fact that the items in the sample are subject to different environmental conditions.

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Comment

Asit P. Basu

In this survey the authors describe four major areas of reliability theory. The number of areas that could be discussed under reliability is quite broad, as can be seen from the list of topics at the research conferences on reliability at the University of Missouri-Columbia in 1984, 1986 and the forthcoming 1988 (see, for example, Basu, 1986). Here I shall limit my comments to some statistical problems that have not been addressed in detail in the survey. The journal *Teoriya Veroyatnostei i ee Primeneniya* (*Theory of Probability and Its Applications*) contains a number of useful articles in the field. Although Rukhin and Hsieh did not mention the journal in their list, they mentioned some of the articles from the journal.

An important problem has been to consider unbiased estimates of the reliability function $\bar{F}(t) = P(T > t)$. A survey of this is given in Basu (1985). The problem of unbiased estimates of reliability, however, is a special case of the general problem of unbiased estimation studied in depth by Kolmogorov (1950). Kolmogorov's work has inspired considerable research on unbiased estimates of reliability (see, for example, Lumel'skii and Sapozhnikov (1969), who also considered unbiased estimates for multivariate normal distributions and multivariate discrete distributions). The case of the multivariate normal distribution was also studied independently by Ghurye and Olkin (1969) in the USA, whereas Klein and Basu (1985) have considered bivariate exponential distributions. It may be of interest to note that, because of Kolmogorov's work, the Rao-Blackwell theorem is also referred to as the Rao-Blackwell-Kolmogorov theorem in the Russian literature.

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Similarly, because of the extensive contribution of Gnedenko, the Weibull distribution is also referred to as the Weibull-Gnedenko distribution in the Russian literature (see, for example, Savvushkina and Tyurin, 1984).

Besides Weibull and exponential distributions, other models have also been considered. For example, Volodin (1974) has considered the discrimination of gamma and Weibull distributions assuming a generalized gamma distribution as model.

This is an important survey of Soviet work on reliability, and I would like to thank the authors for their important contributions. I wish we had a more exhaustive survey of the area. I hope that additional Soviet books and papers on reliability will be translated into English.

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