MATHEMATICS & STATISTICS DEPARTMENT
ALUMNI NEWSLETTER 1992-93
UNIVERSITY OF MISSOURI-ROLLA

HISTORY OF MATHEMATICS DEPARTMENT

It has been fairly well established that the development of MSM involved a certain amount of turmoil from its inception in 1870 through its twelfth administration in 1941. Many instances of rather heated disagreements among the faculty members as well as between administrations at Rolla and Columbia have been documented. Attempts were made at times to separate MSM from the University of Missouri, possibly because of jealously on both sides, since there was an engineering school on the Columbia campus. MSM, with its superb record of graduate accomplishments at national and international levels, had experienced an uphill battle--sometimes being referred to as an "unfortunate step-child" of the University at Columbia.

By 1941, a world-renowned MU professor of political science, FREDERICK A. MIDDL-EBUSH, had become President of the University of Missouri. While President Middlebush perhaps at first had negative feelings about MSM, he thought the institution could best be served by discarding the title of its top executive officer as "Director", making MSM a School of the University rather than a "Division", and giving its head administrator the title "Dean".

Director W. R. CHEDSEY, of the twelfth administration, resigned to join the staff of the University of Illinois at Urbana-Champaign. President Middlebush appointed CURTIS LAWS WILSON as the first dean. He then in effect, asked the Board to give the new dean a free-hand

to run MSM. This is precisely what Dean Wilson did--many say with an"iron hand"--for the next twenty-three years, through the most difficult times for MSM as well as for all U.S. colleges and universities. Under his leadership, MSM actually "grew to manhood". He was both hated and loved--all hatred having long disappeared when, at his last faculty meeting in 1964, he "broke down" in tears as his faculty stood in a long ovation. Two things come to mind: the students always came first--THEN faculty and administration, and "his door was always open".

This writer was first hired on a permanent basis by Dean Wilson as Instructor (a rank not used here so much today). Professor Hinsch had passed away in 1941, at which time Associate Professor ROLFE MONTGOMERY RANKIN became Acting Chairman, was named Chairman in 1942, advanced to full professorship in 1946. He continued as Chairman until 1963, formally retiring in 1964.

Professor Rankin worked with new Dean Wilson perfectly to the extent that the dean referred to us as the "ideal department". It was always Dean Wilson's feeling that mathematics was so essential to engineers that our department should be on the same level as the engineering depart-ments so that we would have a greater voice in running things. This was pretty well accom-plished.

We were still a "service" department, and remained so for many years. Actually, we were, along with chemistry, a "weeding out" department. Students who couldn't or wouldn't "make it" in engineering would be sufficiently discouraged, for their own good, to look for other fields of endeavor early in their college years. It may be pointed out here that the full four year program was quite rugged--about 150 semester hours were required for the first degree, few students had cars and those that did had little time to use them. Cutting classes the days before or after holidays meant "negative hours" which were added on to graduation requirements.

Dean Wilson believed in tough measures. To him, Saturday was just another day, although the afternoons were usually free. He saw to it that mathematics classes were small--seldom over 25 at the beginning, down to fifteen to twenty by mid-semester. His philosophy was that the teacher was "king in his classroom". Grading was strict, but if a mathematics professor turned in more than 50% D's and F's the dean sometimes called him over to discuss it. He always accepted the teacher's reasons--he just wanted to make sure the teacher, especially a young one, with not much experience, was being reasonable in grading.

Professor Rankin was the perfect chairman, loved by students, colleagues and administrators. His job at first was probably the most difficult on campus because of World War II. The enrollment had reached nearly 900. Students (and faculty as well) were restless, not knowing when or if they would be called up for service. Attempts to keep scholarship standards up, while not futile, were hard at all levels. The enrollment soon dropped to around 200, and the faculty was almost depleted as well by 1945. But the dean managed to retain a skeleton faculty, looking forward to armistice and the ensuing great influx of students. At one time the Army sent about 100 students to study what amounted to the first year or so of the engineering program, tailored to Army specifications. It was called ASTP (Army Specialized Training Program). This was a fine group of men, who marched to classes in uniform, singing as they came.

