34. On the Construction of Fractional Factorial Designs, (Preliminary Report), ROBERT C. BURTON, National Bureau of Standards.

For a $1/s^p$ fraction of an s^n factorial design, the identity relationship contains $(s^p - 1)/(s - 1)$ "words." For example, if $s = 3$, $n = 6$, and $p = 2$, the factors may be denoted by $A, B, \cdots, G$ and a possible identity relationship is $I = ABC^2D^2 = CDEF = ABEF = ABCDE^2F^2$, where I is the identity element and ABC^2D^2, $CDEF$, $ABEF$, and $ABCDE^2F^2$ are the three words. Necessary and sufficient conditions are given for constructing an identity relationship containing words having prescribed numbers of letters of each power. The argument consists of regarding the words as sets of elements, and showing that they may be expressed as unions of certain disjoint sets. (Received July 9, 1956.)

NEWS AND NOTICES

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

Personal Items

The Mathematics Department of Catholic University is pleased to announce a lecture series in the field of Mathematical Statistics. The lecture series will start with the beginning of the academic year 1956–57. It is planned to invite prominent mathematical statisticians from the East Coast or visiting the East Coast to give addresses. The cooperation of other universities and interested organizations in the area will be sought. Enquiries concerning the lecture series may be addressed to the Department of Mathematics of Catholic University.

Dr. Raymond H. Burros has accepted an appointment as operations research analyst with Technical Operations, Inc. and is attached to the Combat Operations Research Group, Fort Monroe, Virginia. During the academic year 1954–1955, Dr. Burros was visiting associate professor of psychology in the University of Houston. In the fall of 1955 he held a temporary appointment as director, Validation Department, Institute for Motivational Research, Inc.

Herbert T. David, lecturer in the Committee on Statistics of the University of Chicago, has accepted a position at Iowa State College, beginning in September 1956, as assistant professor in the Statistical Laboratory and the Department of Statistics for teaching, research and consulting work in industrial statistics.

Richard De Lancie, now a partner in Broadview Research and Development, has returned to the home office in Burlingame, California, after establishing a Washington, D. C. office for the firm.

James R. Duffett, formerly at White Sands Proving Ground, is now at Radio Plane Company, Van Nuys, California.

The Copley Medal has been awarded by the Royal Society to Sir Ronald Fisher, F.R.S., Arthur Balfour Professor of Genetics, Cambridge University, for contributions to developing the theory and application of statistics for making quantitative a vast field of biology.

Marvin A. Kastenbaum was awarded a Ph.D. degree in Experimental Statistics at North Carolina State College in January 1956. He is now employed as a statistician on the Mathematics Panel at the Oak Ridge National Laboratory.

Wharton F. Keppler has transferred from an Operations Analyst position, Air Proving Ground Command, Eglin AFB, Florida, to the position of Chief, Statistics Section, Engineering Sciences Division, Signal Communications Dept., Army Electronic Proving Ground, Fort Huachuca, Arizona.

Frank J. Massey, Jr. has accepted an appointment as Associate Professor of Biostatistics, School of Public Health, University of California at Los Angeles.

Paul L. Meyer has accepted the position of Assistant Professor in the Department of Mathematics at Washington State College. Since the completion of his Ph.D. at Stanford University in 1954, he has been serving his tour of duty as a statistician with the Chemical Corps of the U. S. Army.

Joseph M. Moser has started work on his Ph.D. degree at the second semester of the year 1955–1956 in mathematics, after spending seven months working for the U. S. Army Ord. Corps at Aberdeen, Indiana.

George McLaughlin, who received his M.A. in mathematical statistics at the University of Toronto in 1955, is now statistician for the Canadian Armament Research and Development Establishment, Valcartier, Quebec, Canada.

John F. Pauls has been given the George W. Snedecor Award in Statistics for 1956 by vote of the graduate faculty in statistics at Iowa State College. The award, established by the Statistical Laboratory to honor its first director, is given annually to the most outstanding candidate for the Ph.D. degree in statistics at the college. Pauls has accepted a position as research statistician with Smith, Kline & French Laboratories in Philadelphia, beginning in June 1956.

K. C. Sreedharan Pillai has been deputed for a year by the United Nations Technical Assistance Administration to the Philippines as UN Senior Statistical Advisor, at the Statistical Center, University of the Philippines.

Dr. Paul R. Rider of the Wright Air Development Center, Wright-Patterson Air Force Base, Ohio, will spend the summer on temporary duty with the Summer Research Group of the Holloman Air Development Center, at Cloudcroft, N. M.

Gerhard Tintner has been granted leave from Iowa State College to accept a position as visiting professor of econometrics at the University of Vienna, Austria, for the 1956–57 academic year. During his absence, William M. Gorman, lecturer and head of the Department of Economics & Statistics, University of Birmingham, England, will teach courses in econometrics and econometric statistics at Iowa State under a visiting professorship.

