hospital with chest pain due to suspected myocardial infarction were analysed for coproporphyrin concentration by the rapid screening method of Zielhuis,³ using the Donath coproporphyrinometer. Patients who gave a history of regular heavy alcohol consumption, or who were drunk at the time of admission, were excluded. Urinary coproporphyrin excretion increases with urine alkalinity,⁴ but none of the specimens had a pH greater than 7. Thirty-eight of these 50 patients had in fact sustained an acute myocardial infarct according to electrocardiographic criteria⁵ or changes in the ST segment and T wave suggestive of infarction accompanied by a significant transient rise in serum aspartate aminotransferase (S.G.O.T.) levels (>50 Reitman and Frankel units). Twenty-four of these 38 (63%) developed an abnormally high urinary coproporphyrin concentration ($>100 \mu\text{g./litre}$) within three days of admission, which returned to normal within 10 days in all cases. The other 12 patients had angina without evidence of infarction and three of these patients (25%) developed increased coproporphyrinuria. Control urine samples were obtained from 30 patients with illnesses such as peptic ulcer and chronic bronchitis, which are not known to affect coproporphyrin excretion, and all these samples were normal. The results show that this rapid method of measuring coproporphyrinuria was not a reliable means of distinguishing myocardial infarction from angina.

The cause of the increased coproporphyrinuria following myocardial infarction or ischaemia is obscure. Increased coproporphyrinuria occurs in liver dysfunction⁶ and congestive cardiac failure,⁷ but there was no correlation with clinical signs of cardiac failure in the present series, and bromsulphalein excretion (5 mg./kg. body weight) was normal in the two patients with the highest levels of coproporphyrinuria. Pyrogenic steroids such as aetiocholanolone are known to increase porphyrin biosynthesis,⁸ and this in turn might increase coproporphyrin excretion. It is possible that adrenal corticosteroids released during "stress" are metabolized to aetiocholanolone or related compounds, but in these patients there was no consistent quantitative relationship between either the severity of chest pain or the degree of pyrexia and the levels of urinary coproporphyrin reached.

Thanks are due to Professor K. W. Donald and the physicians of the Coronary Care Unit of the Royal Infirmary, Edinburgh, for allowing me to study patients in their care.

—I am, etc.,

J. L. BURTON.

University Department of
Medicine,
Royal Infirmary of Edinburgh.

REFERENCES

- 1 Eskola, O., Koskela, P., and Halonen, P. I., *Amer. Heart J.*, 1955, 49, 258.
- 2 Koskela, P., *Ann. Med. Int. Fenn.*, 1956, 45, Suppl. No. 24, p. 1.
- 3 Zielhuis, R. L., *Brit. J. industr. Med.*, 1961, 18, 58.
- 4 Bourke, E., Monckton Copeman, P. W., Milne, M. D., and Stokes, G. S., *Lancet*, 1966, 1, 1394.
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- 7 Kämmerer, H., *Deutsch. Arch. klin. Med.*, 1949, 195, 388.
- 8 Kappas, A., *New Engl. J. Med.*, 1968, 278, 378.

Postnatal Examination

SIR,—In reply to Dr. Ian Capstick's invitation for comments regarding his recommendations for postnatal examination (8 June, p. 626) I would like to point out one serious omission.

Probably the most important aspect of postnatal examination and particularly pelvic examination is performing a cervical smear. I cite the following figures from Aberdeen: In 1965 1,116 smears were performed, 6 of which confirmed preclinical cervical cancer. In 1966 1,043 postnatal smears gave no positive results. In 1967 1,163 postnatal smears gave a pick-up of 23 atypical and 1 preclinical cancer.

I can only presume from Dr. Capstick's letter that it is possible that antenatal smears may be taken. If so, these remarks are not applicable.—I am, etc.,

WILLIAM Y. SINCLAIR.

Department of Obstetrics
and Gynaecology,
Maternity Hospital,
Aberdeen.

Postnatal Consultation

SIR,—Dr. Ian Capstick (8 June, p. 625) doubts the value of the postnatal vaginal examination. We are convinced of the value of a routine vaginal examination and cervical smear, which take only a few minutes to do. It has to be carried out in any case if the patient desires anti-ovulation pills, as so many request them at this time.

