treatment to monitor, as well as the consideration of keeping the whole device small and easily assimilable, the idea of a clock-face layout surrounding the current medical record card seemed the most economical (see figure).

The check-list clock.

There are twelve headings, six to do with the diagnostic process, four to do with the diagnostic process, and two involving both. They are as follows.

Presentation of the complaint. (Why has the patient come? Why now? Is there a firm traditional diagnosis? If not, what is the matter?)

Medical history.

Family history.

Recent life events. (For example, childbirth, marriage breakdown, bereavement, etc.)

Personality factors. (For example, stoicism, introspection, aggression, keeping doctor at arm's length.)

Doctor-patient relationship. (Does the doctor feel any strong emotion, such as anger, in the presence of the patient? If so, is it a symptom of the doctor or the patient? Is there any disinclination of the doctor to do a particular examination (for example, vaginal, rectal)? If so, why?)

Allergies. (Any external allergies, drug allergies or intolerances, psychological state likely to produce reactions to treatment?)

Drug vetoes. (Common examples listed.)

Drug interactions. (Common examples listed.)

Drug hierarchies. (For example, aspirin—indomethacin—newer antirheumatic drugs.)

Unconscious factors in prescribing. (Does a departure from the normal (strength) hierarchy in prescribing patterns reflect something in the doctor-patient relationship? For example, does the prescription of a potent drug reflect the doctor's need to be potent with that particular patient or does the prescription of a cheap preparation reflect the doctor's contempt?)

Working diagnosis and its therapeutic plan. (Is there, potentially, a fatal pay-off? How ill is the patient? (If there is doubt, has the blood pressure been taken?)

Initial experience with the check-list clock, placing the current medical record continuation card in the central part of the frame, has shown that this kind of review of the consultation conducted initially in an unstructured way has led to important changes in both diagnosis and treatment through the stimulation of further recall and understanding of important information and interaction which had previously been missed.

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When is significant not significant?

SIR,—The work of Sir Richard Doll and Mr Richard Peto (4 June, p 1433) raises several points of interest.

With figs 1 and 2 the reader is asked to bias his judgment in favour of a relation which the authors appear intent on proving; the broken lines used for five confidence intervals enforce this bias. However, the basis for this choice of "reliable" and "unreliable" SMRs is not indicated. Definition of statistical methods being poor, the authors would appear to have calculated regression lines using 11 pairs of variables. However, these calculations (using, presumably, the mean values for each specialty) fail to take into account the often large scatter of data about each group mean, this influencing in turn the error associated with the estimation of regression line gradients. Thus in using apparently grouped data for their calculations the authors would seem to be biasing the analysis, again in favour of demonstrating a significant relation between variables.

In their subsequent letter Mr Peto and Professor Doll (23 July, p 259) state that "moderate statistical significance (such as $P < 0.05$) [in association] often does arise as an artefact of chance." This statement is worthless. From the statistical estimation one is able to suggest that the observed data would have occurred by chance in less than one case in 20; if one is willing to accept the *predefined* risk of erroneous conclusion, then one can but conclude that certain relations have, or have not, been demonstrated in the sample group. It is irrelevant whether a causal relation can be established. The authors fail to define their level of significance *before* the analysis of their observations; as a consequence of this omission Professor Doll and Mr Peto in their paper appear to have succumbed to the serious error of choosing only those statistical estimations which suit their purpose, as suggested by Professor Hugh Dudley (2 July, p 47). Moreover, they conclude that "the excess of ischaemic heart disease and chronic bronchitis in single-handed general practitioners and the deficiency of ischaemic heart disease in hospital physicians and surgeons, and of chronic bronchitis in hospital physicians, may be attributed respectively to their above and below average consumption of cigarettes" (my italics); herein lies the common error of implicating causal relations between variables linked only by statistical estimation.

The example of throwing paired dice, as given by Mr Peto and Professor Doll in their letter, although correct probability theory, is an example of poor logic and misuse of statistical estimation. Of course the probability of throwing a double-six is about 0.03; however, this does not even suggest that the dice are biased because the probability of throwing any pair of numbers (for example, 4 on dice A and 1 on dice B) is about 0.03. The very suggestion that the judgment should be made on the basis of a single throw implies a failure to grasp an elementary principle of statistics—namely, that statistical estimations can be made only on the basis of populations of figures. The words of a great statistician, the late Sir Ronald Fisher, would be of undoubted value here: "... Nevertheless, in a real sense, statistics is the study of populations, or aggregates of individuals, rather than of individuals. Scientific theories which involve the properties of large aggregates of individuals, and not necessarily the properties of the individuals themselves ... are essentially statistical argu-

ments, and are liable to misinterpretation as soon as the statistical nature of the argument is lost sight of."

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Hallucinations in polymyalgia arteritica

SIR,—Polymyalgia arteritica has been commendably treated in some of your recent issues. One feature I did not observe: the occurrence of hallucinations in connection with this disease. During the last few years that I was head of the Medical University Clinic in Uppsala, we saw some 50 cases of polymyalgia arteritica. Visual hallucinations were not common but did occur: an old lady came into the clinic escorted by a St Bernard dog which was entirely fictitious. She wanted the dog placed in the bed next to her and this permission was of course granted. The following morning, after she had received, the previous day, a rather massive dose of cortisone, the dog had disappeared, much to her embarrassment. The subsequent treatment kept the dog away from her.

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Congenital dislocation of the hip

SIR,—With reference to Mr A J Harrold's excellent review of the problems in congenital dislocation of the hip (CDH) (23 April, p 1071) I would like to present a deviating opinion on a few points.

It is true that the incidence of CDH has increased in those clinics which have introduced the technique of Ortolani and Barlow in examining all newborn infants. It is not true, however, that this increase of incidence is due to "overdiagnosis," including completely healthy infants, as it has been demonstrated¹ that the condition in these children is closely related to CDH. All these children have unstable hips, some of which are dislocated or dislocatable at the moment of examination. There are no means, however, of distinguishing between those hips which will recover spontaneously and those in which complete dislocation will develop later on.

Should all these children be treated and is treatment harmless? Not only failures but also a dangerously high complication rate in the treatment of CDH have been reported.²⁻⁴ All these misfortunes, however, have occurred in children who have either been treated late or with rigid fixation. In a long-term follow-up⁵ 8-16 years after treatment it has been demonstrated that proper treatment is completely harmless.

Acetabular dysplasia is a common finding among the parents of children with CDH.⁶ A child with a minor degree of hip instability that will allow only partial dislocation (subluxation) can remain symptom-free throughout childhood. The resulting incongruence will lead to underdevelopment of the acetabular roof (dysplasia)⁷ and perhaps to early arthritis.⁸⁻¹¹ Treatment in a harmless splint for a few months will probably prevent this course.

The literature on the difficulties of early diagnosis and treatment is abundant. During the past few years, however, it has become evident that the difficulties can be overcome and by