

A Non-Rigorous History of the Mathematics
Department of the University of Toledo
by Richard W. Shoemaker

Preface

Sometime ago Lamar Bentley Suggested that a history of the mathematics department of the University of Toledo should be written. In undertaking this project the author has relied on Frank Hickerson's, The Tower Builders, an excellent history of the University; on the regrettably few departmental annual reports and university personnel records; on the minutes of certain meetings of the University Board of Trustees; and on the Archives' incomplete collection of University catalogs and bulletins. Because of the time lag built into these last documents, the information in University publications is not always complete, or current, or accurate. For this reason there will be small errors in the account which follows. The overall picture, however, should be essentially correct. To a lesser extent the writer has used his personal recollections as well as those of other participants in this continuing saga.

At this point it seems appropriate to acknowledge the valuable assistance, cheerfully given by many of the university family. Worthy of special mention are: Rose Mary Schroeder and Irma Rust of the Records office; Lee Diehl, keeper of personnel records of retired faculty; Joyce Gregory, secretary of the Board of Trustees and custodian of its records; Joel Wurl, University Archivist; Sheila Lee and Barbara Bowman, secretary-typists of the Department of Mathematics. The following account would have been much more imperfect and later of completion without their help.

I. University History

Despite gifts of property and money in 1872, 1873, and again in 1874, the Trustees of the Toledo University of Arts and Trades were unable to create a university and in 1884 transferred these assets to the City of Toledo. The Toledo Common Council that same year set up the Toledo University, the first and only division of which was the Manual Training School for boys and girls of fourteen or more years of age.^(H) The mathematics offering was arithmetic, algebra, geometry, and plane trigonometry as adjuncts for the work in manual training. Three mathematics teachers were mentioned in a report of 1887:

Miss Carrie M. Card - Geometry and Algebra
F.L. Maguire -
R.H. Pratt -

(H) From Hickerson's Tower Builders

Evening classes were mentioned as early as 1885 to 1889^(H) and the practice has continued without break.

The Toledo Medical College, founded in 1882, merged with the Manual Training School in 1904. Also in 1904 the College of Pharmacy joined Toledo University. In 1906 the Toledo Board of Education took the Manual Training School from University control^(H).

The years from 1904 to 1909 were confused, strife-laden and tumultuous: viability of the nascent university was a dubious proposition. No university level mathematics was offered. In 1909 a grant of \$2400 from city council turned the tide in favor of life and growth for the University, which was then reorganized and placed on a solid foundation, one with a proper legal status.^(H)

The quarter system was adopted in 1909. The following year a different president suggested converting to semesters and this was the term used until the quarter system was reinstated in 1968^(H). In 1983 the advisability of returning to semesters is being considered.

The College of Arts and Sciences was established by the Board of Directors on 18 August 1909^(H).

II The Staff

The full-time mathematics faculty follows, with relevant observations interspersed.

James Harrington Boyd: 1909-1911.

Charles Morton Brunson: 1909-1911.

Edmund Carl Froelich: 1909-1910.

Item: The tradition of summer sessions began in 1910 and has continued unbroken since that time.

Arthur Washington Stuart: 1910-1911 (Part-time in 1917).

Mr. Stuart received the Master of Arts degree at the University's first graduation on 15 June 1915^(H).

Franklin Smith: 1910-1911.

Item: There is an interesting mystery regarding the five appointments mentioned above in that all were without compensation. The payrolls appearing in the then current minutes of meetings of the Board of Trustees show disbursements for administrators, some faculty, and staff, but none for these gentlemen. In justice to all it is noted that mathematics was not the only discipline so favored. The various unpaid were fortunate, however, in that they were not terminated later on - as were some others - due to shortages of funds.

Item: The careful reader will notice that no names of instructors appear for school year 1911-1912. As the minutes of the Board of Directors do not mention cessation of mathematics instruction for this period, the author argues *ex silencio* that classes were offered but taught by instructors not identified by documents extant. The most likely mathematics instructors for this year, one might conjecture, would be some of the five men mentioned above or the next two in the chronology. The fire in the University building at Cherry and Page Streets on 8-9 January 1911 destroyed most of the University's records, but probably cannot be blamed for the murky uncertainty of the academic year which started in September 1911.

Allan Reginald Cullimore: 1912-1915. Mr. Cullimore was dean of the College of Industrial Science and also taught geology, astronomy and drawing.

Oscar William Irvin: 1912-1915, a professor of physics who also taught mathematics, botany, and drawing.

John Benjamin Brandeberry: 1915-1953. In 1935 Dr. Brandeberry, or Brandy as he was called by virtually everyone, was chairman of the Michigan section and in 1945 and 1946 was chairman of the Ohio section of the Mathematical Association of America (M.A.A.). In 1950 Brandy was the senior member of the Interim (i.e., between presidents) Operating Committee. From 1943 to 1946 he was Acting Dean of the College of Engineering and from 1946 to 1953 he was the Dean. In 1917 Brandy made some suggestions while watching the football team practice, at which point the players invited him to be their coach, and he agreed. In the first game - the University's first football game ever - against the University of Detroit, Toledo lost by a score of 145 - 0; that is Detroit scored 22 touchdowns and 13 extra points. The triumph for Toledo in this contest was the much-needed \$150 guaranteed for playing Detroit^(H). The 1931 Blockhouse was dedicated to Dr. Brandeberry.

John M. Reason: 1917-1918.