In our fairly small practice numbering some 60–80 postnatals a year we have had one case of stage I carcinoma of cervix and another of carcinoma-in-situ—the latter discovered by "Pap" smear following a miscarriage at 16 weeks. There were no symptoms in either case. Both were successfully treated at the local hospital.—We are, etc.,

J. H. WILLIS.

MOREEN C. WILLIS.

Brigg, Lincs.

Ocular Damage due to Paraquat and Diquat

SIR,—Dr. A. A. B. Swan (8 June, p. 624) suggests that the bipyridyls (paraquat and diquat) produce only superficial and relatively trivial ocular burns. Lest his letter in defence of the bipyridyls should give the impression that local damage caused by these weedkillers is trivial we would like to stress the similarity between the effect they cause on the eyes and that caused by an alkali. Since writing our medical memorandum on ocular damage due to paraquat and diquat (27 April, p. 224) we have seen several further cases in which "Preglone" Extra or Weedol solution have been splashed in the eye, and in each case, after a delay of several days, a serious superficial ocular burn had developed, which in two cases has produced corneal scarring. We have had communications from a number of general practitioners describing similar cases seen by them.

Dr. Swan adds that the labels on all liquid formulations of the bipyridyls carry the warnings: "Wear rubber gloves and face shield when handling the concentrate. Wash concentrate from skin or eyes immediately." In all of the cases seen by us, or reported to us, the concentrate has been washed immediately from the skin and eyes, but in all of these cases the inevitable ocular damage has resulted. In view of the widespread and increasing use of these weedkillers in agricul-

ture and horticulture we feel that rather than minimize their effect on the tissues Dr. Swan and Imperial Chemical Industries Limited should emphasize their dangers.—We are, etc.,

J. STANLEY CANT.

D. R. H. LEWIS.

Tennent Institute of
Ophthalmology,
University of Glasgow,
Glasgow.

Gas Gangrene and Intramuscular Injection

SIR,—In view of the recent report of a case of fatal gas gangrene complicating an injection of hyperdural adrenaline by Drs. P. W. Harvey and G. V. Purnell (23 March, p. 744) and the rarity in the literature (23 March, p. 721) I feel justified in reporting a further case.

An 18-year-old woman was referred to me on 26 December 1962 at about 9.30 a.m. complaining of a dull pain in the right thigh. Three days previously she had suffered from a severe attack of urticaria. Her doctor gave her an injection of A.C.T.H. and hyperdural adrenaline, the latter drug being injected into the right thigh. Apart from the urticaria the past history was non-contributory. On examination she looked ill and was in obvious pain. The pulse rate was 120 and the temperature 101°F . (38.2°C). In the right thigh and especially on the lateral aspect there was a large diffuse swelling which appeared to be fluctuant. There was a suggestion of underlying crepitus on palpation. An x-ray film of the thigh showed diffuse gas bubbles in the intermuscular tissue planes. A diagnosis of gas gangrene was made and 500,000 units of penicillin was given intravenously immediately.

She was taken to the operating-theatre, where under general anaesthesia a long vertical incision was made on the lateral aspect of the thigh, extending from the outer aspect of the knee joint to the anterior superior iliac spine. On incising the deep fascia the muscles bulged with considerable oozing of foul-smelling fluid and small gas bubbles. An extensive excision of necrotic muscle was done. The wound was irrigated with hydrogen peroxide and left unsutured. Liberal amounts of gauze dressings soaked in hydrogen peroxide were applied.

At the end of the operation cardiac arrest occurred. External cardiac massage failed to restore the heart beat. A left thoracotomy was made and the heart found to be fibrillating. After about two minutes of cardiac massage vigorous cardiac contractions returned and the left thoracic cavity was closed. After the operation spontaneous respirations returned but the patient did not recover consciousness.

