first symptoms of exposure to paraquat spray are irritation to the eyes and throat and nasal irritation, followed in severe cases by nose bleeds.¹

There is no mention in the report of the patient showing any of these symptoms. Furthermore, agricultural ground spray machinery does not produce significant amounts of respirable droplets. Even mist-blowers, which are seldom used with herbicides in England, do not produce significant numbers of droplets in the "respirable range." Consequently people exposed to paraquat spray may well experience nasopharyngeal irritation due to droplet impaction in that region, but would never incur lung effects due to inhalation. It is not surprising therefore that a computer search for an association between paraquat inhalation and pulmonary damage was fruitless. Pulmonary damage from inhalation of paraquat has never been reported in 20 years of worldwide usage of this herbicide. Published cases of pulmonary damage are nearly always associated with ingestion of paraquat with suicidal intent. The reference quoted by the authors is to a general description of the lung damage which follows ingestion, and not inhalation, of paraquat.

Further evidence that the reported lung damage was not due to paraquat comes from the chest radiographs, which were normal at all times, even when the patient exhibited signs of respiratory distress. Cases of pulmonary damage from paraquat ingestion are associated almost invariably with changes of the chest radiograph.² Thus the evidence presented does not support the conclusion that this patient had experienced lung damage as a result of paraquat exposure.

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¹ Swan AAA. *Br J Ind Med* 1969;26:322.

² Croft J, Douglas A. *Respiratory diseases*. 2nd ed. Oxford: Blackwell, 1975:691.

Critical evaluation of urinary oestriol estimation

SIR,—Mr E J Shaxted's critical evaluation of urinary oestriol estimation (8 March, p 684) highlighted some of the misconceptions that many clinicians still have about the value of urinary oestriol in antepartum fetal monitoring.

During the late 1960s and early 1970s biochemical studies of the fetoplacental unit received a lot of attention, as evidenced by the multitude of papers in various obstetric and gynaecological journals during this period of time; and oestriol studies (urinary or plasma, conjugated or unconjugated) have since emerged as the most widely used test for antepartum fetal monitoring. However, while automated analysers for urinary oestrogens are springing up in numerous hospitals, there has yet to be a paper published that can show convincingly that tests such as oestriol studies contribute to any fall in perinatal mortality, and their cost-effectiveness has never been established.

Instead, obstetricians have become more aware of the fact that these placental function tests are but "static" measures of events that occurred more than 24 hours ago and normal values do not exclude the possibility of intrauterine fetal demise—as Mr Shaxted has found out with his two cases of intrauterine death. It is evident, therefore, that to refine our methods of antepartum fetal monitoring

tests of the dynamic functions of the fetoplacental unit are required. Among these tests, the most useful ones are antepartum cardiotocography (or non-stress test) and the oxytocin challenge test, and a lot of work has also been done on fetal movements and fetal breathing.

A review of the four main obstetric and gynaecological journals (*British Journal of Obstetrics and Gynaecology*, *American Journal of Obstetrics and Gynecology*, *Obstetrics and Gynecology*, and *Obstetrical and Gynecological Survey*) during the two years 1978-9 reveals that, while there are 31 papers published in these journals on biochemical tests used for antepartum fetal monitoring, there are even more (64) papers on dynamic tests of fetal wellbeing. The papers on biochemical tests include three on α -feto-protein, 16 on oestrogen assays, and 12 on other placental proteins. The papers on dynamic tests include 34 on antepartum cardiotocography, 12 on fetal breathing, 11 on fetal movements, and seven on oxytocin challenge tests.

Perhaps the cheapest dynamic test of all is to give the patient a pen and a chart to record the fetal movements. This is probably the only one test so far that does not need cost-effective scrutiny.

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Pericardial aspiration

SIR,—Drs R J Warrell and R W Portal (29 March, p 919) have produced a number of practical and valuable suggestions in their piece on pericardial aspiration. I must take exception, however, to certain features of that paper.

For one thing Kussmaul's sign does not occur in tamponade unless it is complicated by underlying epicardial constriction. The right atrium accelerates its filling during inspiration in pure tamponade but this is restricted in constrictive pericarditis and manifested as jugular vein distention.¹ Whereas we formerly believed that this sign could be observed in uncomplicated tamponade (pulsus paradoxus being the same as "Kussmaul's double inspiratory phenomenon"), both experimental and clinical data indicate that this is not the case.^{1,3}

The use of an electrocardiography monitor during pericardial aspiration has proved in experienced hands to be of little or no value, and in some instances it can be misleading in that penetration of the heart can occur without any registration on the electrocardiogram. At two meetings in the United States of "pericardiologists" (at Lexington in 1969 and at Pittsburgh in 1980) a poll of those attending disclosed that the procedure has largely been abandoned in the USA.

