18. **A 2 × 2 Factorial with Paired Comparisons.** ROBERT M. ABELSON, AND RALPH ALLAN BRADLEY, Virginia Polytechnic Institute.

The parameters previously specified for a method of paired comparisons are redefined in such a way as to permit the use of treatments in factorial array. The algebraic procedure is shown in general but the normal equations resulting from the use of maximum lieklihood are nonlinear and difficult to solve. Easy solution of the normal equations seems to be limited to the 2 × 2 factorial and an explicit solution is given for that case. The method of paired comparisons presented for 2 × 2 factorial treatments permits most of the comparisons available through usual analysis of variance. It is possible to test for the presence of both main effects and their interaction. A numerical example is included.

19. **On Wald's Confidence Interval for the Ratio of Variances in a Variance Components Model.** W. A. THOMPSON, JR., Virginia Polytechnic Institute and University of North Carolina.

Wald's confidence interval ("A note on regression analysis," *Ann. Math. Stat.*, Vol. 18 (1947), p. 586) is specialized to the case of incomplete block designs with random block effects. A theorem concerning the multiplicity of the characteristic roots of the variance-covariance matrix of the adjusted yields is discussed and applied to Wald's confidence interval. A practical example is discussed. This work was done under contracts with the Air Force and the Quartermaster Corps.

NEWS AND NOTICES

Readers are invited to submit to the Secretary of the Institute news items of interest

Personal Items

Paul M. Blunk has accepted the position of Operations Analyst with the Consolidated Vultee Aircraft Corporation at Fort Worth, Texas.

Dr. R. S. Burlington, Chief Mathematician of the Bureau of Ordnance, Navy Department, and head of the Evaluation and Analysis Group of the Bureau of the Ordnance, has been named Special Assistant to the Director of Research and Development, Bureau of Ordnance, Navy Department, Washington, D. C.

Visiting Associate Professor Kai Lai Chung of Cornell University has been appointed Associate Professor at Syracuse University. He is in charge of an ARDC Research project on probability and statistics there.

Charles W. Dunnett, formerly Biometrician for the Food and Drug Laboratory, Ottawa, Canada, is now on the statistical staff of the Lederle Laboratories Division of the American Cyanamid Company located in Pearl River, New York.

Edward A. Fay, formerly a graduate student at the University of California, has been employed since September 1950 as a statistician with the United States Naval Ordnance Test Station, China Lake, California.

Professor E. J. Gumbel, Columbia University, has been appointed Visiting Professor for Statistics at the Free University, Berlin (West) for the summer term 1954. Professor Gumbel has also been elected a member of the International Statistical Institute at The Hague.

Stuart T. Hadden, formerly Chemical Engineer with the Research & Develop-