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BOOK REVIEW

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BECHHOFER, R. E., KIEFER, J. AND SOBEL, M. *Sequential Identification and Ranking Procedures (with special reference to Koopman-Darmois populations)*. The University of Chicago Press, Chicago and London, 1968. xvii+420 pp. $17.50.

Review by SHANTI S. GUPTA
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In many practical situations the experimenter is confronted with the problem of choosing the best (or t best) from a group of k populations (categories, processes, etc.). The classical tests of homogeneity, though long used in these situations, did not adequately answer the real questions. A more meaningful formulation was provided in response to this need in the form of what is now commonly known as multiple decision or ranking and selection procedures. Since the early investigations of Bechhofer [*Ann. Math. Statist.* **25** (1954), 16–39], who considered the normal means problem under a formulation now commonly referred to as the indifference zone approach, many authors have contributed to various aspects of the problem with different modifications in the goal. Most of the early endeavors were devoted to single stage procedures. Some investigations were made relating to two-stage procedures. The initial efforts in the area of sequential procedures by two of the present authors date back to the mid-fifties. With challenging questions arising one after another and the enthusiasm of three very competent mathematical statisticians to match them, it is no surprise that what was intended to be a short paper grew to become the present monograph. It is true that during the years of preparation of this monograph some papers have been published in the area of sequential ranking procedures, but there has been practically no overlap and the importance of the contribution made by this work has in no way been diminished.

The basic problem investigated by the authors can be briefly described as follows. Suppose there are k populations with parameters $\theta_1, \theta_2, \cdots, \theta_k$. For an identification problem, it is assumed that the θ_i are known but not the true pairing of the populations and the ordered θ_i which are denoted by $\theta^0_{[1]} \leqq \theta^0_{[2]} \leqq \cdots \leqq \theta^0_{[k]}$. Assuming that $\theta^0_{[k-1]} < \theta^0_{[k]}$, a possible identification goal would be "to identify the population associated with $\theta^0_{[k]}$." For a ranking problem, it is assumed that the θ_i are unknown and that the experimenter has