19. The Nonexistence of Difference Sets for Group Designs. S. S. SHRIKHANDE, Nagpur College of Science, India.

The following theorem is proved. *Let $v = mn$, where n is a prime congruent to 3 (mod. 4). Let nonnegative integers λ_1 and λ_2 satisfy the relation $k(k - 1) = (m - 1)\lambda_1 + (n - 1)m\lambda_2$. Define $\theta = k + \lambda_1(m - 1) - \lambda_2 m$ and let ϕ be a prime factor of θ occurring in it to an odd degree. Then if $(-n/\phi) = -1$, where (q/p) stands for the Legendre symbol, there does not exist a difference set of k integers which gives rise to a group design* (K. R. NAIR AND C. R. RAO, "A note on partially balanced incomplete block designs," *Science and Culture*, Vol. 7 (1942), pp. 615–616) *with parameters $v = b = mn$, $r = k$, λ_1, λ_2, where there are n groups of m treatments each, in b blocks of size k, such that each pair of varieties from the same group occurs in λ_1 blocks while each pair of varieties coming from different groups occurs in λ_2 blocks.* This generalizes a result of Chowla ("On difference sets," *Proc. Nat. Acad. Sci.*, Vol. 35 (1949), pp. 92–94), the proof following along the lines of his paper.

20. Concerning Large-Sample Tests and Confidence Intervals for Mortality Rates. JOHN E. WALSH, Bureau of the Census.

This is an extension of the paper "Large-sample tests and confidence intervals for mortality rates" which appeared in the June, 1950 issue of the *Journal of the American Statistical Association*. The results of this other article are placed on an axiomatic basis and the validity of these axioms is discussed. The basic underlying concepts are explained and some numerical examples of applications are worked out. Also additional significance tests and confidence intervals are presented.

NEWS AND NOTICES

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

Personal Items

The Shewhart Medal for outstanding service and leadership in the field of quality control was awarded to Dr. Martin A. Brumbaugh, Director of Statistics at Bristol Laboratories, Inc., Syracuse, New York, at the convention of the American Society for Quality Control in Cleveland May 23 and 24. Dr. Brumbaugh is a founder of the American Society for Quality Control and at this time is first vice-president of the group.

Dr. W. Edwards Deming visited Japan in July, 1950, and delivered a number of lectures and conducted two 8-day courses in quality control in Tokyo and Fukuoka. Considerable interest in statistical methods and quality control among Japanese engineers and industrialists has arisen, largely as result of this visit.

Mr. John C. Hintermaier, formerly Superintendent of Development, Standards Testing Laboratories, Cluett Peabody & Co., Research Division, Troy, New York, is now with the Textile Materials Engineering Laboratory, Philadelphia Quartermaster Depot, Philadelphia 45, Pennsylvania.

Mr. Roy R. Kuebler, Jr. is returning to his position of Associate Professor of Mathematics at Dickinson College, Carlisle, Pennsylvania, after a year's leave.

Mr. Marvin Masel has resigned his position as Engineering Statistician with the

Goodyear Aircraft Corporation at Akron, Ohio, to accept employment with the Carrier Equipment Planning and Development Organization, Western Electric Company, Kearney, New Jersey.

Dr. C. A. Metzner has transferred from the Survey Research Center at the University of Michigan, where he served as Study Director, to the School of Public Health to direct the social program. His new title will be Research Associate of the Bureau of Health Economics.

Mr. W. E. Patte is now employed in the Control Department of the Laurentide Division, Consolidated Paper Corporation, Ltd., Grand'Mere, Quebec. He formerly held the position as Senior Chemist at the E. B. Eddy Co., Hull, Quebec.

Mr. Bernard E. Phillips, who has been with the Operations Research Office of the Johns Hopkins University for the last one and a half years doing work for the Army as a mathematical statistician, has accepted a position with the Parsons-Aerojet Co. His work is in the evaluation of trajectory-measuring instrumentation systems as Statistical Engineer.

Professor Paul R. Rider is on leave of absence from Washington University to act as Mathematical and Statistical Adviser to the Chief of Air Research, Wright-Patterson Air Force Base, Dayton, Ohio.

Dr. Harry G. Romig, formerly a member of the Technical Staff of the Bell Telephone Laboratories, Inc., has accepted a position as Staff Engineer, Hughes Aircraft Co., Culver City, California.

