normal homeostasis whose nature we do not understand. It follows that what your article implies by prophylaxis and treatment really relates to the modification of symptoms and signs of a complex morbid process which cannot be totally avoided or healed. The only available treatment is symptomatic. Symptomatic treatment will often leave the causes of the illness unaffected. It can be considered prophylactic only if it be maintained indefinitely in order to effect some degree of reduction of the potential morbidity of the disease process.

It seems to me that whereas the treatment of the causes of illness may be a matter for public concern and for screening, the treat-

ment of symptoms can be ethically justified only by the specific request of the individual. Symptomatic treatment does not heal; it only pretends to do so. To offer symptomatic treatment in the later years of life seems humane and may even be considered good medicine; but I find horrifying the thought of advising a hypertensive young person to "improve" the rest of his life with drugs—or even special dieting—without the full cognizance and active request of that individual or his legal guardian.

Your article gives the impression that the persuasive introduction of symptomatic-prophylactic measures against hypertension may in future be justified in terms of economics and acceptance as beneficial by the medical profession. I submit that there is more to it than that.—I am, etc.,

J. F. GORDON

Warlingham Park Hospital,
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SIR,—In your leading article (18 August, p. 365) you state that "if the treatment of hypertension in young adults comes to be accepted as beneficial . . . the screening of 20-year-olds will be easily justified." Screening of that age group would be difficult. Assuming that raised blood pressure in childhood means hypertension in adult life, then it would be easy to identify children with a raised blood pressure prior to leaving school. School medical staff could fit this into the present medical examinations. The names of those found at school to have a raised blood pressure would be sent to the relevant family doctor. N.H.S. records of these children would be identified by a suitable symbol on the envelope with the year that the patient attains the age of 20. In that year, the family doctor, or possibly the health visitor in a practice with such an attachment, would re-check the blood pressure and treatment would be instituted if necessary.

I feel this to be a practical way in which potential hypertensives could be identified without the difficulty of examining every young adult, and one in which the school health service could make a valuable contribution. I suggest that a pilot scheme be begun in the area of one health authority.—I am, etc.,

W. E. HADDEN

Wareham, Dorset

Aspirin in Prophylaxis of Ischaemic Heart Disease

SIR,—It is now five years since O'Brien¹ published his paper on the "Effects of Salicylates on Human Platelets" which showed that aspirin inhibited adenosine diphosphate (ADP) release from platelets. This release contributes to the adhesion of platelets and is increased by adrenaline. If Duguid's hypothesis that an intimal tear and platelet aggregation are the first steps in the development of the atherosclerotic plaque is correct, aspirin might protect against the development of atherosclerosis. Aspirin might also be expected to reduce the likelihood of thrombosis occurring in an atherosclerotic artery. Adrenaline plays a part in inducing platelet aggregation; in particular it induces a second wave of closer and firmer aggregation. Aspirin abolishes this second

wave of adrenaline-induced aggregation. O'Brien concluded his article with these words: "Since platelets are undoubtedly involved in thrombosis and since many workers claim that adhesion to collagen is the first essential event, it follows that even the abnormalities following aspirin ingestion which I have described are quite sufficient to justify a therapeutic trial of aspirin in individuals at risk from thrombosis. Aspirin is relatively safe and is used probably more than any other drug; and nobody knows whether it decreases thrombosis or not." Cobb *et al.*² reviewed the necropsy findings in 191 patients with rheumatoid arthritis who might be expected to be aspirin takers. "Only 4% had myocardial infarction as a cause of death; only 2% died of cerebral accidents. In contrast, of all deaths in the United States in 1967, 30.9% were caused by atherosclerotic heart-disease and 10.8% were caused by vascular lesions of the central nervous system." A clear statement of the case for aspirin is made by Wood.³

The time has come when it would be both reasonable and valuable to undertake a prospective controlled trial of aspirin in the prophylaxis of ischaemic heart disease. Because of the risk of gastrointestinal haemorrhage those taking part should be volunteers who understand both the risks and the theoretical benefits. I am writing to ask for volunteers from the medical profession in Great Britain and Ireland. I should be glad to hear from any doctor aged 35 or over who is not known to have ischaemic heart disease and who would be prepared to participate. The suggested dose of aspirin is 300 mg twice a day. Allocation to control or treatment groups would be random.

The trial would last five years unless significant results appear earlier. At the beginning and at the end all participants would be requested to complete a simple questionnaire regarding smoking, exercise, and medical and family history. They would also be asked to undergo a simple examination which would include height, weight, blood pressure, E.C.G., fasting blood lipids, and blood sugar. The examinations would be carried out locally. Participation in the trial would end with the diagnosis of ischaemic heart disease or the development of significant side effects from taking aspirin.

I would be very grateful if anyone prepared to take part would write to me at the Department of Social Medicine, Trinity College Medical School Building, St. James's Hospital, James's Street, Dublin 8. If the response shows that such a trial is feasible, details will be sent to volunteers at a later date.—I am, etc.,

JAMES McCORMICK

Dublin

¹ O'Brien, J. R., *Lancet*, 1968, 1, 779.

² Cobb, S., Anderson, F., and Bauer, W., *New England Journal of Medicine*, 1953, 249, 553.

³ Wood, L., *Lancet*, 1972, 2, 532.