In any discussion of pericardiocentesis I am slightly surprised that the use of a pericardial catheter has not been mentioned. For some of us this has for long been common.^{2,4} A polyethylene or polyvinyl catheter is passed through or over an appropriate needle (in some techniques utilising a guide wire) and the aspiration is carried out through the catheter. The advantages of this are that a relatively soft catheter tip contacts the heart as fluid is removed rather than a sharp needle, and that the catheter is also left in situ for repeated aspiration should fluid reaccumulate.

This is of greatest value in patients with malignant pericarditis and other forms in which reaccumulation is common.

These remarks are meant more to supplement than to criticise the authors' material.

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¹ Shabetai R. In: Spodick DH, ed. *Pericardial diseases*. Philadelphia: FA Davis Co, 1976:67-90.

² Spodick DH. *Acute pericarditis*. New York: Grune and Stratton, 1959:65.

³ Spodick DH. In: Levine HJ, ed. *Clinical cardiovascular physiology*. New York: Grune and Stratton, 1976:621-34.

⁴ Spodick DH. In: Conn HF, ed. *Current therapy*. Philadelphia: W B Saunders, 1974:214-6.

Pleural aspiration and biopsy

SIR,—The recent article by Dr P B Iles and Dr Colin Ogilvie (8 March, p 693) was an excellent description of the technique of pleural aspiration. Pleural and peritoneal effusions are a frequent complication of advanced malignant disease, and are treated by aspiration of the serous cavity affected. Recurrence of such effusions is often rapid, however, and repeated tapping presents a problem in the management of the cancer patient.

In one study, for example, 94 patients were treated by thoracentesis alone, and the average time to reaccumulation of the effusion was 4.2 days, with a 97% chance of recurrence at one month after treatment.¹ Because of this various sclerosing and chemotherapeutic agents have been instilled into the serous cavity following aspiration of the fluid in an attempt to prevent or delay recurrence. Sclerosing agents are poorly tolerated because of pain; and thiopeta, which is the most commonly used chemotherapeutic agent, carries the risk of bone marrow depression owing to systemic absorption. Paladine *et al*² reported that intracavitary bleomycin was well tolerated and was effective in preventing the recurrence of malignant effusions.

Following this report a British multicentre study was set up to investigate the use of bleomycin in a larger number of patients. Response to treatment was defined as no recurrence of effusion, or asymptomatic recurrence not requiring tap, for at least 30 days. A total of 153 patients were treated in 32 hospitals by aspiration of their effusion, followed by intracavitary injection of 30-150 mg bleomycin in 100 ml saline. The most commonly used dose of bleomycin was 60 mg. There was an overall response rate of 58% in 117 assessable patients, pleural effusions responding better (63%) than peritoneal (49%). Pleural effusions associated with carcinoma of the breast showed the best response to treatment (70%). Side effects were mild and transient, and there was no pulmonary or mucosal toxicity. The two most common side effects were fever (8%) and pain at the site of injection (10%). The incidence of the latter was principally following paracentesis abdominis.

These results are in agreement with those of Paladine *et al* and confirm that the response to bleomycin is comparable with that obtained with the more commonly used agents. Trotter *et al*³ reported two possible drug-related deaths in their series of 23 patients treated with intracavitary bleomycin, which otherwise

had low toxicity and gave an overall response rate of 73%. In the multicentre study in 153 patients there were no drug-related deaths.

We conclude that intracavitary bleomycin is well tolerated and is effective as palliative treatment for malignant effusions, preventing the need for frequent aspiration of accumulated fluid. Because of its lack of haematological toxicity it may be used safely in the already leucopenic patient.

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¹ Anderson CB, Philpott GW, Ferguson TB. *Cancer* 1974;33:916-22.

² Paladine W, Cunningham TJ, Sponzo R, Donovan M, Olson K, Horton J. *Cancer* 1976;38:1903-8.

³ Trotter JM, Stuart JFB, McBeth F, McVie JG, Calman KC. *Br J Cancer* 1979;40:310.

Porphyria cutanea tarda and beta-thalassaemia minor

SIR,—We have read with interest the report by Dr R W G Chapman (24 May, p 1255) of cases of porphyria cutanea tarda in a mother and daughter with beta-thalassaemia minor. We note that alcohol intake was not excessive and that the mother had not taken oestrogens; however, in view of the Turkish nationality of the mother we wonder whether she and her daughter could have been exposed to any other agent capable of precipitating the disease. We are thinking in particular of the hexachlorobenzene-induced outbreak of porphyria cutanea tarda in Turkey which occurred from 1956 to 1961.¹ Some people exposed during this intoxication are still showing symptoms²; if the patients were in south-eastern Turkey during the relevant period then hexachlorobenzene poisoning could be contributory to the disturbance of porphyrin metabolism in these patients.

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¹ Cam C, Nigogosyan G. *JAMA* 1963;183:88-91.