Two hours later continuous oozing of fresh blood was noticed from the wound in the left thigh and the thoracotomy incision. She was given three units of blood, but because oozing continued she was taken back to the operating-theatre. Numerous bleeding points in the thigh wound and on the cut surface of the incised pericardium were found and controlled by diathermy and ligature. On return to the ward, although the bleeding had stopped, her blood pressure gradually fell. She died about 18 hours after admission in spite of the wound resuscitative measures.

Microscopic examination of a direct smear from the muscle tissue taken at the time of the operation showed large Gram-positive bacilli. Culture yielded a growth of anaerobic Gram-positive bacilli of the *Clostridium* group and a scanty growth of anaerobic haemolytic *Staphylococcus aureus*. Microscopical examination of sections of muscle removed at the operation showed an acute pyogenic infiltrate throughout the muscle and innumerable clostridia in all components of the tissue.

The picture was classical of gas gangrene. At necropsy there was extensive retroperitoneal gas which had obviously spread from the thigh. The myocardium was flabby, and the cause of death was cardiac failure owing to an overwhelming gas gangrene infection.

One can only speculate about the origin of the infection. The source of the *Clostridium welchii* could have been the patient's own skin, the needle, the syringe, contamination

of the hyperdureic adrenaline or A.C.T.H. According to the practitioner the needle and syringes had been boiled and stored in alcohol. Whatever the source of the infection it is quite likely that the hyperdureic adrenaline precipitated the spread of the infection and brought about the death of the patient.—I am, etc.,

Department of Surgery,
University of Witwatersrand,
Johannesburg.

H. GAYLIS.

Service Doctors' Pay

SIR,—I have followed keenly, but so far in silence, the efforts of the B.M.A. and others in the matter of pay for service doctors during the past two years. I am now constrained to put pen to paper.

It is with deep disappointment that I read the interim report of the Prices and Incomes Board on Service Doctors' pay.¹ Disappointment not so much in the award itself, but rather in the thoroughly negative and autocratic manner in which the evidence submitted by the B.M.A. and Defence Council was rejected. The Armed Forces Committee rightly stresses the inability of service doctors to redress grievance by unconstitutional means now widely accepted as normal by society. Surely there can be no one more effectively "over the barrel" than the permanently commissioned doctor, whose ethical integrity is capitalized by morally and intellectually bankrupt politicians.

It must be seen that the armed Forces present limited and ever diminishing professional opportunity to the doctor. No amount of internal reorganization of Forces medical service can fully compensate for this, and adequate remuneration will not entirely sweeten this bitter pill. There are those of us who wish to serve, but many others feel resentment and frustration at the professional and financial cul-de-sac in which they find themselves. These latter should be released from contract which the Government has invalidated by its repeatedly broken word. A basic principle to be upheld is the right to start a new career without the stigma that resignation implies, the savage loss of accumulated pension contribution, the possibility of gratuity repayment, and an enforced wait for two years. Perhaps such voluntary retirement would go some way to reshaping the structure of the medical service we seek, or is there a fear lurking at the back of the Defence Council mind that such a scheme would see a mass exodus of Service doctors? If this indeed be the case no further comment on the conditions and terms of service of doctors in the armed Forces need be made.

However, more fundamental issues are at stake than those discussed. Pay is but one aspect of the financial parsimony which at present threatens the very existence of British medicine, and one can see without any great clairvoyant effort a national disintegration in the next decade unless advice offered by our profession is heeded by those whose power it is to remedy the situation.—I am, etc.,

D. B. WATKIN.

Ivybridge, Devon.

REFERENCE

¹ National Board for Prices and Incomes: *First Report on Standing Reference on the Pay of the Armed Forces*, 1968, Cmnd. 3651. H.M.S.O.

SIR,—I found it ironical that in the issue of the *B.M.J.* in which so much space was devoted to the pay of medical officers in the armed Forces (*Supplement*, 15 June, p. 215), an advertisement appeared under the heading "Governmental" setting out attractive conditions and rates of pay for civilian medical practitioners to go out to Germany and look after soldiers and their families (p. xiv). It was particularly nauseating to find that a Government which has such a poor record on this topic is willing to pay civilians considerably more than it is prepared to pay serving medical officers in order to extract itself from difficulties of entirely its own making.

