

It is regrettable that P.E.F. measurements continue to be popular among clinicians,¹ despite warnings about their relative lack of sensitivity in assessing airway obstruction published in your columns years ago.^{2,3} More recent studies which have clarified the relationship between lung volume, expiratory flow rate, and alveolar pressure^{4,5} substantiate the view that "The measurement of the maximal expiratory flow rate . . . cannot be recommended as a single lung function test."⁶ Maximum expiratory flow rates depend on lung volume, and flow rates at small lung volumes are more depressed under conditions of peripheral airway obstruction than P.E.F.^{7,8} Leuallen and Fowler⁹ realized this fact long ago, when they introduced the measurement of mid-expiratory flow rate.

Measurement of spirometric values such as the F.E.V.₁ or mid-expiratory flow rate, or recordings of maximum expiratory flow-volume curves, all include, directly or indirectly, information on maximum flows occurring at smaller lung volumes than that at which P.E.F. is reached. Any one of these methods would have indicated the severity of the persistent airway obstruction in the patient of Dr. Gregg and Dr. Batten more adequately than P.E.F., and this would have called for suitable measures, such as bronchoscopy and active physiotherapy, to clear the patient's airways.—I am, etc.,

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REFERENCES

1. Kazemi, H., *Journal of the American Medical Association*, 1968, **206**, 2302.
2. Bates, D. V., *British Medical Journal*, 1960, **1**, 56.
3. Bouhuys, A., *British Medical Journal*, 1960, **1**, 1209.
4. Fry, D. L., and Hyatt, R. E., *American Journal of Medicine*, 1960, **29**, 672.
5. Bouhuys, A., and Jonson, B., *Journal of Applied Physiology*, 1967, **22**, 1086.
6. Bouhuys, A., *Acta Medica Scandinavica*, 1957, **159**, 91.
7. Woestijne, K. P. van de, Afschrift, M., and Bouhuys, A., *Le Poumon et le Cœur*, 1968, **24**, 969.
8. Zapletal, A., Motoyama, E. K., Cook, C. D., and Bouhuys, A., *American Review of Respiratory Disease*, 1968, **98**, 126.
9. Leuallen, E. C., and Fowler, W. S., *American Review of Tuberculosis and Pulmonary Diseases*, 1955, **72**, 783.

Thrombosis and Fibrinogen Degradation Products

SIR,—Dr. J. D. Cash and others (31 May, p. 576) suggest a possible relationship between a high concentration of fibrinogen/fibrin degradation products (F.D.P.) in the serum and the occurrence of certain types of thromboembolic disease. However, as the authors indicate, this relationship is by no means invariable, as only two of four patients

with high serum concentration of F.D.P. had evidence of thromboembolism. Nevertheless, failure to detect thrombosis by clinical methods does not necessarily exclude its presence. It is generally accepted that phlebotrombosis in the pelvic veins (which may follow gynaecological operations) is difficult to diagnose by clinical means. Studies with radioactive fibrinogen (¹²⁵I) suggested that the incidence of phlebotrombosis in the postoperative period may be as high as 35%,¹ although only half of these patients had clinical signs.

We have assayed F.D.P. in the serum by the haemagglutination inhibition method during the first eight days of the puerperium in 30 women following normal delivery (62 samples) and in 16 women following caesarean section (63 samples). In two women, following caesarean section (but none in the other group), the serum concentrations of F.D.P. were considerably higher than those in the remaining patients. The results are shown in the Table.

Clinical evidence of phlebotrombosis was present in only one case (Case 1), but there were no features suggestive of pulmonary embolism. It is possible that high levels of F.D.P. in the serum may be due not only to increased production (following intravascular coagulation) but also to retarded elimination.

