

IOWA SECTION MAA

NEWSLETTER



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Edited by Luz M. DeAlba

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1990 - 1991 Officers

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The annual Iowa Mathematics Meeting will be held at Drake University in Des Moines. A call for papers will be mailed in December with abstracts due by the end of February.

Mathematics Contests. Every year the Mathematics Association of America sponsors two mathematics contests. One of these is for junior high school students, and the other for secondary school students.

Iowa has done very well on the past junior high exams. Last year 203,035 US students took the junior high exam. There were 205 perfect papers...12 (over 5 percent) of them from Iowa! Iowa has fared less well on the high school exam...last year only nine of the top 1500 high school competitors were Iowans (and no Iowans were in the top 150).

The MAA exams can provide an exciting way to motivate students to study mathematics and give us a means to identify our top students. Please encourage your local schools to register for these exams. The junior high exam will be given on November 29, 1990, while the high school exam will be given on February 26, 1991. To register, contact Walter Mientka, Department of Mathematics, University of Nebraska, Lincoln, NE, 68588-0322.

The NCTM *Standards* and the Iowa Committee for Mathematics Education Reform (ICMER)

As many of you know, in April, 1989, the National Council of Teachers of Mathematics issued their *Curriculum and Evaluation Standards for School Mathematics*. This document, although addressing the K-12 curriculum will be affecting the teaching of mathematics at all levels, kindergarten through college for many years to come. The *Standards*, written by mathematics educators representing all levels of instruction, reflect a new vision of school mathematics.

Five goals are stated for all students: they should learn to value mathematics, learn to reason mathematically, learn to communicate mathematically, become confident of their mathematical abilities, and become problem solvers. The K-12 curriculum is divided into three levels with specific standards for

K-4, 5-8, and 9-12. These *Standards* address all topics in the mathematics curriculum, including algebra concepts, geometric concepts, probability, statistics, functions, trigonometry, discrete mathematics, mathematical structure, and the underpinnings of calculus. The *Standards* call for all students to have access to these powerful mathematical ideas with the depth and intensity varying with the abilities of the students.

The MAA, as well as virtually all other professional organizations to which mathematicians and mathematics educators belong, also endorsed the *Standards*. In each state, a team was chosen to receive training about the *Standards* and to develop a state-wide plan for their implementation in the state. The Iowa team met in Chicago in March, 1990, for training and planning at one of the five conferences held across the country. These conferences were sponsored by NCTM, MSEB, NCSM, ASSM, and CPAM and funded by an NSF grant.

The Iowa team was named the Iowa Committee for Mathematics Education Reform (ICMER) and became an ad hoc committee of the Iowa Council of Teachers of Mathematics. The committee's purpose is to increase the awareness of the need for reform of the mathematics curriculum among teachers, AEA/mathematics supervisors, administrators, boards of education, community, business/industry, and the Iowa legislature through educational programs, communications, and public relations. Additionally, ICMER is committed to promoting the *Curriculum and Evaluation Standards for School Mathematics* as the vision of a quality school mathematics program that will provide the opportunity for all students to become productive citizens in the 21st century. ICMER is seeking opportunities to make presentations to civic as well as educator groups. To schedule either, contact Ken Sprague, 2102 Durant St., Harlan, IA, 51537, home telephone 712-755-3336.

If you are interested in obtaining a copy of the *Curriculum and Evaluation Standards for School Mathematics*, (\$15) please contact: Dr. John Wheeler, State Mathematics Consultant, Iowa Dept. of Education, Bureau of Instruction and Curriculum, Grimes State Office Building, Des Moines, IA 50319-0146, Telephone :515-281-3874

News

Central College

Mr. **Shawn Bina** joined our department this fall as Instructor of Mathematics. Last spring, he completed a Master's degree in Mathematics from Iowa State University.

Mr. **Steve Ratering**, Assistant Professor of Computer Science, is on leave of absence to complete the Ph.D. degree in Computer Science at the University of Minnesota.

Professor **Thomas Iverson** has been appointed to be Chair of the Science Division and Professor **Agnes Andreassian** has been appointed to be Chair of the Mathematics and Computer Science Department for the next three years, beginning in the Fall Term 1990.