Dr. Monroe G. Sirken has been a Research Associate in the Statistical Laboratory, University of California, during the past academic year, while a postdoctoral fellow of the Social Science Research Council. He has accepted a position as Assistant Professor and Research Associate in the Survey Research Center at the University of Michigan.

Mr. E. Webb Stacy, formerly of the University of North Carolina, has been appointed Assistant Professor of Statistics in the Department of Statistics of the College of Commerce and Industry, University of Wyoming. He has recently been elected First Vice President of the Denver, Colorado, Chapter of the American Statistical Association for the coming year.

Dr. William F. Taylor has been appointed Chief, Department of Biometrics, at the School of Aviation Medicine, Randolph Air Force Base, Texas. He had been with the School of Public Health, University of California, serving as an Associate.

Mr. Dan Teichroew, as an employee of the Institute of Statistics, Raleigh, North Carolina, will be in Washington for some special work with the National Bureau of Standards beginning July 1, 1951.

Dr. John E. Walsh, formerly with the Rand Corporation, is now a Consultant with the U. S. Bureau of the Census, Washington, D. C.

Professor Jacob Wolfowitz joined the Department of Mathematics at Cornell University in July, 1951.

Mr. Roger D. Keeney of the Metropolitan Life Insurance Co. died of polio last September.

The Educational Testing Service is offering for 1952–53 its fifth series of research fellowships in psychometrics leading to the Ph.D. degree at Princeton University. Open to men who are acceptable to the Graduate School of the University, the two fellowships each carry a stipend of $2,375 a year and are normally renewable.

Fellows will be engaged in part-time research in the general area of psychological measurement at the offices of the Educational Testing Service and will, in addition, carry a normal program of studies in the Graduate School. Competence in mathematics and psychology is a prerequisite for obtaining these fellowships. The closing date for completing applications is January 18, 1952. Information and application blanks will be available about November 1 and may be obtained from: Director of Psychometric Fellowship Program, Educational Testing Service, 20 Nassau Street, Princeton, New Jersey.

New Members

The following persons have been elected to membership in the Institute

(March 1, 1951 to May 31, 1951)

Abrams, George W., M.A. (Columbia Univ.), Member of Technical Staff, Bell Telephone Laboratories, *306 W. 92nd Street, New York 25, New York.*

Bagg, John L., M.S. (Univ. of Ill.), Graduate Assistant, Mathematics Department, Michigan State College, *403 B, Willow Lane, E. Lansing, Michigan.*

Baranow, Lotty v., Ph.D. (Univ. Berlin), Licensed expert in Insurance Science, Economic Mathematics and Mathematical Statistics, *Nymphenburgerstrasse, 36 III, Munich 2, Germany, U. S. Zone.*

Bicking, Charles A., M.S. (Mass. Inst. of Technology), Ordnance Research and Development Division, Office of the Chief of Ordnance, Washington, D. C.

Billingsley, Patrick, B.S. (U. S. Naval Academy), Graduate Student, Princeton University, Box 708, Fine Hall, Princeton, New Jersey.

Bjerve, Petter J., Director of the Central Bureau of Statistics, Dronningensgate 16, Oslo, Norway.

Bott, George, S.M. (Mass. Inst. of Technology), D.I.C. Staff Member, Massachusetts Institute of Technology, *1728 Queens Lane, Apt. 180, Colonial Village, Arlington, Virginia.*

Brown, Mrs. L. T. (Bernice), M.S. (Iowa State College), Research Statistician, Rand Corporation, 1500 Fourth Street, Santa Monica, California.

Burkhardt, Felix, Ph.D., Professor of Mathematical Statistics, University of Leipzig, Mehringstrasse 16, Markkleeberg bei Leipzig, Germany.

Cohen, Doris H., B.A. (Hunter College), Graduate Student, University of Michigan, *252 Alice Lloyd Hall, Ann Arbor, Michigan.*

Culabutan, Paz B., B.S. (Univ. of Philippines), Researcher, General Trias, Cavite, Philippines.

Danford, Masil B., M.A. (Univ. of Texas), Graduate Student, Institute of Statistics, North Carolina State College, Raleigh, North Carolina.