John W. Dowd: 1918-1919. Professor Dowd was appointed Assistant Professor of Mathematics at the age of 71. He later transferred to the Department of History and was President of the University from 1925-1926^(H). The University's Dowd Hall is named in memory of President Dowd.

C. Wayne Dancer: 1922-1924, Teaching Fellow; 1924-1927, Full-Time; 1927-1928 on leave of absence; 1928-1961, Full Time. A very effective organizer, Professor Dancer was involved in the creation of Delta-X, the undergraduate mathematics club; he was in the group petitioning Pi Mu Epsilon, the national honorary

mathematics fraternity, for a chapter at Toledo; and in 1953 he was one of the founders of the Greater Toledo Council of Teachers of Mathematics (G.T.C.T.M.). At different times Dr. Dancer was chairman of the Ohio and Michigan sections of the M.A.A. During World War II he directed University programs to upgrade the skills of some 14,500 area defense workers. Dr. Dancer was assistant dean of the College of Engineering from 1946 to 1948. After leaving Toledo in 1961 Dr. Dancer taught for three years at Alaska Methodist University and for three years at California Western University; whereupon he retired.

John Lee Richmond: 1923-1930. An M.D. who came to the University as an assistant professor of mathematics, Dr. Richmond later was appointed professor of hygiene and physical education and also served as Dean of Men for seventeen years. His mathematics classes observed that he was ambidextrous^(H). Professor Richmond had been a professional ball player for Worcester, Massachusetts, and pitched a perfect game by beating Cleveland 1 to 0, putting down 27 batters in order^(H). The 1929 Blockhouse was dedicated to Dr. Richmond.

June Baldwin Winslow: 1925-1960. Initially appointed in physics, Mr. Winslow soon turned to mathematics and astronomy. For many years he was the entire astronomy department. Especially interested and competent in the mathematics of finance, he worked with the Toledo Police and Fire Pension Fund during the depression years.

Item: faculty salaries in 1928 were in the indicated ranges:

Professor: \$3200 - \$3600
Associate Professor: \$3000 - \$3400
Assistant Professor: \$2500 - \$3000
Instructor: \$1800 - \$2500.

The good news was that most faculty received \$400 more the following year.^(H)

Maurice M. Lemme: 1929-1942. Mr. Lemme, who was president of the University chapter of A.A.U.P. in academic year 1936-1937, left the University in 1942 to join the war-time navy. After W.W. II and more graduate study he taught at San Diego College (later University) where he eventually became Dean of the Graduate School. San Diego State University has become somewhat of a refuge for ex-T.U. personnel: Malcolm Love and Arvid Johnson also continued their academic careers there. This writer has always been disappointed that Dr. Lemme never produced a lemma.

Item: With some nudging and assistance from Professor Wayne Dancer, the undergraduate mathematics club, Delta-X was created in 1929. The name was suggested by Hamard Vogel. From its inception the club was a healthy organization, boasting of fifty or more members in the early days and more than ninety in the early

1940's. According to the Blockhouse in 1939 the American Mathematical Monthly recognized Delta-X as the largest undergraduate mathematics club in the United States; however, the author has not been able to verify this claim. Student members presented virtually all of the talks at the monthly meetings and mathematical games were also on the programs. In 1942 the club published a periodical called the Delta X-ponent. Dr. Brandeberry habitually forgave homework on the class period following a Delta-X meeting for students attending the meeting. Following W.W. II, membership in Delta-X has declined, but the club is still active.

John H. Mathewson: 1931-1935, to Civil Engineering in 1935.

Fern O. Welker: Part-time 1931-1937, Full-time 1937-1943, 1946-1948. Miss Welker in 1933 received the first masters degree in mathematics to be awarded by the University.

Item: In the Fall of 1935 interested members of Delta-X petitioned for a chapter of Pi Mu Epsilon at the University of Toledo. The request was granted, and on 7 February 1936 the Toledo Chapter of Pi Mu Epsilon was installed. Like many honorary organizations which accept members not long before they graduate, the membership of Pi Mu Epsilon is usually quite modest. Some years there is a program every month during the academic year; other years, only every other month. Pi Mu Epsilon is still active at the University of Toledo.

Item: The salary schedule for 1936 follows:

Professor:	\$3100 - \$4000
Associate Professor:	\$2600 - \$3000
Assistant Professor:	\$2100 - \$2500
Instructors:	\$1200 - \$2000 ^(H)

Richard W. Shoemaker: Teaching Fellow 1940-1942, W.W.II service 1942-1946, Full-Time March 1946- . Undergraduate Adviser, coordinator of the departmental high school speakers bureau since its inception in 1963.

Item: A teaching fellow in the early 1940's earned \$500 for a ten-month year plus waiver of tuition.

Kevin J. Whelan: Part-time 1942-1943, 1947-1948; Full-time 1946-1947.

Item: The wartime experience of the mathematics department was that of too much demand and insufficient regular staff. Professors Brandeberry, Dancer, Winslow, and Welker were grossly abused in terms of excessive teaching overloads and sacrificed vacations. In addition to the usual academic offerings there were thirty extra mathematics courses scattered through the Engineering Science Management War Training programs; there was mathematics instruction to be

provided for 320 future pilots of the Civilian Pilot Training Service^(H); there were three extra classes in navigation for service-bound students; and four to seven hours per week of instruction for various groups of air crew trainees for the U.S. Army Air Corps. Regarding this last program: Between 16 March 1943 and 23 June 1944 a total of 2062 air crew trainees were processed at the University. The mathematics staff was assisted in this effort by two part-time instructors and by faculty members from other departments of the university.