In general, mathematics classes were very, very small for a time. But in 1946 large numbers of students, mostly freshmen, enrolled--and this is where Professor Rankin's ingenuity came into play. His big problem: where and how to get a faculty! He spent hours upon hours (as were mathematics chairmen all over the United States) writing and calling prospective teachers. Some-times he hired local people he knew who could teach freshman mathematics, particularly remedial courses. He was restricted by such things as having to satisfy the Engineering Council for Professional Development (ECPD), and inability to offer permanencies because of the six-year rule. But succeed he did! Classes were still kept to 25 or lower. Actually, at that time, no one at any engineering school even thought about large

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mathematics classes. So an instructor had the great advantage of knowing each of his students by name. Also, conferences with students, singly or in groups, were easy to arrange. The great departure from small freshman and sophomore classes came after Dean Wilson's and Professor Rankin's retirements, in about 1965.

Professor Rankin had more "irons in the fire" than it would seem possible for one man. He was a devout Presbyterian, an officer in the Lion's Club, and a strong Mason among other things. He seldom missed a Miner football or basketball game, having himself played the latter at his Alma Mater. He had a son who played basketball at MSM, and is now a retired engineer. Another son, now deceased, also was graduated at MSM. A daughter, who attended both MSM and UMC, graduating from the latter, is now living in Austin, Texas.

When it became necessary, Professor Rankin had the deplorable job of informing some faculty members their services were no longer required. All efforts were made to secure other positions for them. The transition went quite smoothly because of the diplomacy and compassion of this fine man. Some teachers had voluntarily left us, possibly for further study; others had already secured positions elsewhere in anticipation of their releases. Thus by about 1950 a permanent staff remained, all strongly devoted to training engineers in mathematics. There were no part-time teachers at this time.

Before 1942, the mathematics department had offices and classrooms in the second floor of the old Mechanical Hall. The metallurgists forges were located directly below, so one can imagine the consternation in morning classes when smoke wafted through the half to one inch cracks in the floors.

In 1942, the top floor of the OLD old chemistry building (not now in existence) was renovated to house offices and a classroom for each of our professors. The building was not too secure, so it was easy for students to enter with and sometimes without a hairpin or nut pick. It was well known that students sometimes entered at night just before finals. One evening a campus cop came upon a student sitting on some back steps with a crow-bar. His defense, plausible of course, was that he had just stopped there to rest and just happened to be carrying a crow-bar. The faculty was well aware of theft possibilities; some members occasionally made up dummy tests to leave lying around. Incidentally, a chemistry professor happened to be walking through the building one evening, smelled smoke, and discovered some old papers on fire. Perhaps no one was ever blamed, but soon the building was condemned and the department moved to more spacious quarters in the top three floors of Harris Hall.

By this time, mathematics Professor RALPH E. LEE had journeyed to Washington where he managed to secure a computer--one of only few in existence at that time and one which, even at a value of around $50,000, could probably be outperformed by a hand-held computer now. At any rate, after having his computer located at the top of the Civil Engineering Building for a year or two, the basement of Harris Hall was air-conditioned and transformed into a Computer Center. The department was then titled Mathematics and Computer Science, with Professor Lee as Director of Computer Science.

To back up a little, just after World War II when enrollment mushroomed probably by a factor of 10 or 12, it became necessary to add refresher courses in algebra and geometry. Many of the students, though very mature, were returning from battle after having forgotten their earlier high school studies. In order for them to avoid having to go back to their high schools, and in order for them to enter a regular college program, three new courses (non-credit except for possible transfer) were added: Math A (Intermediate Algebra, 3 hours), Math B (Solid Geometry, 2 hours) and Math C (Plane Geometry, 5 hours). Math B was an interesting course--much different than the standard solid geometry course in high schools. Mensuration problems constituted the entire course, some of them exceedingly difficult but the kinds of problems that might be encountered by engineers out in the field. Math A and Math C were more like traditional high school offerings.

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With the cooperation of the engineering departments programs were devised that made it possible to fulfil degree requirements in four years including this remedial work. These three courses were phased out as they were no longer needed.