Dowd, John E., B.C. (Univ. of Manitoba), Graduate Student, University of Manitoba, *290 Langside Street, Winnipeg, Manitoba, Canada.*

Easterbrook, Marjorie J., A.M. (Univ. of Mich.), Graduate Student, University of Michigan, *83 E. Girard Boulevard, Kenmore 17, New York.*

Engel, Jerome N., B.S. (Univ. of Mich.), Graduate Student, University of Michigan, *711 Haven Avenue, Ann Arbor, Michigan.*

Fend, Alvin V., M.S. (Univ. of Ill.), Assistant, Mathematics Department, University of Illinois, *910 College Court, Apt. 609, Urbana, Illinois.*

Gamoneda, Ramon G., Ph.D., Assistant Professor of Financial Mathematics and Business Statistics, University of Havana, *Presidente Zayas N-152, Havana, Cuba.*

Gordon, Eugene S., B.S. (Univ. of Mich.), Assistant, Statistical Research Laboratory, University of Michigan, *914 S. State Street, Ann Arbor, Michigan.*

Gourrich, George E., M.S. (Univ. of Calif. at L.A.), Research Engineer, Northrop Aircraft, Inc., Hawthorne, California, *12830 Parkyns Street, Los Angeles 49, California.*

Graf, Ulrich, Ph.D., Professor of Engineering and Lecturer in the Philosophy-Theological School, Bamberg, *Rubensstrasse 4, (22a) Wuppertal-Vohwinkel, Germany.*

Harrington, Gordon M., B.E.E. (Georgia Tech.), Research Associate, Educational Research Corporation, 10 Craigie Street, Cambridge 38, Massachusetts.

Hood, William C., Ph.D. (Univ. of Toronto), Assistant Professor of Economics, Department of Political Economy and Special Lecturer in Statistics, Institute of Business Administration, University of Toronto, 273 Bloor Street, W., Toronto, Canada.

Jennings, Walter, M.A. (Ohio State Univ.), Associate Professor of Mathematics and Mechanics, U. S. Naval Postgraduate School, *919 Creek Drive, Annapolis, Maryland.*

Johnson, Ralph B., M.A. (Columbia Univ. & Univ. of Tenn.), Instructor of Mathematics, Clemson Agricultural College, *113 Edgewood Avenue, Clemson, South Carolina.*

Leader, Virginia A., B.A. (Univ. of Mich.), Graduate Student, University of Michigan, *Alice Lloyd Hall, Ann Arbor, Michigan.*

Lindquist, Gerald E., B.A. (Univ. of Mich.), Assistant to the Actuary, Michigan Department of Insurance, *1341 Alexander Street, S.E., Grand Rapids 6, Michigan.*

Magwire, Craig A., M.S. (Univ. of Mich.), Graduate Student and Teaching Assistant, Stanford University, *315-12 Stanford Village, California.*

Malach, Robert J., M.A. (Univ. of Ill.), Graduate Student, University of Illinois, *1112 W. Oregon, Urbana, Illinois.*

Mauldon, J. G., M.A. (Oxford Univ.), Fellow, Tutor and Lecturer, Corpus Christi College, Oxford, England.

Muller, Mervin E., M.A. (Univ. of Calif. at L.A.), Graduate Student and Teaching Assistant, University of California at Los Angeles, *1061 N. Sierra Bonita Ave., Hollywood 46, California.*

Nassimbene, Raymond, A.B. (Univ. of Denver), Economist, Office of Business Economics, U. S. Department of Commerce, *3709 Northampton, N.W., Washington, D. C.*

Probst, David A., M.S. (Univ. of Pittsburgh), Graduate Student, University of North Carolina and Geologist, Gulf Research & Development Company, Pittsburgh, P. O. Drawer 2038, Pittsburgh 30, Pennsylvania.

Razgunas, Leo, B.S. (Univ. of Mich.), Graduate Student, Department of Mathematics, University of Michigan, *555 Packard Avenue, Ann Arbor, Michigan.*

Richter, Hans, Ph.D. (Univ. of Leipzig), Professor, University of Freiburg, *Elektraweg 2, (17b) Haltingen Krs., Lorrach, Germany.*

Roberts, Helen M., A.M. (Boston Univ.), Assistant Professor of Mathematics, University of Connecticut, Storrs, Connecticut.