In some cases raised haemagglutination inhibition titres may be due not only to F.D.P. but also to fibrin monomer. Addition of protamine sulphate (to a final concentration of 1 mg./ml.) to sera with high concentrations of F.D.P. obtained from the two patients reported above gave an increased degree of flocculation. This phenomenon of "paracoagulation" is said to indicate the presence of soluble fibrin monomer—F.D.P. complexes.² As thrombin does not precipitate these complexes, they are likely to react in the immunoassay. Furthermore, samples of plasma from both these patients showed the presence of cryofibrinogen, which suggested the presence of fibrin monomer in soluble form under physiological conditions.^{2,3} Thus, it is reasonable to assume that at least in some cases fibrin monomer rather than F.D.P. is the important link between intravascular coagulation and an increased concentration in the serum of substances reacting immunologically with an antifibrinogen serum. These preliminary results suggest the need for further study in this field.—We are, etc.,

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REFERENCES

1. Flanc, C., Kakkar, V. V., and Clarke, M. B., *British Journal of Surgery*, 1968, **55**, 742.
2. Kowalski, E., *Seminars in Hematology*, 1968, **5**, 45.
3. Shainoff, J. R., and Page, I. H., *Journal of Experimental Medicine*, 1962, **116**, 687.

Gangrene in Behçet's Syndrome

SIR,—The case reported by Drs. A. G. Mowat and T. E. Hothersall (7 June, p. 636) of gangrene of the forefoot in a patient with Behçet's syndrome is of considerable interest, and I would like to draw attention to experience of two further cases in which arterial lesions were a prominent feature.

In 1967, a 24-year-old milkman with Behçet's syndrome was admitted under the care of Dr. I. B. Sneddon in the Rupert Hallam Department of Dermatology at the Sheffield Royal Infirmary. Gangrene of both the patient's feet occurred and both legs had to be amputated below the knee. Histological studies showed thrombotic occlusion of the major arteries and veins, which were the seat of an acute non-specific arteritis and phlebitis involving all layers of the vessels.¹ Thus, in contrast to the Edinburgh patient, this patient's gangrene resulted from inflammatory disease of the large vessels.

The number of cases of Behçet's syndrome in which lesions of large arteries have been described is very few.²⁻⁵ The fact that a bruit was audible over the femoral artery in the patient described by Drs. Mowat and Hothersall raises the possibility of an underlying arterial aneurysm at this site and may be considered an indication for angiography and definitive surgery as prophylaxis against further complications. The histological nature of such a lesion had not been documented until recently, when I and others described the development of spontaneous bilateral popliteal artery aneurysms in a 16-year-old boy with Behçet's syndrome.⁶ We were able to show that a non-specific primary acute arteritis had resulted in aneurysm formation and rupture. Attempts at reconstructive surgery were not wholly successful, but we were fortunate in that adequate collateral circulation developed to ensure viability of the limb distal to the aneurysm.—I am, etc.,

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REFERENCES

1. Mortimer, T. M., personal communication.
2. Mishima, Y., Ishikawa, K., and Kawase, S., *Japanese Circulation Journal*, *British Edition*, 1961, **25**, 1211.
3. Oshima, Y., et al., *Annals of the Rheumatic Diseases*, 1963, **22**, 36.
4. *British Medical Journal*, 1965, **1**, 357.
5. Hills, E. A., *British Medical Journal*, 1967, **4**, 152.
6. Enoch, B. A., Castillo-Olivares, J. L., Khoo, T. C. L., Grainger, R. G., and Henry, L., *Postgraduate Medical Journal*, 1968, **44**, 453.

Iatrogenic Septicaemia

SIR,—We were interested in the article by Dr. J. H. Darrell and Professor L. P. Garrod (24 May, p. 481) but not surprised by their findings or conclusions. In 1962 we demonstrated a strong correlation between bacterial contamination of "cut-down" sites and the development of infective thrombophlebitis, and showed that both could be reduced by improved aseptic and antiseptic technique.¹

While we are, of course, disappointed that neither Dr. Darrell and Professor Garrod nor your leading article (p. 462) referred to our work, we would be even more distressed if we thought that it had also escaped the attention of clinical chiefs responsible for the