Regular students after this started with a five hour trigonometry course carrying credit for graduation or transfer but not a part of the ECPD requirements in mathematics. We did not at that time exempt students by examination. A textbook (no longer in print--too difficult) was chosen that was filled with problems calling for strong algebraic solutions. So, while largely trigonometry, students who passed the course automatically became fairly proficient in algebra. Later on, the course was broken down into College Algebra (3 hours) and Trigonometry (2 hours) and students were placed in one or both by examination. A five-hour course in algebra was added for those who did a very poor job on the examination, and those who did exceedingly well were allowed to go immediately to the Analytic Geometry-Calculus sequence. Roughly one-third of our students were so advanced, and that proportion pretty much remains today. The first such test was developed in the early sixties by a committee composed of this writer, the late PAUL BURCHAM who was Chairman at UMC, and several other college and university mathematics chairmen of Missouri-- both private and public. Revisions have been made to keep the test up-to-date by Professor August Garver and others. Success in placing students properly by this test has been amazing.

During Professor Rankin's regime, the thought occurred to us that the Analytic Geometry course could be combined with the calculus so as to drop out some of the unnecessary items in analytics and at the same time "weave" the important parts into the calculus. This would fit in well with physics, for in some cases their problems requiring differentiation and integration arose before the students had been taught about them in mathematics. This necessitated an awkward situation where the physics people had to "tell them a little about these topics" before using them in their field. This timing of topics in mathematics and physics was a dilemma experienced in colleges and universities all over the United States.

In about 1947 Professor Rankin asked Professor Ralph Lee and this writer to take two sections of second semester students, devise and carry out such a combined program through the three semesters. There were few suitable textbooks, but we started out with the nearest thing to this idea we could find, rearranging topics where necessary and adding topics as needed. The experiment was quite successful. Grades in Physics were compared with those in other sections, to show much better performance with our group than with the control group.

This led to a report paper to the American Society of Engineering Education, Mathematics Division, at its annual meeting in Gainesville, Florida in about 1952. By that time many schools were considering such a combined course--some had started it already. So we were among the first to actually put the program into use. Soon textbook writers were publishing their various and sundry ideas of how to combine the courses. Today the practice is universal, of course, in engineering colleges. One cannot now easily find a modern analytics text, because if one were written it is unlikely anyone would use it--despite the fact that analytic geometry is one of the most beautifully teachable courses in mathematics.

The Rankin era came to a close early in the 1962-63 school year, when he began to have health problems. He requested, and was given, the permission to step down from the chairmanship. To account for all the good things this man did for our department and MSM would require a very large book. At his retirement banquet and party practically everyone at MSM turned out--possibly the largest such crowd in MSM history--to say "good-bye" to this wonderful person who had so marvelously served his school for forty-one years, through some of its most trying times.

The next chapter of this history will cover the great transformation of the department from service alone to degree granting and service from 1963 to the present.

STUDENT ACTIVITIES
A letter from TAK-YUN (GLORY) PONG

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(M.S., '78), stating he is Senior Lecturer in the Department of Mathematics, Hong Kong Polytechnic, teaching Numerical Analysis and in charge of their computing facilities and has acquired a son and daughter. He also has been studying toward the doctorate at Loughborough University of Technology, England. He misses college life in Rolla, the professors and good friends. Address: Department of Mathematics, Hong Kong Polytechnic, Hung Hom; Hong Kong. He wants to hear from his many friends.

The GARY W. HAVENER (B.S. '62) ENDOWED SCHOLARSHIP FUND continues to serve worthy students. There are no words to express adequately the importance to UMR of his fine gift. Gary's address is 4008 Lost Creek Blvd., Aledo, TX 76008

CATHY JANEEN CORLEY (M.S. '87), of 660 Evergreen Street, Leavenworth, KS 66048-4402 is in the second of a five-year project with the U.S. Army, writing software to manage all the data needed for five computer combat models. She bought a house, is becoming a golfer, and making many new friends. Thank you Cathy, for your continued interest in UMR.

DEBORAH J. ACKERSON, (B.S. '79), 2916 Blueberry Lane, Fayetteville, AR 72703 is programmer analyst for Wal-Mart Stores, Inc. Husband MIKE (B.S. '79), is in the faculty at University of Arkansas. They have two children: JESSIE (9) and KYLE (4). We are grateful for your letter and contribution, Deborah. Please stop in when you are in this vicinity.

We do appreciate hearing from JAMES A. MADISON (M.S.T. '68), RR 1, Box 87-B, Bethany, MO 64424. Mr. Madison is retired, but still remembers UMR. Thank you, James!

After 30 years of teaching, "enjoying it more than ever", is WILLIAM L. (BILL) VAN ALSTINE, (M.S. '66), 1217 Evans Road, Aiken, SC 29803. Bill is at Aiken Technical College, having gotten his start as a graduate student and teacher at UMR. He is well remembered here by the "old-timers" as a most delightful person, and we thank him for remembering UMR.