Last summer, Professors **Agnes Andreassian**, **Allen Hibbard**, and **Donald Meyer** participated in an International Studies Workshop that included a two-week cultural immersion experience in Merida, Yucatan, Mexico. The workshop was supported by the 3M company.

Last year Central College graduated 15 students majoring in Mathematics and/or Computer Science, and the current senior class contains 23 students majoring in these areas.

Clarke College

Last year we started the Clarke Mathematics Club.

We used MATHCAD to a limited degree in Linear Algebra last spring. In Calculus this fall, we have been using the Calculus Toolkit and Exploring Calculus; the latter accompanies Fraleigh's text, CALCULUS WITH ANALYTIC GEOMETRY.

Our May, 1990 graduates include 3 majors in Mathematics only, 2 Double majors in Mathematics and Computer Science, 12 majors in Computer Science.

Coe College

Professor **Charles Lindsay** will present a program of four lectures "On Things Mathematical" for a non-mathematical audience as a part of Coe's Thursday Forum Series next March.

In 1990, Coe College graduated 6 Mathematics majors and 8 Computer Science majors.

Drake University

Bernadette Baker returned from her sabbatical leave this Fall. She spent the year working on a Ph.D. program at Iowa State University.

Luz M. DeAlba was granted tenure and was promoted to Associate Professor. She attended the Computer Algebra Workshop held at St. Olaf College in July.

H. K. Krishnapriyan has been hired in a tenure track position at the level of Assistant Professor beginning this Fall.

David Oakland has been appointed as Chairman of the Mathematics and Computer Science Department.

Alexander Kleiner received the President's Outstanding Undergraduate Teacher Award last spring.

Grinnell College

Arnold Adelberg has returned from a sabbatical year as Visiting Professor at the University of Chicago, where he held a PEW Foundation Faculty Development Award.

Eugene Herman is chair of CCIME and is editor of the Computer Corner in *The College Mathematics Journal*.

Charles Jepsen has begun a 2-year term as Chair of the Faculty.

Charlie Jones worked on a summer project developing expository writing on the topic of "Impossible Integrals", i.e., elementary functions whose antiderivatives are not elementary functions. He received support for an undergraduate assistant through the college's PEW grant.

Emily Moore gave a talk at the IBM Academic Computing Conference in June 1990 on "Designing Tools for Exploring Mathematics". She received a PEW grant for work this past summer on instructional software.

Tom Moore is Coordinator of Statistics and the Liberal Arts Workshop (SLAW) III at Bowdoin College in July. In August he was the organizer and moderator of the invited session "The Role of Statistics at 4-year Undergraduate Institutions", at the meeting of the American Statistical Association. He is beginning a 5-year term as Associate Editor of the *Mathematics Magazine*.

Anita Solow is currently involved in an NSF-funded project on Calculus reform. She is in charge of writing a book of labs for Calculus. The labs produced are software independent. The first edition is completed and is available by request. She also graded AP Calculus exams last summer. She is again teaching "Gender and Science". The syllabus is available by request.

Henry Walker is working on a book entitled "The Limits of Computing", for Jones and Bartlett Publishers. He is Chair of Workshops and Tutorials for the 1991 SIGCSE Technical Symposium on Computer Science Education and taught second summer session at UT-Austin's Computer Science Dept. Henry also graded AP CS exams last summer and is a Consultant for the College Board, giving a workshop for high school Computer Science instructors in Winnipeg last year.

Royce Wolf has written and submitted a paper from summer 1989 research to the Journal of Pure and Applied Algebra. This paper was joint with with Piney Janik, a Grinnell student. The paper is entitled "Axioms for S-pregroups". Piney Janik a Marshall Scholar, is now studying Mathematics at the University of Sussex. Royce.

Last year's student team was declared Meritorious in the Mathematical Competition in Modeling.

Last year we graduated 23 Mathematics majors. (There were no separate majors in Computer Science or Statistics. We have just instituted a separate Computer Science Major in the department.

We have a Student Chapter of the MAA, a Math Journal Club, and a Putnam Problem-Solving Group.

We use the computer in the classroom extensively, including in Calculus, Linear Algebra, Series, and Computer Science courses. For more information, contact the department.