² Cripps DJ, Gocmen A, Peters HA. *Arch Dermatol* 1980;116:46-50.

* * * We sent a copy of this letter to Dr Chapman, whose reply is printed below.—ED, *BMJ*.

SIR,—I would like to answer the points raised in the letter from Drs Smith and Grieg regarding the cases which I reported of porphyria cutanea tarda in a mother and daughter with beta-thalassaemia minor.

There was no history in either case of exposure to agents known to precipitate porphyria cutanea tarda. Although Turkish, neither patient has ever lived in or visited south-eastern Turkey, and during the period of the outbreak of the disease caused by hexachlorobenzene-poisoned wheat (1956-62) neither patient was living in Turkey. I believe therefore that in both patients iron overload due to beta-thalassaemia trait with haemolysis remains the most likely precipitating factor.

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Welcome award: belated justice

SIR,—Your closing comment in your leading article (31 May, p 1289) appears to me somewhat facile. It is relatively easy for a politician to say that "the [14%] cash limit is expected to be adequate, especially when allowance is made for savings through greater efficiency in the NHS." Management has been chasing greater efficiency ad nauseam. Not all districts either are similarly heeled and those operating at the greatest pressure and at lowest cost are going to find considerable difficulty in identifying enough inefficiencies to create savings to pay for excesses over the "going rate," whether as a result of an "over-the-limit" pay award or of the effect of price inflation already in excess of 14%. The problems of adequately funding health provision at the present time are such that patients' services are already at risk and, however great the justification for the award on other grounds, it is difficult to see how ultimately such unfunded commitments can do otherwise than have an impact on patients' services.

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Private medicine price war?

SIR,—According to *Pulse* it appears that the BMA Council is negotiating an arrangement with the British United Provident Association whereby members of the BMA will obtain preferential subscription rates and benefits—apparently much more advantageous than those currently given by Private Patients Plan. I understand that over the years there has been a close association with PPP and only last year we were being advised to subscribe to PPP because of this association. If this arrangement goes through, not only do I think it is morally wrong but also it will cause a "price war" between these two good organisations with the medical profession in the middle.

If the Association feels that it should enter into an agreement with BUPA as well as with PPP then the right and proper thing to do is to have a discussion with the two organisations and ask them—so far as the members of the BMA are concerned—to agree to offer similar charges and benefits to these members and let them fight between themselves for business elsewhere.

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* * * The BMA Council debated proposals for a special BUPA scheme for BMA members at its last meeting (28 June, p 1633). A recommendation has gone to the Representative Body to approve the scheme and to offer it to members as well as the existing PPP scheme.—ED, *BMJ*.

Student electives overseas

SIR,—I would like to support the suggestion from Dundee by Ruth A Cruickshank and Dr D B Walsh (7 June, p 1359) that more help should be given to students arranging to spend their elective period of study in a foreign country.

Apart from the problem of finding a suitable venue, there is the problem of transport. The

Sunday Times magazine (15 June) shows that there are 30 different fares from London to Los Angeles. Even experienced agents cannot always find the best bargain out of this mess. Last year some students had to pay again for the return journey, when the airline refused to honour the return tickets. Since the airline did not belong to the International Air Transport Association they could not get their money back on return to England.

It might be a profitable method of recruitment of future members if the BMA could give unbiased advice to medical students on the cheapest and safest airlines to use for various destinations.

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Health hazards from nuclear industry

SIR,—I was interested to see the letter by Dr Robin Andrews (31 May, p 1323) in which he called for the BMA to act as a watchdog over the health aspects of the nuclear industry. As the National Radiological Protection Board has performed this role for some 10 years I was a little surprised.

The NRPB was set up under the Radiological Protection Act 1970 with the specific functions of advancing knowledge about the protection of mankind from radiation hazards (for example, by research) and of providing advice and information to persons (including government departments) with responsibilities for radiological protection. The board is also empowered to provide technical services and to charge for those services. It is independent of industry and other users of radiation, and of the regulatory bodies and the pressure groups.

Of course, if the BMA decides to take on a role in this field we would be pleased to co-operate with it. But I should be surprised if members of the BMA who know us well would feel that such an initiative on the part of the BMA is necessary.

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Drug firms and doctors

SIR,—To my surprise a respected drug representative recently offered me money and a free trip to the Continent, in return for joining a drug trial organised by his company. The "trial" seemed to me to be designed to provide commercially useful data rather than medical information? Two questions occur: (1) Is there a lot of it about? (2) Do some authors of papers on drugs accept gifts from the manufacturers without declaring the fact in their articles?

Incidentally it was interesting to learn my price, but not very flattering.

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Correction

Vitamin D₃ in osteoporosis

We regret that in the letter by Dr I Wandless *et al* (31 May, p 1320) there was an error in line 4 of the second paragraph, where mg should be μ g.