A Rolla Middle School teacher, LINDA SUSAN HARRIS (B.S. '87), 1810 Soest Road,

writes that with her enjoyment of teaching, she also is happy that her oldest son is enrolling in electrical engineering at UMR. We are, too, and wish both you and he great success!

Another near-by teacher, SANDRA L. LEVASSEUR P.O. Box 330, Waynesville, MO 65583 is at the high school there--subjects Algebra I and II. She is married to SFC DOUGLAS E. LEVASSEUR of the U.S. Army, has one daughter Kimberly (10) and was to relocate to Heidelberg, Germany in July 1992. Thanks so much for your contribution and note, Sandra, and do drop in to see us when you return to the States.

MARGARET M. POEPSEL (B.S. '74) is back to full-time, teaching at Our Lady of Lourdes School, Washington, MO. She finds her work both "exciting and challenging". Her son is one of her students, she would really enjoy hearing from other alumni. Address: 1300 Karen Lane, Washington, MO 63090.

Having a very busy time is BRADFORD J. KLINE (B.S. '88) in graduate study at the University of Illinois, Urbana-Champaign. He has taught there for three and one-half years and is in a merit workshop program, devised by the people at Berkeley and designed to get women and minorities interested in mathematics. The three semesters of the calculus and pre-calculus are involved--entirely group work. We all wish Kline the greatest success. His address is 406 E. Michigan Ave. #6, Urbana, IL 61801.

One of our alumni who is not at the moment involved in mathematics, but who was kind enough to write, is NANCY L. TAYLOR (B.S. '77), 4501 Cherrywood Drive, Midland, TX 79707-2525. Although not teaching, Nancy has her hands full with her own crafts company "by Nancy" and her three youngsters. Thanks for your contribution, Nancy. Perhaps you will work yourself back into mathematics some day.

Always remembering us as we remember him is THOMAS D. AKERS (B.S. '73, M.S. '75), 1707 E. Hedgecraft, Seabrook, TX 77586. As usual, he was looking forward to his next space flight, this time on the new shuttle Endeavor when he wrote in January, 1992. And we, here in Rolla, look forward hopefully, to a visit from you, Tom,

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whenever you are in Missouri. Congratulations on your promotion to Lieutenant Colonel!

HAROLD A. GLENN (B.S. '66), 2474 S. Taylor Avenue, Corona, CA 91720 is manager of computer operations and systems at Naval Warfare Assessment Center in Corona. His wife has her own CPA firm. They have two sons: one a doctoral student at UC Davis, the other a Navy SEAL stationed in Coronado, CA. It's great to hear from you, Harold, and many thanks.

JOHN V. GRICE (Ph.D. '78), is Project Statistician at Allied-Signal, Inc., Kansas City, MO. Thank you, John for your continued support for our department. Since you are not far from Rolla, we hope you will stop in once in a while.

Teaching mathematics and coaching the men's and women's tennis teams at Central College, Pella, Iowa is ELIZABETH MAY (HANNING) HADLER (B.S. '88). Elizabeth received the M.S. from Iowa State in 1991. Her home address is 605 S. Park Lane, Knoxville, IA 50138.

MARCEL A. (WEHRMAN) MAUPIN (M.S. '78), 1904 Cedar Ridge Road, Edmond, OK 73013 writes, "I am doing a test pilot program for a new statistics text. I have also completed a 2,000 question test bank for this text". Marcel is Assistant Professor at Oklahoma State University, Technical Branch in Oklahoma City. Thanks, Marcel. We're looking forward to seeing a copy of your book.

Well remembered HARMON C. BROWN (Ph.D. '72), Professor of Mathematics at Harding University, Searcy, AR 72143 is director of a summer program for gifted high school students (AEGIS) in Mathematical Modeling. He also was one of 50 Arkansas educators chosen to teach graduate courses to in service teachers, to improve mathematics education in Arkansas. Knowing Harmon as we do, it's a sure bet that this improvement will be a great success.

A self-employed programming contractor is DONALD L. LAUGHLIN (M.S. '64), 3024 Duclair Parkway, St. Charles, MO 63303.

RONALD H. STORM (M.S.T. '64), R.R. 2, Adel, IA 50003 is a mathematics teacher in Hoover High School, Des Moines, IA.

