contacts as necessary the district nurses, welfare officers, almoners, health visitors, and hospital ward sisters—all at the behest of the doctor, whose real job is thereby both enlarged and made easier.

As general practice develops the doctor can fulfil his role only by having efficient and tolerant secretarial help, a practice nurse, good district nurses and midwives, and an up-to-date health visitor. There seems no reason why the last three should not be run by the local authorities across practice boundaries as at present, but the first two are personal as regards duties and hours and can only be employed by the general practitioner himself.

In spite of political interference this mode of practice developing in Britain is probably many years ahead of any arrangements offered in Europe or the North American continent.

It will be a great pity if excessive demands reduce a practice nurse to the role of a "feldsher," when, losing the confidence of the public, general practice as we know it today will disintegrate.—I am, etc.,

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H. C. H. BIRD.

Lignocaine in Cardiac Arrhythmias

SIR,—The excellent article from the department of cardiology at St. Mary's Hospital (13 January, p. 89) emphasizes the usefulness of lignocaine in ventricular arrhythmias. I thought that it might be of interest to report its use in the reversion of acute atrial fibrillation.

A 65-year-old woman with a one-and-a-half-year history of angina was found on 18 September to be mildly hypertensive. Her electrocardiogram was normal. On 20 October she collapsed with severe cardiac pain and was found to have atrial fibrillation. Despite every effort admission for immediate D.C. countershock could not be arranged. As the patient was likely to die unless reversion to normal rhythm was achieved, 10 ml. of lignocaine was given intravenously under E.C.G. control. Her blood pressure of 80/60 mm. Hg rose rapidly to 120/80. The marked ST depression over the left ventricle went, as did the cardiac pain.

She has remained well, pain free and in normal rhythm, since the episode. Apart from heparin, lignocaine was the only drug used in her treatment.—I am, etc.,

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ANTHONY CHURCHER.

Stress Ulceration

SIR,—Your leading article on the above subject (27 January, p. 197), though admitting that any form of stressful situation may predispose to acute gastric or duodenal erosion, deals predominantly with the cruder stresses: burns, trauma, surgery, or intracranial lesions, and lists these as causative influences together with severe infections such as septicaemia and pneumonia. To do this risks a disproportionate view of the situation, for surely there are much more frequent, more persistent, and more recurrent stresses to be found in the lives of ulcer sufferers. Certainly Davies and Wilson¹ found emotional stress preceded perforation or haemat-

emesis in 84% of their cases, and Melton² found that the nervous strain precipitated by the outbreak of the last war caused an evident increase in haematemesis and perforation. In my series³ of 338 haematemeses 139 gave a history of preceding nervous strain (with 76 acute ulcers), while 79 had sustained physical stress, with or without nervous stress, and of these 36 had acute ulcers.

Infections, which your article lumps in with stress, and also aspirin, alcohol, and nicotine were associated with the aetiology of many of these cases, but the effect of nervous influences, such as might be mediated through the hypothalamus, was too obvious to be ignored. Your article quotes the way in which restraint produced ulceration in the stomach of a rat: would it not have been even more pertinent to have referred to the classical work of Wolf and Wolff⁴ on the effects of anxiety and kindred emotions, which they observed in Tom, their human gastric fistula subject?—I am, etc.,

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Jaundice and Liver-function Tests

SIR,—We do not believe that Dr. A. Paton's article in your Current Practice series presents a satisfactory summary of current thinking or practice about jaundice (20 January, p. 164), particularly in the sections headed Clinical Features and Investigation. It is not our intention to write an alternative account, but we would draw attention to the following points:

(1) It would have been helpful if a broad classification of jaundice had been presented at the beginning of the article—for example, into prehepatic, hepatocellular, and obstructive groups—with subdivision thereafter of the obstructive group into intrahepatic and extrahepatic causes.

(2) The decision to exclude from consideration jaundice in the neonatal period and early childhood and jaundice due to haemolytic diseases should have been made clear. We think it particularly unfortunate that the differential diagnosis of prehepatic jaundice has not been discussed, because from time to time this can present great difficulty.

(3) The importance of a full clinical history and physical examination, including simple chemical tests on urine and faeces as part of the *initial assessment* of every jaundiced patient, cannot be overstressed. This would have allowed Dr. Paton to show that, as a rule, it is possible to differentiate the prehepatic group of jaundice from the two other groups before having recourse to special investigations; there are exceptions to this generalization, one of the most frequently encountered being the patient with obstructive jaundice due to pigment stones. It is wrong to restrict consideration of these tests on urine and faeces to the section on management, and it is confusing to bring up for the first time under this heading questions which

should have been included in the initial history—for example, about drugs and injections. By all means repeat such tests and questions, but include them at the start.