Lois Martin: 1945-1949; name changed for the usual reason to Lois Suprock 1949-1950. Miss Martin earlier worked in the drafting department of the Toledo Shipbuilding Company for more than a year. Also, Miss Martin, by clever deduction, retrieved the then-missing Pi Mu Epsilon constitution from the Toledo Community Traction Company Lost and Found Department just shortly before it was to have been discarded. Unfortunately, the constitution is missing again. Lois, we need you!

Carroll E. Amos: 1946-1974, Adviser of Delta-X and Pi Mu Epsilon.

Violet B. Davis: 1946-1975, very active for many years as the adviser of Delta-X, as the secretary for the scholastic honor society, Phi Kappa Phi, and as adviser for the University's YWCA group.

Grace M. Cutler: 1946-1974, a talented organist who played for many University ceremonies.

Frank Marquis: 1946-1949.

Eugene H. Zytikus: February to August 1946, a chemical engineer who went on to a career with Du Pont.

Charles D. Calhoon: 1946-1957, left the University to join Westinghouse.

James L. Slechticky: 1946-1949.

John L. Jones: Part-time 1946-1947, Full-time 1947-1949.

Albertine Krohn: 1947-1948. Miss Krohn transferred to the department of Chemistry and has taught there since 1948.

Edward D. Ebert: 1947 - , with interrupting Korean War service from 1951 to 1953. Mr. Ebert, trained and experienced as an actuary, earned the best teacher award in 1966 and has for many years served as a general adviser in the college office in addition to teaching one mathematics class per term.

Clair J. Blackall: 1948-1951.

Harold L. Zeiders: 1948-1951. Dr. Zeiders was on leave the first half of this time.

Oscar Lee Dustheimer: 1948-1950.

Helen L. Brooks: 1952-1972. From mathematics Mrs. Brooks gradually shifted entirely to astronomy. When city lights in 1955 critically impaired the nocturnal usefulness of the University's ancient telescope Mrs. Brooks and her husband built an observatory in the darkness of a more westerly location on Raab Road near Bancroft Street. This facility was used from 1956 until 1965.

Item: In the Fall of 1953 the Greater Toledo Council of Teachers of Mathematics (G.T.C.T.M.) was created, in large part due to Professor Dancer and others in the Department, to various area high school mathematics teachers, and to Dr. Harold Tinnappel of Bowling Green State University. Major aims of the organization were to allow persons with interest in mathematics and its pedagogy to become acquainted with each other and with each other's professional problems, and to improve articulation at the scholastic collegiate interface. The organization continues to the present.

One important activity of the G.T.C.T.M. is its annual contest for area mathematics students. In the first contest, on Saturday 24 March 1956, due to an unexpected snow storm, there were only 492 contestants competing at the University. In following successive years there were 1026, 2490, and 2914 gladiators in the mathematical arena. The format of the contest has changed over the years, and in the 1982 and 1983 contests 9,000 to 10,000 students participated.

Harold E. Flessner: 1954-1956.

Clifford W. Thomson: 1956-1982. Professor Thomson has been very active in the G.T.C.T.M. and in the planning and implementation of that organization's contests. In the 1959-60 school year he offered the first abstract algebra course given at the University.

Alastair N. Craig: 1956-1961. During some of these years Dr. Craig's appointments were in both mathematics and philosophy.

Mary Camilla Hayden: 1957-1965, first to offer the calculus of variations at this university.

Norman Fairall: 1958-1971.

Yue Kei Wong: 1960-1961. Dr. Wong had a tattered but laudatory letter signed by John Von Neumann.

Donald King: Teaching Fellow 1960-1962, Full-time 1962-1965. Mr. King joined Allis-Chalmers upon leaving Toledo.

Donna J. Decker: 1961-1965, Donna Bardis 1965-1966. Part-time irregularly since then.

Lucy Fellows: 1961-1971.

Item: Before and through the Winter semester of 1962 the usual teaching load in the mathematics department was twelve hours for the chairman and fifteen hours for the staff. In the Fall of 1962 the load was reduced to eleven and twelve hours, respectively. In later years teaching loads were further reduced for the chairman and research-oriented staff members.

Budmon R. Davis: 1962- , taught in 1963 the first honors calculus course, which incidentally was offered before the University had an honors program. Dr. Davis has been a textbook reviewer for six different publishers; from 1975 to 1979 he served on the M.A.A. State Teacher Training and Certification Committee; and from 1976 to 1977 he was a member of the N.S.F. Reviewing Committee for In-Service Grant Proposals.

A. Arnold Johnson: 1962-1970. Name changed to A. Arnold Johanson 1970- . Professor Johanson has coordinated the department's honors program for many years.

E. Jane Johnson: 1962-1970. Name changed to E. Jane Johanson 1970-1980; Best teacher award received in 1974. Name changed to E. Jane Taoka in 1980.

Item: In the Fall of 1962 the Northwest Ohio Mathematics Group (N.O.M.G.) was created by members of the mathematics departments of the University of Toledo and Bowling Green State University. The organization has social and intellectual aims achieved through dinner meetings twice each academic quarter, followed by expository talks open to interested persons in this area.

Robert F. Jackson: 1963-1973. A former Rhodes Scholar, Dr. Jackson was after retirement an elected member of the Board of Education of the Toledo Public School System and a sometimes commentator on public radio.