We are sorry to report the recent death of ALEXANDER H. CRAMER (Ph.D. '71), Professor of Mathematics at Southwest Missouri State University, Springfield, MO. Professor Cramer will be greatly missed by UMR and SMSU where a memorial is to be arranged for him.

A very nice, long letter was received at Christmas '91 from LINDA M. PENAS (Ph.D. '85), who is a professor in the Department of Statistics at the University of California-Riverside. Her address is 600 Central Avenue #355, Riverside, CA 92507. At that time she had been nominated by her department as an Outstanding Teacher of UCR. She states that in the fall she "ended up with well over 300 students". A pretty rough assignment--but if anyone can do it, Linda, you can! Keep us posted!

ROBERT P. HAAS (B.S. Ch.E. '83, M.S. Ch.E. '86, M.S. Math '86) writes that when he left Rolla in 1986, he went to Austin, TX and worked at a tennis center for a year, then as a programmer and statistician for two years before being "overcome with math-lust and returning to school". He has taken and passed his prelims, and settled on differential geometry, at the University of Texas. His address is 3401 Red River, Austin, TX 78705.

Another alumnus to migrate to California is WILLIAM A. HILLEBRANDT (B.S. '72), Director of Program Development, Unisystems Corporation, Camarillo, CA. His wife Pam has her own resumé company. They have two children: Mark (16) and Danielle (12). Their address is 1491 Corte Breve, Thousand Oaks, CA 93010.

We are informed that CHERYL TEFFT (B.S. '89) and THOMAS P. DUGGAN, JR. (B.S. Aerospace Engineering, UMR '88) were married in May. Cheryl says she is not changing her name. Their address is 3105 Windswept, St. Charles, MO 63303. We wish Cheryl and Tom the very best of everything.

Word has been received here that WANDA L. GARNER (M.S. '75), 16 Seacliff Drive, Aptos, CA 95003, is division Chairperson for Mathematics, Science and Engineering and Mathematics

and Professor of Mathematics at Cabrillo Community college in Aptos. She is current Secretary of the American Mathematical Association of Two-year Colleges, having been a member of the AMATYC executive board since 1984. She recently was appointed to serve, as one of three representatives of two-year colleges, on the Cooperative Initiatives Committee. This is a new group with the goal to improve mathematics education at all levels.

FACULTY ACTIVITIES

Chairman TOM INGRAM participated, or will so, in (1) a one hour lecture at the University of Southwestern Louisiana in October, 1992; (2) a colloquium lecture at Southwest Missouri State University in November, 1992; (3) a special session on Continuum Theory and Dynamical Systems at the national meeting of the American Mathematical Society in San Antonio in January, 1993. Professor SARAH HOLTE is also an invited participant in this last session.

Professor AUGUST GARVER received the Missouri Section, MAA Award for Distinguished College or University Teaching of Mathematics at the April 10, 1992 meeting. This makes him eligible for the MAA's national award. The citation read "Garver was honored for teaching effectiveness, influence in teaching beyond UMR and his ability to foster students' curiosity and generate excitement about mathematics". Professor Garver, semi-retired August 31, 1992, has had major surgery at St. Luke's Hospital in St. Louis, and, in his words, "hopes to return good as new in January, 1993 to continue teaching half-time until 1994".

Professor TROY HICKS, Director of Graduate Studies in Mathematics at UMR, has written a complete but concise "Graduate Student Handout". It lists the rules for work on the various advanced degrees and states how every one should be implemented. Included is a list of where some of the past graduate students have acquired positions. A few pages containing a wealth of information valuable to all graduate students at UMR! Prospective graduate students, please take note of this!

In charge of recruiting graduate students,

Professor Hicks reports UMR's high ranking in the percentage of Ph.D.'s (fourth in the nation) awarded to women. Professor Hicks says, "We try to get the best students we can get, whether they are men or women". He reasons that the high ranking is because of the fact that they get to teach a wide variety of courses as TA's than they may at other places and that they get to know their professors better because of the smaller number of graduate students.

Attending the joint AMS-MAA meeting in San Antonio in January 1993 will be Professors T. INGRAM, S. HOLTE, E. M. INSALL, LEON HALL, ROBERT ROE, T. W. RANDOLPH and PHYLLIS SINGER. All will participate in the MAA Mini-courses on Calculus Reform and technology in teaching. Professor Singer will also give a paper titled "More Results on Kac-Moody Subspace Products".