Day of puerperium	Serum F.D.P. (µg./ml.)									
	1	2	3	4	5	6	7	8	9	10
Case 1	—	—	192	160	24	8	12	8	8	6
Case 2	—	10	—	—	128	80	12	4	4	4
30 women following vaginal delivery (mean and S.D.)	10.0 ± 6.4 (n=19)		11.2 ± 3.6 (n=12)		11.3 ± 5.1 (n=15)		7.3 ± 3.9 (n=16)		—	
14 women following caesarean section (mean and S.D.)	16.3 ± 5.8 (n=14)		20.3 ± 9.8 (n=12)		17.5 ± 0.9 (n=11)		12.0 ± 4.0 (n=11)		—	

instruction of students and junior staff in this most common and important procedure.—We are, etc.,

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- ¹ Howie, J. G. R., and Cumming, R. L. C., *Lancet*, 1962, 2, 851.

Multiple Choice Examinations

SIR,—I was intrigued that my last "Personal View" article (17 May, p. 443) was described (31 May, pp. 572 and 573) by those who wanted to dismiss its main point as being on the one hand "pungent" (Dr. W. F. M. Wallace) and on the other "a jolly little article" (Professor J. N. Hawthorne). Dr. W. K. Cowan at least found it "humane," for which adjective I was grateful. The first two attacked mainly the phrase I used to express my concern for first-class candidates. Anti-intellectualism is only too common, it seems to me, in our medical schools. Now first-class men represent only about 10% of those reading for honours degrees (at least in this university).

May I make it clear that my major concern and interest, in both teaching and examining, is with the others, those "middle-of-the-road men," who are the backbone of the profession and the salt of the earth? In my experience the ordinary, generous-minded student is as glad to recognize the qualities of the outstanding man as are some, but certainly not all, university examiners. I think it is essential that these gifted individuals should be allowed to show their gifts, and make fools, if need be, of their examiners. This is something the multiple choice examination manifestly fails to allow. The really good man easily recognizes the ambiguities that are so often contained in both the question and in the "right" and the "wrong" answers. Unless he has confined his reading to the "permitted" text he is put at a real disadvantage, because he knows that under this or that circumstance this or that "answer" might be correct. He cannot demonstrate that he understands the subject better than his mentors do. This means the end of educational advance. Mediocrity is put at a premium. Admass is with us. Professor Hawthorne put his finger on the point when he dealt with the problem of increasing numbers: "How," he asked, "can the university teacher (who is also supposed to be actively engaged in research) possibly manage without the aid of computer marking?" Well, each must answer for himself. Expediency is important, but not all-important.

If increasing numbers lead inevitably to declining standards ("more meaning worse," to paraphrase Kingsley Amis's celebrated phrase), then there is something wrong with the system. It was the system that I was criticizing. I shall go on doing so whenever it produces a deceitful and anti-intellectual "solution," such as I believe the M.C.Q. method to be.—I am, etc.,

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Auditory Testing in Infants

SIR,—Experience during the past five years has clearly demonstrated the usefulness of screening tests of hearing in infants. These tests should be an integral part of the work at infant welfare clinics. Few people will doubt that early detection of deafness makes all the difference as far as successful rehabilitation is concerned.

The methods of screen testing are comparatively simple. Selected test sounds are produced at very small intensities and a reaction of the baby is observed, the reaction being by turn of the head towards the source of the sound. The most important condition for satisfactory testing is a quiet environment. The quieter this environment the greater the probability becomes of noticing a small sudden change, in this case a sound. Unless these tests are carried out in conditions below a certain noise level the intensity of the test sound merges in the background noise and it becomes insignificant.

One must emphasize that it is impossible to carry out satisfactory hearing tests in a noisy place. No one would try to test the vision of a child in a dark room in which one is unable to see the test material. Yet many people are quite prepared to test hearing in acoustic "darkness."