James L. Bailey: 1963- .

Stephen E. Spielberg: 1963- . Dr. Spielberg has served as advisor for Pi Mu Epsilon and Delta X, as program chairman and president of N.O.M.G.; he spent a sabbatical year at the University of Waterloo, Ontario, and has traveled extensively to attend mathematics meetings.

Simmie S. Blakney: 1964- , came to the University transferring with him a three-year N.S.F. research grant. He was the director of an N.S.F. academic year institute for local high school teachers of mathematics starting in 1966, followed in the summers of 1967, 1968, and 1969 by shorter institutes in "new mathematics". The teachers involved were expected to return to their own schools and relay the gospel to their colleagues and students. In 1969 Dr. Blakney became chairman of the University "Due Process Committee", which formalized procedures for the redress of grievances in extra-curricular activities. From 1970 to 1976 Professor Blakney was associated with Educational

Testing Service (E.T.S.) as a test writer for the general mathematics tests; as a member of the Advisory Committee to the College Board, which handled the various national testing programs; and as a writer of achievement tests in mathematics for these same twelve testing organizations.

Nand Kishore: 1964-1970. The departmental scholarship fund is in the name of this highly respected gentleman and mathematician.

Nancy Nagel: 1964-1967.

Roger C. Crocker: 1965-1966.

William S. Hatcher: 1965-1969.

Harris Westcott Vayo: 1965- . In 1975-1976 Dr. Vayo coordinated a series of presentations to selected high school students in a loose organization called the Tuesday Afternoon Mathematics Club. The effort, which was continued in academic year 1976-1977, was well received and aroused considerable interest in mathematics and in the University. Professor Vayo is also a graduate adviser.

Nancy Britz: 1966-1974.

Chidambaraswamy Jayanthi, much better known as "Swamy": 1966- . On 15 September 1977 Dr. Swamy spoke, by invitation, at Andhra University, in India. Time prevented his accepting an invitation to speak at the Sri Venkateswara University, India, that same summer. He was a speaker at a Number Theory Conference, 28 to 30 April, 1983, again by invitation, at the University of Alberta, Edmonton. Dr. Swamy is a graduate adviser.

George Kertz: 1966- , Author of a successful survey-cultural mathematics textbook for liberal arts non-science majors. Dr. Kertz suggested in the early seventies that it would be advantageous to have different mathematics majors and he did much of the work in arranging the four options which first appeared in the 1972-73 catalog. Professor Kertz was also largely responsible for upgrading the computer option, effective in September 1983.

Martin Kummer: 1966- . Dr. Kummer has been the recipient of research grants and/or has been an invited speaker at symposia, conferences, or colloquia at: Nijenvode, the Netherlands, in 1961; the University of Michigan in 1964-65; the University of Colorado at Boulder in 1966; the University of Toledo in 1967, 1974, 1979, and 1980; Como, Italy in 1976 and 1977; SUNY at Albany in 1977 and 1978; the Courant Institute in New York in 1978; the A.M.S. meeting in Iowa City in 1979; Northwestern University in 1979; the University of Calgary, Alberta in 1979; Tufts University in 1979; Michigan State University in 1980; Oberwolfach, West Germany in 1981; Forschungsinstitut fuer Mathematik der ETH in Zurich, Switzerland in 1981; and the M.A.A. meeting at Lorain, Ohio in 1981.

Janice Roe: 1966-1975, Janice Kilpatrick 1975- . Many of those early years were spent in the College office as a general counselor. Mrs. Kilpatrick was in 1973 the first woman faculty member to be appointed to the University Athletic Board of Control, a position which she holds yet.

Peter Rosenthal: 1966-1968.

Donald J. Deckard: 1967-1972.

Joseph Horowitz: 1967-1970.

Dennis M. Schneider: 1967-1969.

Howard Schwartz: 1967-1970, in August 1969 earned the first Ph.D. degree in mathematics granted by the University. Dr. Schwartz left Toledo to teach at Long Beach State College in California.

Joel H. Shapiro: 1967-1969.

Frank C. Ogg: 1968- , came to the University with a mathematics-electrical engineering background which included teaching at Johns Hopkins University; research at Bendix Aviation Corporation and at the Carlyle Barton Laboratory at Johns Hopkins; and consulting work with the Institute of Defense Analyses, R.C.A., I.B.M., Electronic Communications Incorporated, Martin Company and Philco Corporation.

Harriet S. Pollatsek: 1968-1969.

Alan H. Shuchat: 1968-1972.

Richard F. Strube: 1968-1969.

James D. Halpern: 1969-1974, left the University to take a position at the University of Alabama.

Mary Coughlin: 1969- . From 1953 to 1956 Sister Mary taught mathematics and physics at Santurce, Puerto Rico. In the summer of 1968 in a Faculty Study Abroad program she visited the Piaget Institute in Geneva, Switzerland; attended lectures at Cambridge University and participated in Edith Bigg's Workshop on the Teaching of Mathematics in England. On a sabbatical leave during academic year 1980 to 1981 Professor Coughlin used the facilities of Trinity College, Dublin, Ireland to investigate the philosopher Bishop George Berkeley and his "Analyst". This paper, published in 1734, exposed serious flaws in the foundations of mathematics.

Ray E. Feiock: 1969-1971. Dr. Feiock went to Case Western University from Toledo.

Masao Kishore: 1969-1983, son of Nand Kishore.

Anthony Bartholomay: 1969-1973, Adjunct Professor.