The University of Iowa (Statistics Department)

The revolutionary text, *Statistics for Business: Data Analysis and Modelling*, by **Jon Cryer** and **Bob Miller** (University of Wisconsin) will be available November 1, 1990. It is published by PWS-Kent, Boston.

Richard Dykstra has been named an elected member of the International Statistical Institute. He has also been awarded an NSF grant for 1991.

Bob Hogg was the director of an invited workshop on statistical education held at the University of Iowa, June 18-20, 1990. The American Statistical Association and the University were sponsors.

Hannes Ledolter has agreed to serve as program chairman for the 1992 National ASA meetings. Hannes is currently an Associate Editor for the Journal of the American Statistical Association. He organized the department's NSF computer grant to purchase workstations and (together with Mark Conaway and Aladdin Al-Bakri) received a grant from the Midwest Transportation Center to study the impact of traffic policy changes on traffic fatalities.

Russ Lenth, **Marianthi Markatou** and **Joel Howowitz** (Economics) were awarded a University House Interdisciplinary Research Grant to work on robust estimators of scale during the past summer.

Marianthi Markatou was awarded an NSF grant under the TOW program to do research in the area of robust estimation and testing. She has also been invited to participate in the program of the NATO advanced Study Institute on Nonparametric Functional Estimation. She will visit the Department of Statistics at the University of California-Davis from January 1991 to June 1991.

George Woodworth, with David Baldus and Charles Pulaski, have recently published the book *Equal Justice and the Death Penalty*. George has also been the project statistician for the Iowa Cochlear Implant project for the last 5 years.

Bob Hogg was presented with the Governor's Science Medal for Teaching by Governor Terry Branstad in the State Capitol Building in May. This award is presented for outstanding Science teaching in the State of Iowa. Bob was also presented with a University of Iowa Faculty Award for Teaching Excellence.

Jacques Carriere joined the faculty in the Actuarial Science program. Jacques' wife, **Danielle Chough**, is serving as the Director of the Statistical Consulting Center this year.

New visitors this year include **Syed Kirmani**, who is teaching three Actuarial Science courses, and **Bahadur Singh**, who is teaching our courses in multivariate analysis. **Milorad Kovacevic**, from the Federal Statistical Office of Yugoslavia, is also staying on for another year as a visitor.

Returning from developmental leaves at other universities: **Jim Calvin** returns from Texas A&M, **Mark Conaway** from the Harvard School of Public Health and **Jim Sconing** from Memorial University of Newfoundland. We have also hired a new faculty member, **Martin Appel**, who works in the area of probability theory. Martin was awarded his Ph.D. from Johns Hopkins this summer, but is spending a year's postdoc at Cornell before joining us in August of 1991. **Dale Zimmerman** and **Hannes Ledolter** will take developmental leaves during the 1990-91 academic year.

Lloyd Knowler passed away on May 24 this year after a brief bout with cancer. Lloyd had come to the University of Iowa as a freshman in 1927, and ended up staying for 63 years. Lloyd had served as chairman of the Mathematics department for 14 years, and had played a large role in the founding of the American Society of Quality Control. Although he had been retired for several years, Lloyd's face was a fixture in the hallways of MacLean.

Carolyn Hogg passed away on June 25 after a long battle with cancer.

ALLEN T.CRAIG AWARD for outstanding teaching assistant: **William Dorner** and **Joseph Inman**.

ALLEN T.CRAIG SCHOLARSHIP: **Gavin Cross**, Fall 1990.

LLOYD A. KNOWLER AWARD for outstanding student in Actuarial Science: **Harry Goodin**.

HENRY L. RIETZ AWARD for outstanding qualifying exam: **Ie-Bin Lian** and **Hani Samawi**.

In 1989-90 we had 74 graduate students, of whom 47 were majoring in Statistics (32 men, 15 women); 20 were in Actuarial Science (12 men, 8 women); and 7 were in Quality Management and Productivity (6 men and 1 woman). We had 137 undergraduates (73 men, 64 women) of whom 125 were majoring in Actuarial Science and 12 were majoring in Statistics.

In the 1989-90 school year, three students received their Ph.D.'s. **Bal gobin Nandram** (J. Sedransk, advisor), **Carolyn Pillers** (Tim Robertson, advisor) and **Mark Rothmann** (Ralph Russo, advisor). Beginning the new academic year of 1990-91, **Richard Anderson-Sprecher** (Johannes Ledolter and Russell Lenth, advisors) received his Ph.d. at the end of the 1990 summer session.