(4) Dr. Paton's comments about biochemical tests are retrogressive in the extreme, and even the positive statements are unjustifiably critical in some cases and inaccurate in others. The van den Bergh reaction and its variations have largely been replaced by side-room tests on urine, interpreted in conjunction with "liver-function tests," for assessing the type of jaundice. The liver-function tests group themselves broadly into (a) tests of excretory function, (b) tests of synthetic capacity, and (c) tests of hepatocellular integrity, and it is necessary to perform a range of tests to investigate properly the many activities of the liver. Among the tests of excretory function serum alkaline phosphatase is still widely accepted as a valuable investigation,¹ but it must be performed as early as possible in the course of the jaundiced patient's illness if this and subsequent measurements are to be afforded their best chance of assisting in differentiating between hepatocellular and obstructive jaundice. Dr. Paton's reference to alkaline phosphatase isoenzymes is unclear to us, in the investigation of jaundice, but having made this reference we are surprised that he fails to mention 5'-nucleotidase.² Turbidity and flocculation tests, although their mechanism still remains incompletely explained,³ can in fact provide sensitive evidence of alterations in protein synthesis, but again their usefulness is impaired if they are not performed as early as possible. The references to electrophoresis of serum proteins are an oversimplification and suggest a greater diagnostic value for this investigation in obstructive jaundice than is justified. Finally, the reference to "the aminotransferases" (no attempt was made to discuss them separately) should have been accompanied by some comment on lactate dehydrogenase and its isoenzymes⁴ and on isocitrate dehydrogenase.⁵ It is not correct to conclude that the existence of large numbers of liver-function tests means that they are ineffective, but we have not yet arrived at the stage where the ideal combination of tests has been evolved.—We are, etc.,

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Aldosterone and Electrolyte Movements in the Colon

SIR,—The demonstration by Mr. R. Shields and others (13 January, p. 93) that primary aldosteronism causes an increased secretion of potassium into the human colon is in keeping with our own observations on faecal composition, which they were kind enough to quote.¹ However, it is surprising that they observed no increase in net sodium

reabsorption either in their patient with primary aldosteronism or in their earlier studies on the effect of aldosterone in normal subjects.²

At the present time it is believed, on evidence which is mainly derived from animal experiments, that potassium secretion into the colon is passive and occurs as a result of the negative intraluminal potential created by active absorption of sodium ion. If this view is correct the primary action of aldosterone is likely to be on sodium, as appears to be the case in all other tissues, including the renal tubule,⁴ in which aldosterone influences electrolyte transport. The fact that Levitan and Ingelfinger,⁵ using essentially the same method as that employed by Mr. Shields and his colleagues, found an effect on sodium but not on potassium suggests that small differences in experimental technique have a profound effect on the results of this type of experiment.

The accompanying Figure, from an experiment which Dr. R. B. I. Morrison, Miss Ann Metcalfe-Gibson, and myself performed in 1962, confirms that aldosterone indeed has an effect on net sodium absorption from the human colon.

The patient was a 52-year-old woman who had had a mid-transverse colostomy for diverticulitis performed three months earlier. At zero time in each experiment the loop of defunctioned colon, which had previously been repeatedly washed out, was infused from the proximal opening with 600 ml. of physiological saline, and 5-ml. samples were thereafter removed at 30-minute intervals through a soft rubber catheter for analysis. In the two control experiments (days one and ten) no more fluid could be obtained after eight hours. Although up to that time sodium and potassium concentrations showed reciprocal changes, it is clear from the disappearance of the infused solution that net sodium reabsorption was greater than net potassium secretion. Aldosterone 0.5 mg. eight-hourly was given intramuscularly from days two to five inclusive, and two more studies, otherwise identical, were performed on days three and five. Sodium concentrations now fell much more rapidly, with reciprocal changes in potassium concentration. It was not possible to aspirate more fluid after five and a half hours, showing that water had also been absorbed more rapidly as a result of the increased net sodium absorption.