Item: In the spring of 1970 the Department sponsored a recruitment device in the guise of a series of suitably simplified lectures on various topics of mathematics presented to selected area high school students and teachers. The

project, called the Saturday Morning Mathematics Forum (S.M.M.F.) and coordinated by Professor Shoemaker, was only moderately successful and was not repeated.

A.R. Reddy: 1970-1974. Professor Reddy went to Michigan State University from Toledo and later spent two years at the Institute for Advanced Study at Princeton.

Item: A Conference on Group Theory was organized by Professor Blakney and held at the University on 14-15 December 1970.

Herschel Lamar Bentley: 1971- . Dr. Bentley spoke by invitation at International Conferences on Categorical Topology in Mannheim, Germany in July, 1975; in Cape Town, South Africa in August, 1976; in Berlin, Germany in August, 1978; in Ottawa, Canada in August 1980; in Capetown, South Africa in June 1981; and in Gummersbach, Germany in July 1981. Professor Bentley has also given colloquium talks by invitation at universities in Germany, South Africa, Canada, Mexico, and the U.S.A.

Ivie (Junior) Stein: 1971- . At various times Dr. Stein has been adviser for Delta-X and Pi Mu Epsilon, and has served as a coach for students participating in the Putnam Mathematics Competition. He was Program Director in the Summer of 1977 for a short course in Mathematics Modeling, sponsored by the M.A.A., at Ohio University.

Stewart A. Steinberg: 1971- . Dr. Steinberg spoke by invitation at a Group Theory Conference in Rome, Italy, in December 1975; at A.M.S. meetings at Kalamazoo, Michigan, in August 1975 and at Cincinnati, Ohio in January 1982; and at algebra conferences at Athens, Ohio, in May 1976 and at New Haven, Connecticut, in June 1981.

Henry C. Wente: 1971- . Dr. Wente spent academic year 1972-1973 and spring term 1979, both times by invitation, at the University of Bonn, Germany, working in the area of global analysis.

James E. Kittle: 1971-1972, Adjunct Instructor.

Item: In a position statement arising from a combined meeting of Council A, the Graduate Affairs Committee, the Graduate Mathematics Faculty and others on 26 January 1972, high priority was given to the establishment of a program of colloquia. By academic year 1974-1975 the program was in operation and has continued, presenting up to seventeen speakers per year. Infrequently the speaker is local; usually he will be a distinguished mathematician from outside, sometimes from a foreign country.

Mohan L. Garg: 1972-1973, Adjunct Associate Professor.

Item: The Ohio section of the M.A.A. in 1972 held its Fall meeting at the University of Toledo.

Paul C. Shields: 1974- . Dr. Shields is the Author of four successful mathematics textbooks, and spoke at the Graph Theory Symposium held at the University in November 1979. In addition to mathematics, Professor Shields is competent and productive in computers, electrical engineering, and information theory. He held a position as Lecturer in mathematics at the University of Warwick, England in academic year 1973 to 1974.

Carl G. Looney: 1974-1977. Dr. Looney left the University to do applied mathematics at Veda Corporation in Dayton, Ohio.

Rao V. Nagisetty: 1974- , an Indian mathematician with his Ph.D. from the Steklov Institute in Moscow.

Duppanapudi Suryanarayana: 1975-1976, a Visiting Assistant Professor who worked with Professor Chidambaraswamy during his stay at the University.

Harvey E. Wolff: 1975- . Dr. Wolff lectured as a visiting professor at Fern Universitat, Hagen, West Germany from 13 June to 7 July in 1980. He has spoken by invitation at the Midwest Category Seminar at Pennsylvania State University in the Summer of 1974; at a special session on Category Theory at the Summer 1976 meeting of the A.M.S. at Toronto; at the Technische Hochschule Aachen and at the Universitat Bremen, both in West Germany in the Summer of 1980; and at the "3^e Colloque sur les Catégories, dédié à Charles Ehresman," in Amiens, France on 11 July 1980. Professor Wolff has served as a reviewer for Mathematical Reviews and Zentralblatt fur Mathematik and as a referee for the 1976 and 1981 proceedings of the Capetown, South Africa, Conferences on Categorical Topology.

Torcom Chorbajian: 1976-1977, Adjunct Associate Professor. Part-time 1977-1983.

Charles B. Davis: 1976- , was largely responsible for setting up the masters degree program in statistics and, to a lesser extent, the masters degree program in applied mathematics. Dr. Davis engaged in the research and initiated the formalities which allowed the Department to acquire in 1981 an almost adequate number of computer terminals. In the summer of 1981 Professor Davis had a Faculty Research Fellowship in the Data Sciences Division at the U.S. Air Force School of Aero-Space Medicine at San Antonio, Texas.

Item: A Symposium on Graph Theory was organized by Professor Blakney and held at The University's Continuing Education Center on 9-10 November 1979.

Hwa-Ming Yang: 1980- .

Minakshisundaram Rajagopalan: 1981-1984.

Martin Pettet: 1981- , a Canadian citizen residing permanently in the U.S.

Amit Roy: 1982-1983, a visiting Assistant Professor who worked with Professor Nagisetty during his stay at the University.

Reinhard Borger: 1982-1983, a Visiting Assistant Professor from the University of Karlsruhe, Germany. Dr. Borger came to Toledo to work with Professors Wolff, Rajagopalan and Bentley.