We also had 31 students receive this M.S.---19 male, 12 female of whom 19 were majoring in Statistics; 10 in Actuarial Science; and 2 in Quality Management and Productivity. There were 24 students who received their B.S., 23 of whom were majoring in Actuarial Science and one in Statistics (9 males and 15 females).

Iowa State University (Statistics Department)

Krishna Athreya was elected as a member of the International Statistical Institute in October 1989.

Jerome M. Sacks received a 1989 performance rating of "outstanding" from the Agricultural Research Service, U.S. Department of Agriculture.

William Q. Meeker, Jr., won one of the 50 university-wide teaching excellence awards conferred by ISU in December; the award includes a \$1,000 gift.

H.A. David and his wife, Vera, received one of the 1990 Human Relations Awards given by the ISU Human Relations Committee in March 1990. The annual awards "recognize groups and individuals who have contributed significantly to the advancement of human relations within and among all segments of the campus community."

Mack C. Shelley II has been promoted to Professor of Political Science and Statistics; **Carl Roberts**, to Associate Professor of Statistics and Sociology with tenure.

Noel Cressie will be on faculty improvement leave for the calendar year 1991 to conduct research on spatial Statistics while at the Australian National University and Stanford University.

Debapriya Sengupta and Stephen J. Haslett are on leave without pay during the fall semester of 1990-91.

Leroy Wolins, who joined the faculties in Psychology and Statistics in 1957, retired effective December 31, 1989, and has been named Professor Emeritus.

C. Philip Cox retired on May 20, 1990, and has been named Professor Emeritus in Statistics. He became an Associate Professor of Biological Statistics at ISU in 1961.

William Q. Meeker, Jr., continued as editor of Technometrics. In April 1990, he was re-elected as president of the Iowa chapter of the American Statistical Association (ASA).

Alicia Carriquiry has a joint appointment as Assistant Professor in the Department of Statistics and the ISU Center for Agricultural and Rural Development. She received a doctorate in Statistics and Animal Breeding from Iowa State in 1989. She presented two short courses in Argentina and Chile last year. The first one was given for the Department of Statistics, Instituto Nacional de Tecnologia Agropecuaria (INTA), Buenos Aires, September 4-15, 1989. The second was given for the Organization of American States/CIENES, Santiago, June 11-29, 1990.

Derrick Rollins, who has seven years of experience at Dupont, accepted a position as Assistant Professor of Statistics and Chemical Engineering. His Ph.D. degree in Chemical Engineering will be conferred by Ohio State.

Sushama Bendre, a lecturer in Statistics in the University of Bombay, India, was a postdoctoral research associate for six months, until mid-December 1989, under H.A. David's research grant.

Christopher J. Skinner, senior lecturer, Department of Social Statistics, Southampton University, U.K., was a visiting Associate Professor for the period January 1-May 31, 1990.

Klaus Hinkelmann, chair, Department of Statistics, Virginia Polytechnic Institute and State University, is currently a visiting Professor at ISU for the fall semester.

In the 1989-90 fiscal year, 15 students received B.S. degrees in Statistics. (One of these had a joint major in Computer Science and Statistics). There were 163 graduate students in Statistics at ISU in that period. Thirty-three received M.S. degrees and 11, Ph.D. degrees (including three with joint majors--in Statistics and Industrial Engineering, Entomology and Statistics, and Mathematics and Statistics-Probability, respectively).

The Statistics Club held five monthly meetings in 1989-90. In October, three Statistics Club members discussed Statistics related cooperative work experiences, summer positions, or foreign study experiences. In November Dr. Leon Burmeister, a B.S., M.S. and Ph.D. graduate of the Statistics Department gave a talk on environmental issues in Iowa. He discussed cancer rates for various types of cancer in the nation and in Iowa. He is currently a Professor in the Department of Preventative Medicine and Environmental Health in the College of Medicine, University of Iowa. In February, Julie Hunsinger-Wiese, a 1988 B.S. graduate of the Statistics Department, talked about "Being an Actuary". She spoke about her experience working as an actuary with the Lincoln National Life Insurance Company in Fort Wayne, IN. In March, Ms. Shail Butani of the Bureau of Labor Statistics, U.S. Department of Labor, discussed the nature of statistical work done by the BLS. Jeffrey Larson-Keller, a 1987 B.S. graduate, discussed his two and one half years experience as a data analyst at the Mayo Clinic and some medical projects upon which he had worked.