Surely the acceptance of advertisements such as this is out of line with the present B.M.A. policy of non-cooperation with the Ministry of Defence on recruitment for the armed Forces medical services?—I am, etc.,

N. C. LEE.

E.N.T. Department,
Princess Mary's R.A.F. Hospital,
Halton, Bucks.

SIR,—The B.M.A.'s decision to continue the refusal of the *B.M.J.* to receive advertisements of the R.A.M.C. and the "Important Notices" which have been appearing in the pages of the *B.M.J.* have set me delving through some of our Corps archives, the result of which may be of some interest.

Among the items in our Muniment Room is a large collection of documents presented by Colonel C. H. Millburn, who was one of the deputation from the B.M.A. which waited on Lord Lansdowne on 20 January 1898. At that time (to quote from the Parliamentary Report) the Army Medical Service, owing to lack of officers, was "on the way to extinction." The report of your Armed Forces Committee was published in your issue of 29 January 1898.¹ As a result of this a B.M.A. deputation saved the situation, and so the R.A.M.C. was formed on 23 June 1898.

In the report of your Armed Services Committee contained in your issue of 21 October 1967 (*Supplement*, p. 24) we read, "Colonel A. D. Young said that the Army was facing the most serious situation in its history." The reaction of the B.M.A. was, however, very different. Instead of striving with the Army to produce a large, efficient, and contented service it appears to do all it can to deter young doctors from joining unless they get paid more than general practitioners. It is difficult to imagine this happening in any other branch of the Army, if, for example, men were discouraged from joining the Royal

Engineers, Signals, Pay Corps, etc., unless they drew more pay than bank clerks or others occupying similar positions in civil life. One cannot help wondering what the reaction of the B.M.A. would be if the Army pursued a similar policy and the Director General issued an instruction that no young officer should join the B.M.A. without previous reference to the appropriate branch at the Ministry of Defence.

Today we are faced with an extraordinary situation in which advertisements appear in *The Times* and other organs of the lay and medical press but not in the journal of our greatest medical organization, to which we owe our very existence.

Our responsibilities today do not differ materially from those which existed in 1898. We still have a large number of young soldiers scattered over the world in Malaya, Singapore, Hong Kong, and elsewhere, many with ever growing families for which we are responsible. Our young doctors, too, are doing most useful work among the local population, for which they claim no extra duty pay or allowances. Only a month or so ago the Sultan of Sarawak presented a handsome plaque to Lieutenant-Colonel Telford in recognition of the wonderful co-operation he had received from 15 Field Ambulance.

Over fifty years' service on the active and retired list, together with the experience of two world wars, has underlined for me the truth, so hardly learned in the Crimea, that in both peace and war military and civil medical services must work together in close and friendly co-operation. This important liaison has been fully appreciated by our great commanders. In November 1944 Field Marshal Montgomery wrote to his D.M.S., "The British Army can boast of having the finest medical service of any army in the world," and he presented his portrait about a year later, "In gratitude and high regard to a Corps whose contribution to victory has been beyond all calculation."—I am, etc.,

R. E. BARNESLEY.

R.A.M.C. Historical Museum,
Keogh Barracks,
Aldershot, Hants.

REFERENCE

¹ *Brit. med. J.*, 1898, 1, 329.

Points from Letters

Patients on Holiday

Dr N. P. BRUCE (Isle of Wight) writes: May I support Dr. P. C. Matthew's plea (15 June, p. 694) for written evidence from the home doctor that a patient on holiday is genuinely prescribed a psychotropic drug at home? May I add that the home doctor should put the date and amount of the last prescription, and the temporary doctor either add the date and amount of his own prescription, or keep the letter, whichever is appropriate?

Tetracyclines

Dr. B. M. BARKER (Medical Director, Bristol Laboratories Ltd., Midx.) writes: In the section on tetracyclines in *Today's Drugs* (8 June, p. 607) reference is made to pyrrolidinomethyl tetracycline. Your readers may like to know that this drug is available in Britain only under the trade name of Tetrex P.M.T. (Rolitetracycline nitrate). . . .