R. Sitaramachandrarao: 1982-1984, a Visiting Assistant Professor who worked with Dr. Chidambaraswamy while at Toledo.

Item: The International Conference on Categorical Topology was held on the University of Toledo campus on 1-5 August 1983. Arrangements were made by Professors Bentley, Rajagopalan and Wolff. This conference was a continuation of similarly titled conferences held in South Africa in 1972, 1976, and 1981; in Germany in 1975, 1978 and 1981; and in Canada in 1980. The Toledo Conference featured 49 invited speakers from many foreign countries: Canada, Mexico, Germany, Austria, Switzerland, Spain, England, Australia, South Africa, Zimbabwe, and of course from the United States.

This concludes the chronology through August 1983 of the mathematics instructors who at one time or another served full-time at the University of Toledo. We turn next to the list of part-time instructors. The catalogs have not preserved this information as carefully as was the case for the full-time staff, and the record here extends only from 1915 through 1961.

Carlo M. Eyster: 1915-1916.

Emil Frey: 1917-1923.

Ralph M. Sprague: 1917-1918.

----- Schultz: 1917-1918.

----- Whitney: 1917-1918.

W Sherman Smith: 1921-1922 and infrequently and irregularly thereafter. The "W" in Mr. Smith's name stands only for itself and correctly has no following period. Mr. Smith later served with distinction for many years in the College of Engineering.

Edmond Laver: 1921-1922.

J.H. Hunt: 1921-1922.

Hubert C. Woodbury: 1922-1933. Part of this time Mr. Woodbury taught engineering drawing.

William D. Hahn: Teaching Fellow 1927-1929, Part-time 1929-1933.

R. C. Reese: 1929-1937. A civil engineer, Mr. Reese offered the statics and mechanics courses.

Eliseo Di Domenico: Teaching Fellow 1936-1938.

Aubrey Mather: 1937-1939, Aubrey Starner 1939-1942, Aubrey Brandeberry 1956-1958.

Aubrey was John Brandeberry's second wife and widow.

Deonise Trifan: Teaching Fellow 1938-1940.

Arthur D. Diller: 1942, a DeVilbiss High School teacher and dean of boys.

G. Harrison Orians: 1942, from the Department of English.

Gardner Williams: 1942, from the Department of History.

James G. Southworth: 1942, from the Department of English.

Kellogh W. Hunt: 1942, from the Department of English.

Emil Lucki: 1942-1945, from the Department of History.

Clara Goehrke: 1942-1945, from the Department of Foreign Languages, German.

Frank Nurse: 1944, from the Department of Philosophy.

James M. McCrimmon: 1944, from the Department of English.

Item: The nine persons immediately above mentioned, Mr. W Sherman Smith, and Mr.

Kevin Whelan constitute the previously alluded-to backup instructional force

which helped to satisfy the wartime demands made on the Department of Mathematics.

O.S. McKittrick: 1946-1947.

Hal Cranford: 1946-1947.

Helen Poorbough Freedman: 1946-1948.

Margaret Marx: 1946-1951.

Clarence M. McDowell: 1946-1950.

Eva Sampsen: 1946-1948. Miss Sampsen, a high school mathematics teacher, was one of four candidates earning the bachelor of arts degree at the University's first commencement on 15 June 1915.^(H)

John A. Mescher: 1946-1947.

Jerry Cardillo: 1947-1950, 1952.

Jack Huebner: 1947, 1949, 1950.

Hance Rogers: 1947-1954.

Howard R. Swift: 1947-1948.

Robert J. Henry: 1947-1948.

Donald John Henry Lang: 1947-1951.

Betty P. Weis: 1947-1957.

William Wells: 1947-1948.

Larry Ginther: 1949-1950.

David L. Schroeder: 1949-1950.

Shirley Rimmert Suber: 1949-1950.

Robert W. Dancer: 1950-1961, son of Wayne Dancer.

James A. Yutzy: 1950-1953.

Robert M. Mason: 1950-1952.

Edward A. O'Reilly: 1951-1965. Mr. O'Reilly's appointment was as a lecturer in mathematics and journalism (photography would have been more descriptive) and

presumably only part-time. However, there were terms when Mr. O'Reilly carried teaching loads in excess of that which a full-time person could teach.

Richard Vaughan: 1953-1958.

Beckham Martin: 1956-1961.

Carl J. Peters: 1956-1959.

L.L. Peterson: 1956-1959.

William G. Rohr: 1956-1961.

Walter R. Jefferson: 1957-1959.

Karem Rokhnejad: 1957-1958.

Aniese Seed: 1957-1958.

Robert J. Miner: 1957-1962.

Marilyn Summers: 1957-1959; Marilyn Beall: 1959-1961.

Steven Szabo: 1957-1959.

Laurence E. Swantusch: 1957-1961.

James W.B. Foley, Jr.: 1958-1962

Elizabeth Wurst: 1958-1961.

Edwin A. Schweinhagen: 1958-1959.

Margaret Meyer: 1959-1962, 1964.

Homayoon Saghafi: 1959-1961.

A. Romeyn Bitter: 1961-1962.

Julian E. Bulley: 1961-1962, 1964.

Rong-Yaw Chen: 1961.

Florence Peterson Ensign: 1961-1967.

Robert O'Desky: 1961-1962.

John Pfeiffer: 1961-1962.

Clifford H. Pountney: 1961-1962.

Joseph C. Severn: 1961-1962.

Irving Sherman: 1961-1962.

Alan D. Simmons: 1961-1962.

Joseph Traudt: 1961-1962.

