M.O. I have never seen cartons of cigarettes presented at tournaments. This would not be tolerated today.

London.   J. L. BLONSTEIN.

The fog index

Sir,

Serendipity is always rewarding, but it is not every day that one makes the big find. I have just done this in, of all places, the correspondence columns of The Times Business News.

A correspondent defined the Fog Index. This is an American invention—if I knew the inventor I would at once offer humble and grateful acknowledgement—to grade in a scientific way the comprehensibility of any piece of literature. It goes like this. Take the mean of the number of words per sentence plus the percentage of words of more than two syllables plus three; divide the whole by five. Any reading of fifteen or more is quite incomprehensible, i.e. Acts of Parliament, Income Tax notices, Orders in Council, E.C.N's and most works on psychiatry. "To be or not to be" rates F.I. 8, and "The Cat sat on the mat" et sec, rates 1.5. The inventor claims that he can equate the F.I. of any piece of literature to the standard required in the American educational system for its comprehension.

This discovery at once set me to my homework. I have to report that the F.I. of this letter is 6.2; your own published works, Sir, rate 5.6—which is bruising to my ego, but not unexpected—St. Mark rates 4.8, Gibbon 12, and Somerset Maugham 7.5. Research continues.

Imagine the benefits which would flow from the universal acceptance of this index. Your reviewers could end their pieces with this useful warning to the readership. Your contributors could check their own efforts— and I can attest that this is a humbling and altogether salutary experience—and the Editorial Board might even issue an edict that it would publish nothing with an F.I. of over 12. Only good could stem from this. When may we start?

Cheltenham.   JOHN MILES.
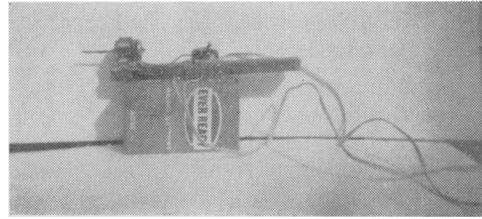
Drill for sub-ungal haematoma

Sir,

The enclosed photograph shows a battery-operated drill made up from children's toys. It has been successfully used in evacuating sub-ungal haematomas and, to my knowledge, there is no other machine like this yet available, although I was informed by one firm that this drill has been on the market. The advantage of this drill is in the fact that it revolves at a higher speed than the hand-operated ones that can be purchased, and it is certainly more comfortable and less distressing to the patient than using the old technique of rotating a bistoury; in fact since using this drill we have found that no pressure has to be applied in order to evacuate the blood clot. Needless to say the patient gets immediate relief from this operation.

If other doctors are interested, the drill is cheap to make. The prototype in the picture consists of a *fine* drill taken from a hand-operated drill and attached to a Japanese electric motor, original cost 4s., (it is attached by the polythene tubing that is used for protecting hypodermic needles) and the switch is provided from an old dolls' house. The most expensive item could be the $1\frac{1}{2}$ volt battery; one would not need to get such a big battery but it lasts a long time. The drill is made portable by the length of flex (also from an old dolls' house). The cost (without the battery) should not be much more than 5s. 6d.

Chard.   M. E. GLANVILL.

Diagnostic pathways in rural general practice

Sir,

Dr F. M. Hull, in his efforts to define a diagnostic pathway in his rural general practice (*J. roy. Coll. gen. Practit.* 1969, **18,** 148) seems to have wandered into a

figurative fog in which the landscape has become obscured.

With an eye to the guidance of future entrants into general practice, he would appear to be trying to find an answer to the difficult question of how best to divide one's time and energy, particularly in rural practice, in establishing a correct diagnosis quickly. The crux of the matter is surely how correct his diagnoses were and the design of his investigation does not appear to have measured this, e.g. 75.4 per cent of patients were only seen once and (I quote) "there was no chance of revising diagnosis". Of the remaining patients in his sample, the diagnosis was subsequently modified in 9.6 per cent and in another 15 per cent who were seen again, the diagnosis remained unchanged.

It may well be true that he was correct in a high proportion of the 75.4 per cent of cases seen, although a study of his section on the relation of examination to the presenting symptom raised some doubts in my mind e.g. *local* examination of skin conditions, as the predominant method of examination (I quote) "almost to the exclusion of other methods". In how many of these did he test the urine?

In more general terms, I would think from my own experience of 12 years in English general practice (partly rural, partly urban) that the *energy*, as distinct from normal care, with which a doctor pursues the significance of his patient's symptoms depends as much on the time of day, his particular interests, and whether the correct equipment is readily to hand, as on the factors listed in the summary of his paper.

Swaziland.   R. H. O. PARKER

N-Tuplets in computer diagnosis

Sir,

Dr Crombie and Mr Dobell's paper (*J. roy. Coll. gen. Practit.* 1969, **18**, 219) raises several questions of fundamental importance. They treat the process of diagnosis as one of simple pattern recognition without asking any question as to what a disease really amounts to, and as such their argument could just as readily be applied to any other pattern recognizing procedure such as, for example, classifying postage stamps. This in no way criticizes the validity of their argument, indeed pattern recognition must constitute

the practical basis of diagnosis so far as one can see. As such the procedure is susceptible to considerable statistical refinement particularly if the operation of pattern recognition is performed by a computer.

Firstly, when we consider just one feature of the patient such as spots, we can at first divide the population into those with spots and those without. In a small-pox epidemic this would be sufficient to divide the population roughly into diseased and healthy subgroups. However, one could refine the process by counting the number of spots per patient and then group them on this basis into healthy patients with other skin complaints and small-pox cases. Illustrating this graphically (figure 1) we find that the tail of the curve
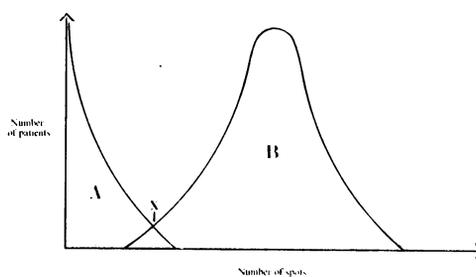
Figure 1
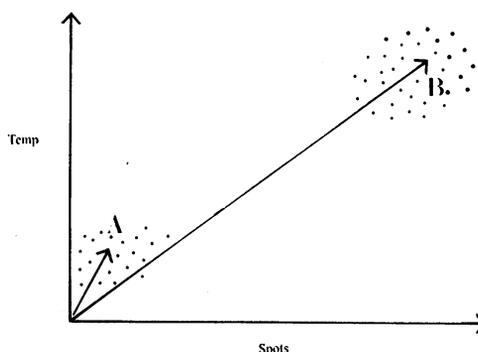
Figure 2

of the 'normal' A overlaps the tail of the curve of the 'abnormal' B, so that a patient at point X is equally likely to belong to either population. The next refinement would be to introduce the patient's temperature as a second feature in the diagnosis. Plotting temperature and spots as ordinates and abscissa (figure 2) gives us two populations A and B, and if we combine temperature and spots as a vector and plot them against numbers of patients, the curves for A and B (figure 3) are now further apart and the diagram is better. This process can be expanded