control chemicals are moved by lorry in concentrated form, and there is a high risk to lorry drivers who accounted for 43 of the Californian cases in 1966. The risk of contamination in transport was emphasized by the accidental spillage of 1,000 lb. of liquid parathion on the roadway.

In this Report one again reads of a preventable tragedy which is becoming all too common. A farmer who was spraying paraquat carried it on his tractor in a bottle identical to one which contained his drinking water. He drank from the wrong container and was fatally poisoned.

T. S. SCOTT

Measurement in Medicine. The Interpretation of Numerical Data. By P. D. Oldham. (Pp. 216; 50s.). London: English Universities Press. 1968

Most of the statistical methods used commonly in medicine are easily applied but difficulties often arise in selecting appropriate techniques and interpreting results. Most textbooks devote some attention to such matters but Oldham's book – which is not a textbook – concentrates upon them and is rich in illustrative examples drawn from real-life situations. The author has set himself the task of providing '... explanations of what statistical techniques do, of the logical structure of a statistical argument (such as a test of significance), of the connexion between observations and the conclusions reached by statistical methods, and, in general, explanations of why particular statistical techniques fulfil practical needs in medicine.' He performs this task with very little recourse to mathematical argument – although there is some – so that what is essentially a cautionary tale unfolds in a language likely to be acceptable to most of the Journal's readers. Nevertheless, points are made with an economy of words and the book calls for careful reading. The inclusion of controversial topics may deter those who seek dogmatic guidance but such issues can only be avoided by making some procedures appear to be more informative than, in fact, they are.

The book opens with a chapter on transformations, in particular the angular, probit, log-log, and logistic transformations for quantal data and the logarithmic transformation for quantitative data. This leads, in the following chapter, to a discourse on the normal and lognormal distributions, populations and samples, and problems of estimation. The criteria of consistency and efficiency for good estimation, the method of maximum likelihood, and unbiased estimators are considered and the practical results are given of making estimates by various methods in terms of original and transformed units of vital capacity. The third chapter deals with tests of significance in general and the next two with specific tests applicable to measurements and frequencies. The confusion which arises from referring to results as significant or non-significant in preference to a probability statement is discussed; a neat distinction, by example, is drawn between surveys and experiments; a

worked example of analysis of variance is explained; and a particularly helpful discussion is included on the variety of hypotheses which can be formulated when data can be arranged in a series of fourfold tables.

Chapter 6, on regression, starts with the statement which is fully justified later: 'The problem of specifying the dependence of one quantity on another in statistical terms has always been a fruitful source of confusion and misunderstanding.' The uses of regression are noted as either a means of adjusting the distributions of random variables to allow for influences of others or as a means of predicting one variable from another. In passing, the author offers the opinion that a correlation of at least $r = 0.7$ is usually required for useful prediction; in practice the need for such a threshold is often ignored. A section on 'deceptive consequences of regression' is particularly helpful in pointing out a number of difficulties which often result in misinterpretation.

A fairly comprehensive examination is made of the validity of clinical trials in chapter 7; it underlines the fact that the statistical evaluation of many reported trials is less penetrating than is desirable and the theme throughout this chapter is a plea for deeper and more imaginative planning. It is not surprising, therefore, that some sequential trials receive rather rough handling by the author. The reader gets the impression that what Oldham really objects to is the mechanistic use of pre-prepared sequential trial plans which can be used with little or no thought about the philosophy involved in the fundamental comparison. The book concludes with some miscellanea: observer variation, normal values, and repeated observations on the same subject.

Statisticians will enjoy this book because it deals with many subjects which, from time to time, they are obliged to explain to their non-statistical colleagues. Non-statistical readers of the Journal might be discouraged at their first reading of parts of Oldham's text but they will be repaid by studying these passages carefully for they will find that the author seldom omits to indicate a correct or preferred line of action.

E. A. CHEESEMAN

NOTICES

XVI International Congress on Occupational Health

The Organizing Committee of the XVI International Congress on Occupational Health announces that the Congress will be convened in Tokyo from September 22 to 27, 1969, under the auspices of the Permanent Commission and International Association on Occupational Health.

Further information may be obtained from the Secretariat, XVI International Congress on Occupational Health, c/o Japan Industrial Safety Association, 35-4 Shiba 5-chome, Minato-ku, Tokyo, Japan.