Standard error formulas due to Anderson (1946) for making comparisons among means by the t test, when only one score has been estimated, are shown below.

Comparisons among $\bar{A}_i$ means can be made using the following t denominator:

$$\sqrt{\frac{2[\text{MS}_{\text{subj w.groups}} + \frac{1}{2}(n-1)(q-1)(\text{MS}_{B\times\text{subj w.groups}})]}{nq}}.$$

Comparisons among $\bar{B}_j$ means employ the following t denominator:

$$\sqrt{\frac{2\text{MS}_{B\times\text{subj w.groups}}[1 + \frac{1}{2}(n-1)(q-1)(q/p)]}{np}}.$$

Comparisons among $\overline{AB}_{ij}$ means at level a_i use the following denominator:

$$\sqrt{\frac{2\text{MS}_{B\times\text{subj w.groups}}[1 + \frac{1}{2}(n-1)(q-1)(q/p)]}{n}}.$$

Comparisons among $\overline{AB}_{ij}$ means at level b_j use the following denominator:

$$\sqrt{\frac{2\text{MS}_{\text{subj w.groups}}/nq + 2\text{MS}_{B\times\text{subj w.groups}}[(q-1) + \frac{1}{2}(n-1)(q-1)(q^2)]}{nq}}.$$

The foregoing formulas are used in comparing means based on one estimated missing score. Procedures for determining the critical value for the t test for pooled error terms appear in Section 8.7. If a comparison among means does not involve a missing score, formulas given in Section 8.7 are appropriate.

If several missing scores occur in designs having three or more treatments, the reader should consult Hazel (1946), Henderson (1953), and Krishna Iyer (1940).

8.11 RELATIVE EFFICIENCY OF SPLIT-PLOT DESIGN

An experimenter wishing to use a multitreatment factorial design with subjects assigned to blocks may consider two of the designs described thus far—a randomized block factorial design and a split-plot design. However, he should examine several factors in choosing between these two designs. If it is not possible to administer all treatment level combinations within each block, there is no choice. A split-plot design is required. On the other hand, if there is a choice concerning the assignment of treatment combinations in each block, the relative efficiency of the A,