John S. White, formerly Assistant Professor of Statistics at the University of Manitoba, has accepted a position in the Operations Analysis Department of Ball Brothers Co., Muncie, Indiana.

Robert F. White received the degree of Master of Science with statistics major in June at Iowa State College; he is continuing work there toward a Ph.D. in statistics.

Martin B. Wilk has resigned from the Statistical Laboratory, Iowa State

College, effective June 30, 1956 to remain another year at Princeton University, doing statistical research.

Samuel Zahl, formerly working for the United Community Services of Boston, Mass., is now working for R.C.A. at their Aviation Systems Lab. in Waltham, Mass., as a mathematical statistician.

Zenon Szatrowski, Chairman of the Statistics Department, School of Business Administration, University of Buffalo, is on leave for the period 1955–1957. His present position is that of Staff Consultant at the Scientific Computing Center, International Business Machines Corporation, 590 Madison Avenue, New York City. He is working on the application of electronic computers to statistical problems.

New Members

The following persons have been elected to membership in the Institute

February 11, 1956 to May 15, 1956

Aries, Robert S., D.Chem.Eng. (Polytechnic Inst. of Brooklyn), President of R. S. Aries and Associates, 270 Park Avenue, New York 17, New York.

Baker, Frances Ellen, Ph.D. (University of Chicago), Professor of Mathematics, Vassar College, Poughkeepsie, New York.

Bradley, Milton N., M.I.E. (New York University), Quality Control Engineer, Radio Corporation of America, Tube Division, 415 South 5 Street, Harrison, New Jersey, *2481 Davidson Avenue, Bronx 68, New York.*

Braumann, Pedro Bruno Teodoro, Math.D. (Faculty of Sciences of Lisbon, Portugal) Assistente at the Faculty of Sciences of Lisbon, Portugal, Rua da Escola Politecnica, Lisbon, Portugal.

Chew, Victor, B.Sc. (Univ. of Western Australia), Asst. Prof. Dept. of Agronomy, College of Agriculture, Univ. of Florida, Box 3568, University Station, Gainsville, Florida.

Cohen, P. M., B.S. (Virginia Polytechnic Institute), Graduate Assistant, Statistics Department, Stanford University, Stanford, California.

Cornell, R. G., M.S. (Va. Polytechnic Inst.), Graduate Fellow, Oak Ridge National Laboratory, Institute of Nuclear Studies, P.O. Box P, Oak Ridge, Tennessee.

Cramer, Elliot M., B.S. (Mass. Inst. of Tech.), Graduate Student, Department of Psychology, The Johns Hopkins University, Baltimore, Maryland.

Derwort, Bernard John, Ph.D. (St. Louis University), Instructor, Mathematics Department, St. Louis University, St. Louis, Missouri.

Hagatong, A. F. DeOliveira, Ec.D. (Lisbon Technical University), Statistician, Economist, Comissão Reguladora do Comércio de Bacalhau, do Ministério da Economia, Alcantara, Lisboa, Portugal, *Rua de Mocambique, 21-1.°—Lisboa, Portugal.*

Hammersley, J. M., M.A. (Oxford), Lecturer, Trinity College, Oxford, England, *Theoretical Physics Division, United Kingdom Atomic Energy Research Establishment, Harwell, Berkshire, England.*

Hatori, Tsukasa, B.S. (Tokyo Imperial Univ.), Asst. Prof., Dept. of Mathematics, Tokyo Literary University, 35 3-chome, Simouma Setagaya-ku, Tokyo, Japan, *266 Sakuragaoka Hodogaya-ku, Yokohama, Japan.*

Hromi, John D., M.Litt. (Math), (Univ. of Pittsburgh), Technologist, U. S. Steel Corp. Applied Research Laboratory Monroeville, Pennsylvania.

Klauber, Melville R., A.B. (Stanford Univ.), Research Assistant, Applied Mathematics and

Statistics Laboratory, Stanford University, Stanford, California, *Bldg. 201, Apt. 3, Stanford Village, Stanford, Calif.*

Krumbein, William C., Ph.D. Geology (University of Chicago), Professor of Geology, Northwestern University, Evanston, Illinois.

Kullback, Joseph Henry, B.A. (George Washington University), Graduate Student, Stanford University, Department of Statistics, Stanford, Calif.

Kwo, T. T., D.Eng.Sc. (Columbia University), Research Engineer, General Electric Co., Appliance Park, Louisville 1, Kentucky.

Ladouceur, J. C., M.Sc.(Math.) (University of Montreal), Professor, Department of Mathematics, College Militaire Royal de St.-Jean, St. Jean, P. Q., Canada.