Morgan Wang, a Ph.D. candidate in Statistics at ISU, was honored by Zenith Data Systems as a first-place winner in its 1990 Masters of Innovation Contest. He won a Zenith 386/20 mhz computer with a VGA monitor and some software.

ISU graduate students **Stephen Rathbun** and **Robert Parker** won first and second prize awards, respectively, in a competition for Best Student Statistics Paper Presentation sponsored by the Iowa chapter of the American Statistical Association at its spring 1990 meeting with the Iowa Section of the Mathematics Association of America. For a second year, an ISU Statistics team won the annual Data Analysis Competition sponsored by the ASA chapter and open to teams of graduate students in Iowa. The winning team members were **Phil Iversen**, **Robert Parker**, **Morgan Wang**, and **Alan Zimmermann**.

ISU Graduate College Teaching Excellence Awards were given to **Dan Mundfrom** in December 1989 and to **Scott Andersen** and **Ann Rusey** in May 1990. These awards recognize their outstanding contributions in the teaching of undergraduate students while working toward a degree. A Graduate College Research Excellence Award was given to **Steve Rathbun** in August, recognizing research accomplishments demonstrated by completion of an outstanding dissertation. The Department of Statistics presented its Dan Mowrey Consulting Excellence Awards to **Mary Anne Dellva** and **James Robison-Cox** last spring, recognizing outstanding contributions in statistical consulting while working toward a degree.

Kirkwood Community College

Gayle Baylor and **Leland Fry** attended the second annual summer institute in Vermont held from July 30 to August 3, 1990, on the campus of Vermont Technical College, Randolph Center, Vermont. Two courses were offered: Chaos and Fractals: What's All the Fuss? The course was an introduction to chaos and fractals and to show how to integrate these ideas into the undergraduate classroom. Topics included elementary systems that general chaos, describing chaos, fractal dimensions, chaos in the classroom, discussions of where chaos fits into modern Mathematics, and the role it can play in the undergraduate curricula. Discrete Mathematics. The course's primary emphasis was using ISETL, a high-level computer language specifically designed for Mathematics, which has been successfully used in conjunction with discrete Mathematics courses.

Loras College

Larry Zettel, Ph.D., replaced **Don Marxen** as Chairman of Mathematics and Computer Science on August 1 for a three year term. Dr. Zettel attended a summer workshop in Computational Number Theory at University of Wisconsin, Whitewater.

Dennis Risher returned in August from his sabbatical which he spent at the University of Iowa.

The Loras Mathematics Club was recognized as a student chapter of MAA at the summer meeting in Columbus, Ohio.

The department introduced two new seminars for senior level students; one is in History of Mathematics for teachers and the other is in Cryptography.

Last year's graduating class included 7 Mathematics and 9 Computer Science majors.

Luther College

Reginald Laursen and **Steven Schlicker** attended a Sloan Foundation Summer Workshop at Dartmouth College on available software for college Mathematics courses. They are presently writing our own software programs and lab manuals to upgrade the use of computers in Calculus I.

Steven Schlicker, Reginald Lauren, Alan Macdonald, and three students attended the Nobel Conference on Chaos and Fractal Geometry held at Gustavus Adolphus College in early October.

Joyce Becker is a popular speaker at conferences on Mathematics Education in January, she was elected Vice-President (Post-Secondary) of the Iowa Council of Teachers of Mathematics.

This year we had 27 graduates with majors or double majors in Mathematics.

Our Mathematics club is in its second year now. The first meeting this fall had a large attendance, so we are hoping for another good year. It was reported then that our application for membership in Pi Mu Epsilon is pending.

Five Luther students (soph/jr) will have the opportunity to participate in research projects this summer at any of the six colleges in the Great Lakes Cluster sponsored by the PEW Charitable Trust Fund.