Jacquelyn J. Wilhelm: 1961-1962. Mrs. Wilhelm, a mathematics major from this University, went over to the department of computer science and taught there for more than several years until her untimely death.

Clayton L. Ziegler: 1961-1962. Apparently Mr. Ziegler enjoyed teaching, for he joined the University Community and Technical College and is still there.

Note: The catalog information on part-time personnel ends with academic year 1961, so that the termination date "1962" is incorrect for many of the persons listed immediately above.

III. The Chairmen

The title, "Chairman", sounds very elegant, but "department slave", "sacrificial lamb", "paper shuffler", or "departmental clerk" would be more descriptive. The chairman must listen to a wide variety of assorted complaints and suggestions from students, parents, the dean, the staff, colleagues, and itinerant angle-trisectors; he must reconcile fundamental differences among his staff; he must reprimand errant staff members, assign classes, and arrange schedules without antagonizing his underlings; and he must simultaneously abbreviate or postpone altogether any serious research efforts: all this and more for a title and a few extra dollars. Clearly the chairman deserves the gratitude of his staff. The men who have filled this position are identified here where possible.

The early catalogs do not mention the position of chairman, but eventually it develops that John Brandeberry was chairman in the 1930's. As he was the only continuing full-time mathematics instructor from 1915 through 1922 and obviously the leader for many years after that, it seems safe to assert that Brandy either performed the duties of, or actually was, the chairman of the mathematics department from 1915 to 1948. During the last five of those years he was also acting dean, then dean of the College of Engineering.

In 1948 Wayne Dancer resigned after two years as assistant dean of the College of Engineering in order to assume chairmanship of the Department of Mathematics. In October 1957 he requested to be relieved of the chairmanship effective in September of 1958.

In September 1958 Richard Shoemaker reluctantly became chairman of the Department. In a letter, dated 10 November 1961, to Dean Kloucek, Professor Shoemaker suggested that he be replaced and this was done almost two years later in September 1963.

Dr. Budmon Davis became chairman in September 1963, keeping the position until June 1966, at which time he went to Great Britain where he taught external courses for the University of London. Professor Davis returned to Toledo in July 1967 and since that time has well and faithfully served as assistant chairman; and has repeatedly declined offers to become chairman again. "Assistant Chairman" is not an official title; the person so designated shares much of the chairman's burden, but none of his responsibilities. Professor Edward Ebert was the first assistant chairman, serving under Chairmen Davis and Jackson.

Robert Jackson was chairman from 1966 until February 1970.

James Bailey became acting chairman in February 1970 and was largely responsible for Committee A becoming an advisory group, meeting and deliberating with the chairman rather than overseeing the work of the chairman, meeting without the chairman and reporting back to the department. The less rigid structure of the committee has

allowed succeeding chairman to use it according to their individual preferences and the committee has in turn been valuable in expediting the work of the department. Under Acting Chairman Bailey, the department initiated a search for an outside person for chairman, but this effort failed. With responsibilities to N.A.S.A. and Atomic Energy Commission research to perform, Professor Bailey resigned his acting chairmanship in October 1970.

Simmie Blakney served as acting chairman from October 1970 to June 1971 and as chairman from then until September 1981.

Harvey E. Wolff has been chairman since September 1981.

IV The Offering

It is the opinion of the writer that other significant non-personnel historical aspects of an academic department would be the chronology by title of all courses given, trends in curricular development, changes in educational philosophy and academic goals, etc. All of this would result in rather dreary prose; Instead, consider the following malange relevant to the Department's offering since 1909.

Item: Certain courses have always been offered in one format or another. College Algebra, Plane Trigonometry, Analytic Geometry, Calculus, and Differential Equation comprise this class. From 1909 to 1915 there was one course each in linear differential equations and in partial differential equations.

Item: The Department as a service gave certain courses which were later taken over by the departments originally served. In this category are Astronomy courses offered from 1923 to 1928; Surveying, 1923 to 1927; Strength of Materials, 1923 to 1943; Kinetics, 1923 to 1946; Mechanics, 1909 to 1931; and Statics, 1934 to 1942.

Item: In the years under consideration many mathematics courses have appeared on, then later disappeared from, the curriculum. Some of these courses are Navigation, Spherical Trigonometry, Solid Analytic Geometry, Mathematical Theory of Investment, Projective Geometry, Mathematics Preparatory to Statistics and Finance, Theory of Equations, Analytic Trigonometry, Geodesy and Least Squares, Higher Algebra (Hall and Knight), and Classical Problems in Mathematics.

Item: Deficiency courses were sometimes given as a help to students and other years were scorned as being unworthy of university concern. In this classification are elementary and intermediate algebra and plane and solid geometry.

Item: Another subset of courses includes those which have been offered intermittently and perhaps infrequently up to the present time. Examples here are: History of Mathematics from 1934; Fundamental Concepts of Mathematics from 1934; Differential Geometry since 1934; Advanced Calculus since 1936; Selected Topics in Mathematics since 1940; and Calculus of Variations since 1960.

Somewhat related to the above are the courses, part or much of whose content survives in work to be offered in academic years 1983 to 1985. Included here are College Geometry, 1933 to 1961; Vector Analysis, 1934 to 1946; Advanced Mathematics for Engineers, 1935 to 1962; Mathematical Analysis of Statistics, 1938 to 1964; Graphical Analysis, 1947 to 1961; Calculus of Finite Differences, 1950; and Introduction to Higher Geometry, 1957 to 1964.