Leckie, D. S., M.S. (Case Inst. of Technology), Quality Control Engineer, Republic Steel Corp. 1527 Republic Bldg., Cleveland 1, Ohio, *5806 Clinton Avenue, Cleveland 2, Ohio.*

Lewis, Julian I., B.S. (Penna. State University), Asst. Adm., Pharmacology Dept., Hoffmann-La Roche Inc., Kingsland Road, Nutley 10, New Jersey.

Lindholm, Carroll R., MSEE (Illinois Inst. of Technology), Electronics Engineer, Motorola Research Laboratory, 8330 Indiana Avenue, Riverside, Calif., *5831 Willard Way, Riverside, Calif.*

McLoughlin, G., M.A. (New York University), Mathematical Statistician, Office of The Chief of Transportation, Dept. of the Army, General Traffic Division, Bldg. T-7, Washington 25, D. C., *800 South Washington St., Bldg. A., Apt. 104, Alexandria, Virginia.*

Oliver, Robert M., B.Sc. (Mass. Inst. of Technology), student, M.I.T., Cambridge, 39, Mass., *2 Grey Gardens East, Cambridge 38, Mass.*

Patwary, Kamini M., M.S., Statistics (Virginia Polytechnic Institute), Graduate Assistant, Statistics Department, American University, 1901 F St., N. W., Washington, D. C., *1731 21st St., N. W., Washington, D. C.*

Pruitt, William E., B.S., (Oklahoma A. and M. College), Research Assistant, Mathematics Department, Oklahoma A. and M. College, Stillwater, Oklahoma.

Rao, Cayampudi Radhakrishna, Ph.D. (Cambridge), Head of Div. of Theoretical Research and Training, Indian Statistical Inst., 203 B. T. Road, Calcutta 35, India.

Ravitch, Herman, B.S. (Univ. of Penna.), Statistician in meteorology (private in U. S. Army, 52 341 509), 9470 TU Det 5, Fort Huachuca, Arizona.

Rowan, W. H., B.S. (Wayne Univ.) Sr. Research Chemist, Metal and Thermite Corp., 1700 East Nine Mile Road, Ferndale Station, Detroit 20, Michigan.

Sligo, Joseph R., Ph.D. (State University of Iowa), Lecturer in Mathematics, University of Nevada, Reno, Nevada, *1791 W. 4th St., Reno, Nevada.*

Thomson, Barbara, B.A., (Univ. of Oregon), Graduate Assistant, Dept. of Statistics, Stanford University, Stanford, California.

Thompson, James E., M.S. (Univ. of Wisconsin), Analyst, Dept. of Defense, Washington 25, D. C., *812-20th St., N.W., Washington 6, D. C.*

Williams, Gregory P., A.B. (Columbia College), Statistical Analyst, General Electric Co., Evandale, Ohio, *2532 Highland Ave., Cincinnati 19, Ohio.*

INSTITUTIONAL MEMBERS

Bell Telephone Laboratories Inc., Technical Library, 463 West St., New York 14, N. Y.
Slepian, Dr. D., (Designated Representative for Bell Tel. Labs. Inc.), Bell Telephone Laboratories, Inc., Murray Hill, New Jersey.
Pauls, John F., Statistical Laboratory (representative for Iowa State College), Ames, Iowa.

Iowa State College to Offer Undergrad Scholarships in Statistics

The Statistical Laboratory of Iowa State College has been given a grant of funds by the Westinghouse Electric Corporation to support four annual under-

graduate scholarships of $500 each. Known as the Westinghouse Scholarships in Statistics, they will be awarded to students who (1) will be enrolled as statistics majors (juniors or seniors) at ISC during the year for which scholarships are given and (2) will have completed a year of college calculus before that time. The awards will be made by a committee in the Statistical Laboratory on the basis of general scholastic achievement, ability and need for financial assistance. According to D. W. Gunther, Manager of the Materials Engineering Department, Westinghouse believes that such an undergraduate cooperative scholarship program would help attract students to statistics as a career and thus increase the supply of statisticians available to industry.

Another recent move in the same direction was the establishment of a $1350 graduate fellowship in industrial statistics at Iowa State for the 1956–57 year. The nine-month fellowship, which carries no duties or obligations, is supported by a grant from the B. F. Goodrich Chemical Company and administered through the college Alumni Achievement Fund.

PUBLICATIONS RECEIVED

Curva Logistica de la Poblacion de España, Instituto Nacional de Estadística, Ferraz, 41, Madrid, Spain, Serie A, Demografía—1, 1956, 31 pp.

JUDSON, LEWIS V., *Units and Systems of Weights and Measures*, National Bureau of Standards Circular 570, April 1956, 29 pp., 12 halftone illustrations, 25 cents. (Order from the Government Printing Office, Washington 25, D. C.).

Tables of the Cumulative Binomial Probabilities, Ordnance Corps., PB 111389, September 1952, 575 pp., $6.00. (Order from Office of Technical Services, Department of Commerce, Washington 25, D. C., Attention: James E. Wheat, Jr., Chief of Publications and Information.).