Patients with a loop of defunctioned colon are not common, but do provide an opportunity for electrolyte studies which can be performed with much less disturbance than the wash-through technique used by Mr. Shields and his colleagues. Our patient agreed to this procedure, knowing that it was

not necessary for her treatment, and was so little upset that we were able to repeat the investigation several times. Where information about net transport, rather than flux, is required (as in this study) there is no need for radioactive isotopes or even venepuncture, and I would encourage Mr. Shields to study this sort of patient in the belief that they can provide information which may not be yielded by more complicated experiments.—I am, etc.,

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Lysergic Acid Diethylamide Intoxication

SIR,—The case reported by Dr. R. Clayton (20 January, p. 163), occupying a whole page of your valuable space, purports to describe "the idiosyncratic psychological and physical ways in which L.S.D. intoxication may present." It is unfortunate that the role of other drugs in this case is not discussed, as the evidence incriminating L.S.D. is extremely slender. The patient took about 350 µg. of L.S.D., an amount within the therapeutic range,¹ and a small dose for him, as he had previously taken "1,000 µg. in one dose"; he then took other drugs later in the day and retired to bed 12 hours after ingestion of the L.S.D. He was admitted to hospital unconscious 19 hours after taking the L.S.D.

The effects of L.S.D. are usually of rapid onset and noted within half an hour. A "trip" does not include loss of consciousness, and, after a dose of 350 µg., regardless of tolerance, lasts for no longer than 12 hours.²

The published information regarding the psychological effects of L.S.D. is disturbingly confused. It would be a pity if the effects of intoxication by the drug were to become equally confused.—I am, etc.,

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Alcoholism and Drug Dependence in Doctors and Nurses

SIR,—The proportion of addicts in the medical profession in Great Britain has greatly decreased compared with 40 to 50 years ago.¹⁻³ But even today drug dependence among doctors is by no means uncommon, as suggested in your leading article (9 December, p. 567) and borne out by our experience. Drug dependence among doctors, dental surgeons, pharmacists, nurses, etc., is no doubt to a certain extent attributable to the ease of access. This factor, however, cannot be the explanation for the relatively high proportion of doctors

among alcoholics. In the series of M. F. A'Brook *et al.*⁴—referred to in your leading article—out of 63 "addicts" 24 were dependent on alcohol alone, 30 on (other) drugs, and nine on alcohol and other drugs. Among approximately 290 male alcoholic in-patients treated at Warlingham Park Hospital (1952-7) there were 11 doctors (3.8%), of whom five also took amphetamines or barbiturates or both; one (non-alcoholic) doctor was a morphinist. This relative preponderance among doctors of alcoholics over addicts dependent on other drugs occurred constantly among our more recent dependent doctor patients. Among approximately 640 male alcoholics admitted to St. Bernard's Hospital (1963-7) there were 19 doctors (3.0%), of whom seven also took barbiturates and one glutethimide; two (non-alcoholic) doctors were pethidine addicts. (Incidentally, during this period three dental surgeons and one veterinary surgeon were admitted for alcoholism, and one dental surgeon for barbiturate dependence.) Among approximately 100 alcoholics seen during the past year outside hospital there were five doctors. The impression of a high incidence of alcohol abuse among doctors is supported to some extent by the findings of an above average standard mortality rate from liver cirrhosis among medical (and dental) practitioners (S.M.R. 240 and 250 respectively),⁵ and by the relatively high proportion of drunk-in-charge cases appearing before the General Medical Council.⁶

Your leading article makes a passing reference to nurses. However, the official report quoted, that doctors made up 81% of all known "professional addicts" (in the United Kingdom), "including nurses," refers to Dangerous Drugs Acts addicts only, and in our experience dependence on alcohol and "soft" drugs seems to be no less common among nurses than among doctors. Thus out of 450 women alcoholics admitted to St. Bernard's Hospital (1958-67) 21 (4.7%) were trained nurses and 14 untrained (assistant) nurses; of 113 women dependent on drugs other than alcohol and older than 20 years 14 (including three who also took alcohol to excess) were trained nurses (12%) and 12 (including five who also took alcohol) were "assistant nurses." (The "new wave" of female heroin addicts, etc., aged 20 years and less admitted during the same period—29 patients—did not include any nurses.) The drugs involved were mainly amphetamine and barbiturates, rarely non-barbiturate hypnotics and chlorodyne. Among the 560 women alcoholics and addicts over 20 there were three alcoholic doctors, one drug-dependent doctor, and eight doctors' wives (three alcoholics, five amphetamine and/or barbiturate dependent). Similarly, among women admitted to Spelthorne St. Mary Home (1965-7), of 87 alcoholics 9 (4.4%) were nurses, of 60 addicts older than 20 years 7 (11.7%).

One point referred to in your leading article is the finding repeatedly mentioned in the literature⁴ of the "exceptional difficulties" encountered when treating doctors. However, when treated within the framework of a therapeutic community and therapeutic groups such doctor-patients often found that they had a great deal to give to other patients and to the community, a finding which often proved very helpful to their own self-respect and to the progress of the whole group.⁷ However, in view of the difficulties in treating alcohol- and drug-dependent patients