Maharishi International University

Dave Streid and **Paul Corazza** have joined the Department of Mathematics. Dave received his BS in Mathematics from MIU in 1980 and his Ph.D. in Mathematics from the University of Illinois. His areas of interest are complexity theory and logic. Paul graduated from MIU in 1978, received his Ph.D. from Auburn University in 1987 and has just completed three years as Van Vleck Assistant Professor at the University of Wisconsin-Madison. His research is in set theory and foundations.

Eric Hart has a collaborative grant from NSF with Hal Schoen of the University of Iowa for teacher enhancement.

Anne Dow and **Cathy Gorini** were in the Soviet Union this year lecturing and teaching. Anne spent three months in Armenia and spoke at the Yeravan Physics Institute. Cathy was in Moscow for two months and was interviewed in the newspaper Moskovsky Komsomolets.

The MIU team of **Paul Shimura, Nenad Koncar**, and **Malcolm Phillips** received Honorable Mention in the 1990 Mathematical Contest on Modeling.

North Iowa Area Community College

On January 3, 1991, the Mathematics, Engineering, and Science departments of NIACC and Mason City High School will host a career day. During four concurrent sessions in each of 6 class periods, high school and college students will interact with professionals in Mathematics, Engineering, Science and related careers. **Pat Boddy**, a licensed professional engineer and host of Iowa's only state-wide televised talk show, Touchstone, will speak to all students at MCHS in the morning, and will address a community-wide audience at the NIACC Auditorium in the evening.

Rachel Lamp has been added to the Mathematics staff at NIACC. Ms. Lamp received her M. S. degree from ISU in the spring of 1990.

Adriana Attleson, Mathematics instructor at NIACC, attended a one week summer workshop on Discrete Math at Vermont Technical College. This was sponsored by AMATYC.

Norman Schmidt, Mathematics instructor at NIACC, attended a one week summer workshop on use of graphing calculators at Ricks College at Rexburg, Idaho. This was sponsored by AMATYC.

David Clayton, Mathematics instructor at NIACC, attended a one week workshop at Carleton College. The workshop was relative to topics of the AP Calculus course.

Simpson College

Dr. Richard Spellerberg has joined our staff as Assistant Professor of Mathematics, replacing Paul Ladehoff, who resigned in order to return to graduate study. A native Iowan, Rick received his Bachelor's degree from Coe College and his Master's and Ph.D. from the University of Iowa. His dissertation research was in lattice theory.

Last May we graduated 13 Mathematics majors and 8 Computer Science majors.

Our MAA student chapter holds regular meetings, typically attended by 20-25 students.

Wartburg College

Chris Schmidt participated in the Crisis in Technology Workshop in Boston, MA, February 25-28. He also participated in the Oracle Database Workshop held in Minneapolis, MN, July 10.

Lynn Olson attended the "Computer Graphics in Pure Mathematics" Conference held at the University of Iowa May 17-19.

Glenn Fenneman participated in the Faculty advancement in Mathematics Workshop on Statistics held at Virginia Commonwealth University June 5-12.

Joseph Breutzmann has a 1990-91 academic year sabbatical leave to complete work towards a Ph.D. in Computer Science at Iowa State University.

Dr. William A. Slough has been hired as an Assistant Professor of Computer Science and Mathematics as a replacement for John Zelle.

Kathy Brackemyer has been hired as an Assistant Professor of Mathematics and Computer Science.

We have weekly seminars on topics such as parallel processing or results of a Statistics workshop.

The number of graduating seniors (1989-90) in Mathematics: 25, Computer Science and CIS: 22, double majors: 17 (6 double majors within Dept. MATH/CS and 11 doubles with second major in another department. 41 total persons majored in MATH/CS Dept.).

We have the Iowa Delta Chapter of Kappa Mu Epsilon national Mathematics honor society (10 were initiated last March) and one organization called "Missing Bytes" for Computer Science students.

Calculator and computer use is encouraged in Mathematics classes such as Calculus and Linear Algebra. Calculators are allowed on exams for most courses excluding the HP 28 type on Calculus examinations.

Department of Mathematics and Computer Science
Drake University
Des Moines, Iowa 50311

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Prof. Josef P. Breckmann
Martha's College
Math/Computer Sci
Des Moines

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