Few infant welfare clinics have a quiet room where these tests can be carried out satisfactorily. This is now the greatest obstacle to implementing a successful programme for the early detection of deafness. It is particularly disturbing to find that new clinics continue to be planned and built without a quiet room. Financial considerations do not appear to be the reason for the failure to provide this accommodation, but rather a complete lack of understanding by local authorities of the importance of incorporating a quiet room in all clinic buildings.—I am, etc.,

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Drug Treatment of Thyrotoxicosis

SIR,—We feel we must challenge the statement that "propranolol . . . is generally less effective than reserpine and guanethidine" in controlling the peripheral manifestation of thyrotoxicosis, which was included in "Drug Treatment of Thyrotoxicosis" (24 May, p. 496). We respect the fact that there is individual variation in the management of thyrotoxicosis, but to our knowledge there has been no published study comparing the effects of sympathetic antagonists such as reserpine and guanethidine with beta-adrenergic receptor blocking drugs such as propranolol in controlling many of the clinical features of thyrotoxicosis.

It has been shown that oral or intramuscular administration of reserpine¹ reduces many of the features of thyrotoxicosis. However, nearly three weeks may elapse before improvement or alleviation of symptoms is achieved by oral therapy. On intramuscular administration side-effects such as weakness, dizziness, nasal stuffiness, headache, and insomnia were frequently noted, and nervousness and tremor were aggravated. Several studies have shown that guanethidine is also effective,^{2,3} but on oral administration six days was the average time taken for a good response, and hypotension, which is posture dependent, occurred in several patients. It

should be pointed out, however, that none of these trials were double-blind. We have now used propranolol in over 100 patients with thyrotoxicosis as an adjunct to therapy with radioactive iodine, carbimazole, and in preoperative preparation for surgery. Propranolol produced marked reduction in the features of the disease within 24 hours of oral administration of the first dose. In a controlled double-blind trial in patients with thyrotoxicosis,⁴ propranolol (40 mg. four times daily) was shown to be significantly better, on sequential analysis, in producing subjective and objective improvement in the clinical features of thyrotoxicosis than a placebo. In this trial and in all our patients we have experienced no side-effects from the administration of propranolol.

Other workers have shown that propranolol is extremely effective in the control of thyroid crisis.⁵⁻⁷ McLean⁵ found that his patient responded better to propranolol than to reserpine or guanethidine. It may be that beta-adrenergic receptor blocking drugs have an advantage over reserpine and guanethidine in that they avoid any undesirable central nervous system effects of reserpine and the postural hypotension of guanethidine.

This article again emphasizes the shortcomings of "Today's Drugs" and some leading articles in the *British Medical Journal* to which attention has been recently drawn by Dr. A. M. Barrett (1 February, p. 318) and Dr. G. M. Wilkinson (17 May, p. 446). Statements, such as the one we criticize, must be supported by references and must not be clinical impressions of the author. If these articles are to be of real value they must be backed by full references, must be up to date, and should preferably be signed by the author. Although several papers have appeared recently describing the use of propranolol in thyrotoxicosis, no mention was made of these.—We are, etc.,

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REFERENCES

- Canary, J. J., Schaaf, M., Duffy, B. J., and Kyle, L. H., *New England Journal of Medicine*, 1957, 257, 435.
- Lee, W. Y., Bronsky, D., and Waldstein, S. S., *Journal of Clinical Endocrinology and Metabolism*, 1962, 22, 879.
- Waldstein, S. S., West, G. H., jun., Lee, W. Y., and Bronsky, D., *Journal of the American Medical Association*, 1964, 189, 609.
- Shanks, R. G., Hadden, D. R., Lowe, D. C., McDevitt, D. G., and Montgomery, D. A. D., *Lancet*, 1969, 1, 993.
- McLean, A. G., *The Medical Journal of Australia*, 1967, 2, 229.
- Parsons, V., and Jewitt, D., *Postgraduate Medical Journal*, 1967, 43, 756.
- Buckle, R. M., *Acta Endocrinologica*, 1968, 57, 168.

Varicose Veins, Cotton Workers, and Diet

SIR,—With reference to the paper by Siza Mekky and others (7 June, p. 591) our work¹ would indicate that the factors advanced by the writers are essentially aggravating factors of a deeper-lying primary cause, without which they would not be able to produce varicose veins at all. Some of these factors, for example, can clearly have no reference to the varicose veins occurring in men.

Believing as I do that the primary cause of varicose veins is a weighted colon, arising from the consumption of refined carbohydrates and impeding the blood return from the lower limbs, I regret that the writers did