Item: In 1959 the College of Engineering, spearheaded by its Departments of Electrical Engineering and Engineering Physics, attempted to expropriate the Department of Mathematics. The matter was finally settled by President Asa Knowles after a hearing at which each side presented its case. Dr. Knowles ruled that the Department of Mathematics must remain in the College of Arts and Sciences. Very soon (1960) after this episode, one hour, the time to be devoted to the Laplace Transform, was added to the Differential Equations course, and a new course in linear algebra was added to the departmental offering.

Item: Regarding another example of intercollege cooperation: In the Fall semester of 1959 Mathematics 5 (Mathematics for Elementary Education Students) was given for the first time. Several years previously under an earlier dean of the College of Education a proposal for a similar course made by Chairman Dancer had been turned down. Later the instructors of arithmetic pedagogy realized that they were spending too much time on content, and they approached the Department for help. Chairman Shoemaker and Professor Thomson, with suggestions from the College of Education and with the approval of Dean George Dickson, set up the new course. Mathematics 5 became Mathematics 121 with academic year 1961 to 1962; and increased to two courses, mathematics 121 and 123, for school year 1963 to 1964. In academic year 1968 to 1969 and subsequently elementary education students have been required to take the nine hour sequence, Mathematics 121-122-123. In this matter the Department and the College of Education were well ahead of the national organizations and commissions which later recommended mathematics content courses for prospective elementary teachers very similar to this sequence.

Item: Another view of the departmental offering will be reflected in the evolution of the departmental major. The little evidence available from 1909 to 1912 is silent regarding majors. From 1912 to 1918 the Bachelor of Arts Degrees at the University involved a major of eighteen hours and two minors of twelve hours each plus other common requirements. One of the latter stipulated six hours or one year of mathematics or science. The University Bulletin of 1918 to 1920 asserted that, "The courses in mathematics are designed to train the mind to logical forms of thought, to strengthen the powers of reasoning and to fit the

student for special work in the various industrial enterprises of the community." and the major in mathematics was then set at 30 semester hours, a minor at 20 hours. The requirements changed slowly and from 1933 through academic year 1947 to 1948 thirty-two hours were needed: Mandatory here were college algebra, plane trigonometry, analytic geometry, differential and integral calculus, differential equations plus 7 to 12 elective hours. The catalog for 1952 specified 32 semester hours in courses approved by the department chairman. The 1964-1965 mathematics major, still at 32 semester hours, was upgraded to start with calculus and analytic geometry, differential equations, an introductory course in modern mathematics, plus twelve hours of junior-senior level mathematics. Fifty quarter hours were required in 1968 to 1969 and mandatory among these were courses in abstract algebra, real analysis, plus two courses from the areas of geometry, statistics, logic, number theory, and applied mathematics. By 1972-1973 the 50 hour major had branched out to options in pure, applied, and computer mathematics, plus an individualized option validated by a suitable score on the Graduate Record Examination. In the 1975-1977 catalog a statistics option was added.

Item: The record of mathematics courses offered is grossly oversimplified by a numerical tabulation. However, for what it is worth, the following table indicates the numbers of undergraduate courses offered by the Department in a few selected years. The Engineering Mathematics numbers refer to Statics, Kinetics, Surveying, Strength of Materials, etc.

Year	1909	1919	1925	1934-35	1946-47	1960-61	1968-69	1977-79
Mathematics	6	6	11	21	25	37	57	82
Engineering Mathematics	0	6	4	4	2	0	0	0

Item: Consider next a brief qualitative description of the mathematics offered by the Department. As quoted above, in the early years the courses were intended to prepare students for the, "industrial enterprises of the community." As time passed the offering increased, proliferated, diversified and eventually included work in virtually every important branch of mathematics.

Item: With the advice and support of Professor Raymond L. Wilder, an eminent mathematician at the University of Michigan, the Department was authorized to start a Ph.D. program. The Executive Board of the Commission on Institutions

of Higher Education of the North Central Association of Colleges and Schools gave preliminary approval for the Department's doctoral program in 1965, and approximately ten years later the Commission granted final approval for doctoral programs at the University of Toledo. The University has, through August 1983, awarded doctoral degrees in mathematics to the following students:

Howard J. Schwartz	27 August 1969
Richard Arthur Robinson	12 June 1970
Julio Vicente Cano	25 August 1970
Emman Chuks Obi	10 December 1971
Nikolas D. Antoniou	15 December 1972
Dennis Alton McDonald	15 December 1972
Daryoosh Movasseghi	15 December 1972
Rimantas Antanas Repsys	15 December 1972
Barbara June Taylor	14 December 1973
Cecilia Huan-Tau Chu	23 August 1974
Donald Paul Cyarzinski	13 June 1975
Maryann Shayegan Hastings	22 August 1975
Gene William Arnold	17 December 1977
Cloyd Alberta Payne, Jr.	17 June 1978
Richard Yee Bick	21 August 1982

Item: A final indication of the departmental offering is in the following record of graduate degrees granted. The table below gives the numbers of the several graduate degrees in mathematics earned at the University between June 1933 and September 1983.

Degree	Women	Men	Total
M.A.	15	23	38
M.S.	14	52	66
Ph.D.	3	12	15

V Governance

The author is grossly non-political and regarding governance is inclined to observe only that the Department was run by its chairmen for many years, that eventually a constitution and by-laws were adopted; and that a committee structure was later instituted to facilitate the smooth operation of Department business.