Professor E. M. INSALL attended the Alan Day Conference on Algebras and Lattices at Hamilton, Ontario this past summer.

Professor SARAH HOLTE has participated in a number of events: A January workshop sponsored by Association for Women in Mathematics in Baltimore; attendance at Spring Topology Conference in Charlotte, NC in March; awarded the Oak Ridge Associated Universities Junior Faculty Enhancement Award in May; a two-week workshop at Regional Institute in Dynamical Systems at Boston University in July; attended Society for Industrial and Applied Mathematicians conference on dynamical systems at Snowbird, Utah in October.

In the main mathematics office, secretary TINA MARTIN replaces CARLEEN (CORKY) HUMPHREY, who has been named senior secretary to the English Department. Tina comes to us from the Chemical Engineering Department. We welcome Tina and congratulate Corky on her promotion.

Leaving us this year is Professor HENRY GEE, who has resigned to teach at Central State University, Wilberforce, Ohio. We wish Henry the best of everything in his new position.

Among new retirees is Professor MIN MING TANG. Professor Tang has moved to

Wisconsin, where his wife, Cindy, has a business.

There are three early retirements this year, Professors JACK M. SCRIVNER, GUS GARVER and GLEN HADDOCK. All will continue to teach part-time, but Professor Haddock is now Academic Vice Chancellor (on leave from mathematics) and the search for a replacement in that position may not be complete, in which case he may have to stay on for a while before resuming teaching.

Professor MAXWELL ENGLEHART will become a statistician at Idaho National Laboratory, Idaho Falls, Idaho. We are sorry to see him leave, and wish him well in his new endeavor.

Professor LEON HALL will be on leave the winter semester this year to the University of Montana where he will work on a textbook in the calculus.

We are very happy to welcome back to Rolla, VISITING ASSISTANT PROFESSOR MICHAEL G. HILGERS (M.S. '87). Professor Hilgers recently finished his doctoral work at Brown University's Department of Applied Mathematics.

COMMENTS FROM THE CHAIR

Retirements and resignations are beginning to impact the department. News of specific resignations and retirements can be found in the section on faculty news of this newsletter. Financial constraints due to tight budgets and last year's failure of Proposition B will likely cause the department to shrink in size over the next two or three years. We will try to keep you up-to-date on the changes as they occur.

For those of you who contributed to our development fund last year, we afforded the opportunity to "vote" on the use of your donations. Forty-eight postcards were returned. Of these, 26 were marked in favor of scholarships, 18 for unrestricted use of the funds and 4 for the lecture series (with at least one more finding the series a good idea for later and one alumnus asked for more information on the series). I appreciate very much each donation and the responses to our "poll". The Phon-a-thon will be coming up again in January. We hope to have students from the newly formed Student Chapter of the Mathematical Association of America do the calling this year. If they make the calls, then when you get a Phon-a-thon call, you will be speaking to one of our current majors or, at least, a student very interested in mathematics.

Our first Alumni Scholarship has been awarded to Marjie Krueger, a senior applied mathematics major from the Kansas City area. Marjie is planning to make a career of teaching mathematics in high school. She is the daughter of Warren (BS '66) and Betty Jane Krueger of Leawood, KS. We have also spent development fund money on student travel. We sent one secondary education major to the MAA meeting in Maryville in April and helped graduate students attend the ASA meeting in Boston, the IWAA Conference in Maine and the Spring Topology Conference in Charlotte, NC. Finally, several of you commented that $500 annually was not enough for a scholarship. I agree and have committed another $2000 (approximately one-half of all gifts last year) to the endowment. If I am able to continue that level of commitment of funds for another four years, the annual value of the endowed scholarship will have been doubled. Your contributions to the department continue to make a difference. Speaking on behalf of the faculty, staff and students of the department, thank you!

Special thanks go to Dick Erkiletian for his continued efforts as "editor-in-chief" for the newsletter as well as the department's secretarial staff, Martha Grisham and Tina Martin. Without the efforts of these three this newsletter would never have reached you.

The picture on the front page was reproduced from the cover of Mathematics Magazine. It is from a paper written by Leon Hall with Stan Wagon, "Roads and Wheels", Math. Mag., 65(1992), 283-301.