Dangers of Corn Starch Powder

SIR,—Your leading article (2 June, p. 502) draws attention to the occurrence of the interesting postoperative phenomenon of starch peritonitis. A review of the literature since 1970 would indicate an apparent increase in the incidence of this condition. I have recently had a case myself and thought it might be worth while trying to assess how common the condition really is.

I therefore asked a number of my colleagues, who between them share approximately 100 years of consultant surgical experience, whether or not they had recognized this complication in any of their patients. Between them they were able to produce only nine cases of the condition.

It would appear then that this particular surgical hazard is either extremely uncommon or going undiagnosed. In view of its clear-cut presentation I have difficulty in believing that my colleagues have failed to recognize the condition. This being so I would hazard a guess that postoperative starch peritonitis is a rare condition. Bates¹ and Holgate *et al.*² have shown that the phenomenon of starch peritonitis appears to be a hypersensitivity reaction to starch. Thus the condition of starch granuloma is quite unlike that of talc granuloma, the latter being simply an inflammatory response to the irritating talc granules. Though it may be desirable to reduce the extremely small risk of starch peritonitis and to have our gloves lubricated inside and out with some material other than starch, it would appear from the figures that I have produced that the condition is not so common that strong pressure could be brought to bear upon the glove manufacturers. If the manufacturers are genuinely unable to provide a substitute for starch, then a simpler method of obviating the postoperative problem of starch peritonitis might be to ask the patients whether or not they have known allergy to starch, the only alternative being the somewhat time-consuming one of routinely skin-testing all patients for laparotomy with an intradermal injection of starch.—I am, etc.,

E. A. BENSON

General Infirmary,
Leeds

¹ Bates, B., *Annals of Internal Medicine*, 1965, 62, 335.

² Holgate, S. T., Wheeler, J. H., and Bliss, B. P., *Annals of the Royal College of Surgeons of England*, 1973, 52, 182.

Tests of Acupuncture

SIR,—It was refreshing to read Sir Robert Macintosh's letter (25 August, p. 454) as it helps to put the practice of acupuncture into proper perspective.

Puncture of the human skin is of ancient origin and was malevolent in nature. It was first done by proxy on a wax image of the intended victim, the needling being supposed to cause disease in the corresponding areas of the man. About 1100 B.C. a trial was held in Egypt of members of the court of Rameses III who were accused of trying to murder the pharaoh by this means. In more modern times witchcraft was a capital offence in this country and one of the accepted methods of detecting a witch was to find areas of skin insensitive to needle pricks. Many unfortunate women were drowned or burnt on the evidence of this sign. In China, on the other hand, skin puncture was used with the laudable object of relieving pain, and a measure of success was undoubtedly obtained such as by the relief of pressure in boils or cysts or by the effect of counterirritation in other conditions.

When reading the many accounts now available by doctors who have watched acupuncture for analgesia during operations in China one is struck by the fact that in

practically every case one or more of four additional aids were used. These are intensive psychotherapy before operation, pre-medication (usually with phenobarbitone), local analgesia (usually with amethocaine), and intravenous pethidine during operation. An excellent article has recently appeared¹ on the experiences of an Australian surgeon and his wife (an anaesthetist) who visited Canton, Hangchow, Shanghai, Nanking, and Peking in December 1972. They travelled alone so that "shows" were not specially arranged, but they saw a wide variety of operations done with acupuncture. The anaesthetist had the technique performed upon herself by request on two occasions. On the first two needles were manually rotated in a hand; this was extremely painful and no skin analgesia ensued. Next, electrical stimulation was used with two needles in the right ear in order to relieve pain in the right hip following injury. This unfortunately did not occur, but the ear was sore for a week. The search for truth was clearly pursued with zeal by these two doctors and their final verdict should be treated with corresponding respect. "At its present stage of development, this technique appears to have little to offer."—I am, etc.,

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¹ Fergusson, N. L., *Anaesthesia and Intensive Care*, 1973, 1, 325.

Infection of Peritoneum during Dialysis

SIR,—We read with interest Dr. E. N. Wardle's paper on the detection of infection of the peritoneum by measuring the lysozyme content of the peritoneal fluid (2 June, p. 518).

We cannot understand how the author made the diagnosis of infection in the six patients with score 2 who had negative cultures. Since the cultures were negative, they were probably cases of aseptic (chemical) peritonitis. In a recent epidemic of aseptic peritonitis among all of our 20 patients on chronic peritoneal dialysis we had the opportunity to study in detail the manifestations of this entity. Diffuse severe abdominal pain with rebound tenderness was the predominant feature in all patients. The effluent fluid contained many white blood cells on microscopical examination. In almost half of the cases the number of W.B.C. was so large that the fluid was cloudy. Mild fever (highest 38°C) was present in only six patients. None of the patients had rigors or chills. Gram-stain examinations and cultures of the fluid were persistently negative. Relief from the pain and improvement of the disease was obtained when dialysis was discontinued. This is the opposite of what we would have done if they were suffering from bacterial peritonitis, in which case we would have continued dialysis, adding antibiotics to the dialysate fluid.

Since lysozyme is derived from granulocytes, it should be expected to increase in cases of chemical peritonitis, in which large numbers of leucocytes appear in the fluid despite the absence of infection of the peritoneum. As a result one may be misled as to the exact cause of the underlying disease if the diagnosis of peritonitis is based on the lysozyme level of the fluid.