Roshwalb, Irving, M.A. (Columbia Univ.), Statistician, Opinion Research Corporation, 44 Nassau Street, Princeton, New Jersey, *721 Walton Avenue, New York 51, New York.*

Sasso S., Roberto, Chief, Machine Tabulation Section, Direccion Gral. de Estadistica, *P. O. Box No. 186, San Jose, Costa Rica.*

Schiller, Nathan, B.A. (Univ. of Mich.), Graduate Student, Department of Mathematics, University of Michigan, *407 E. Liberty, Ann Arbor, Michigan.*

Shank, Ellsworth B., B.S. (Franklin & Marshall College), Analytical Statistician, Ballistics Research Laboratory, Aberdeen Proving Ground, Maryland, *65 South Grant Street, Manheim, Pennsylvania.*

Smith, Harry, Jr., M.A. (Univ. of Del.), Graduate Student in Mathematical Statistics, University of North Carolina, *1 E. Lake Street, Middletown, Delaware*.

Stanley, J. Perham, M.S. (Toronto), Assistant Statistician, Abitibi Power & Paper Company, Ltd., *408 University Avenue, Toronto, Canada*.

Symons, Nancy, B.A. (Univ. of Mich.), Graduate Student, Department of Mathematics, *Martha Cook Building, Ann Arbor, Michigan*.

Toranzos, Fausto I., Ph.D. (Univ. of LaPlata, Argentina), Professor of Statistics, University of Cuyo, *Luzuriaga 267, Mendoza, Argentina*.

Van Vliet, Clement J., M.A. (Univ. of Calif. at L. A.), Statistician, U. S. Navy Electronics Laboratory, *San Diego 52, California*.

Wegner, Louis H., Jr., B.S. (Oregon State College), Research Assistant, Department of Mathematics, University of Oregon, *2227-3 Patterson, Eugene, Oregon*.

Wheeler, Ruric E., M.S. (Univ. of Kentucky), Instructor and Student, Mathematics Department, University of Kentucky, *Lexington, Kentucky*.

Wilde, Richard D., B.S. (Iowa State College), Engineer, Divisional Quality Control, Cathode Ray Tubes, Sylvania Electric, *25 Troy Street, Seneca Falls, New York*.

Wishart, David M. G., B.Sc. (Univ. of St. Andrews, Scotland), Graduate Student and Assistant in Research, Department of Mathematics, Princeton University, *Graduate College, Princeton, New Jersey*.

Yeilding, Richard P., M.A. (Oklahoma Univ.), Graduate Student, Institute of Statistics, University of North Carolina, *Glen Lennox, 43-A, Chapel Hill, North Carolina*.

Zaluar-Nunes, Manuel, B.Sc. (London), President, Sociedade Portugesa de Matematica, *Rua Serpa Pinto 17, Lisbon, Portugal*.

Zillig, Quentin V., M.S. (Marquette Univ.), Experimental Engineer, Ladish Co., Cudahy, Wisconsin, *1924 Forest Street, Wauwatosa 13, Wisconsin*.

Correction to "News and Notices, New Members," March, 1951:

Wunsche, Gunther, Dr. rer. Techn. (Techn. Univ. of Dresden), Chefmathematiker and Prokurist, Universitätsdozent, *Lenbachplatz 4, Munich 2, Germany*.

REPORT OF THE SANTA MONICA MEETING OF THE INSTITUTE

The forty-seventh meeting (seventh West Coast meeting) of the Institute was held in Santa Monica, California, June 15th and 16th, 1951, at the offices of The Rand Corporation. The Biometric Society (Western North American Region) joined the Institute in sponsoring the meeting. Ninety-eight persons registered for the meeting, including the following forty-eight members of the Institute:

Leo A. Aroian, Kenneth J. Arrow, G. A. Baker, Blair M. Bennett, David Blackwell, Julius R. Blum, Bernice Brown, George W. Brown, Thomas A. Budne, Douglas G. Chapman, Edwin L. Crow, J. H. Curtiss, R. C. Davis, George Gerard Denbroeder, W. J. Dixon, Mary Elveback, Edward A. Fay, Evelyn Fix, Robert S. Gardner, M. A. Girshick, Jack C. Gysbers, T. E. Harris, J. L. Hodges, Jr., Paul G. Hoel, W. C. Hoffman, John M. Howell, Eric R. Immel, T. A. Jeeves, M. G. Kendall, Dorothy Cruden Lowry, A. W. Marshall, Frank J. Massey, Ray Mickey, A. M. Mood, L. E. Moses, Mervin Muller, Melvin P. Peisakoff, R. P. Peterson, Joseph Putter, R. R. Putz, Harry G. Romig, Herman Rubin, Elizabeth L. Scott, R. W. Shephard, R. C. Stillinger, Robert F. Tate, D. van Dantzig, and Mrs. Zivia S. Wurtele.