Robert F. Mauldin, Ph.D. Professor, Department of Chemistry University of Central Arkansas Conway, AR 72035 <u>rmauldin@uca.edu</u> 501-852-0692 (W)

Education

May, 1990, Ph.D. in Analytical Chemistry, University of Tennessee, Knoxville, TN. Dissertation title: "Photochemistry and Supercritical Fluid Extraction of Polycyclic Aromatic Hydrocarbons Adsorbed on Coal Stack Ash Fractions." Research advisors: Dr. E.L.Wehry and Dr. G. Mamantov (deceased 6/95).

May, 1985, B.S. in Chemistry (American Chemical Society certified), Minor in Philosophy, with Highest Honors, University of Tennessee at Martin, Martin, TN.

Honors

Honorary Member – Phi Eta Sigma National Honor Society (1999) Certificate of Recognition for Interdisciplinary Work – Ohio Academy of Science (1997) Outstanding Alumnus: Student Affiliate of the American Chemical Society, UTM (1989) Departmental Outstanding Graduate Teaching Assistant Award (1988, 1989) Recognition of Selected Graduating Students, Honors Day (1990) Science Alliance Merit Award (1986) Atlantic Richfield Company Fellowship (1985) Chemistry Department Award (1985) Ernest D. and Fannie G. Hedgecock Scholarship (1984) Who's Who among Students in American Colleges and Universities (1984) Honor Society of Phi Kappa Phi (1984) Faculty Women's Club Award (1983) National Honor Society (1979)

Teaching/Administrative Positions

2014-present, Professor, Department of Chemistry, University of Central Arkansas, Conway, AR. Responsible for teaching general and analytical chemistry. Research in scientific reasoning, chemical education, and the history of chemistry at UCA.

2009-2014, Professor and Chair, Department of Chemistry, University of Central Arkansas. Responsibilities included all administrative aspects of the chemistry department, including building administrator, the department's budget, hiring and evaluation of faculty and staff, recruiting students, coordination of retention and advising efforts, enrollment management, assessment of student learning outcomes, professional certification (by the American Chemical Society), scheduling of courses, review/approval of grant proposals, departmental safety officer, curricular and policy improvement, and advocate for the department, its mission, and its faculty and staff. Teaching responsibility of ½ load: general chemistry, junior honors seminar. Research in general education, scientific reasoning/journalism, chemical education, archaeological chemistry, and history of chemistry at UCA.

2008-2009, Academic Dean (chief academic officer), Bethel College, McKenzie, TN. Responsibilities included six academic divisions, library, strategic planning, institutional effectiveness, accreditation, faculty development, and the registrar's office.

2001-2008, Director, General Education Program, Shawnee State University, Portsmouth, OH, reported to the Provost and Vice President for Academic Affairs. Additional responsibilities (as compared to the position of Coordinator as described below) were routine administration of three assessment instruments (Academic Profile Exam, Portfolio Project, and Senior Survey) and supervision of the Academic Assessment Office.

1997-2001, Coordinator, General Education Program, Shawnee State University. Reported to the Dean of the College of Arts and Sciences; responsible for chairing General Education Advisory Council, representing Shawnee State's General Education Program (GEP) to regional and professional accrediting bodies, updating SSU's general education transfer module, addressing requests for substitutions and applications of transfer credits, promoting the program, representing the GEP on committees, coordinating program review of the GEP, assessing the GEP, managing the GEP's budget, faculty development, administering (including staffing and scheduling) the interdisciplinary senior seminar course, administering the Senior Seminar Paper Award, conducting scholarly research in general education, participating in national general education organization, preparing catalog statements, participating in departmental program reviews and budget expansion hearings, and preparing annual reports.

2000-2008, Professor of Chemistry, Shawnee State University. Taught analytical chemistry, preparatory chemistry, general chemistry, scientific reasoning and methodology, physical science by inquiry; directed undergraduate research in analytical/environmental chemistry.

1994-2000, Associate Professor of Chemistry, continuing contract (tenure) awarded in 1997, Shawnee State University. Taught analytical chemistry, environmental chemistry, preparatory chemistry, general chemistry, scientific reasoning and methodology, interdisciplinary senior seminar, freshman seminar; directed undergraduate research in analytical/environmental chemistry.

1990-1994, Assistant Professor of Chemistry, Georgia Southern University. Taught analytical chemistry and general chemistry; directed undergraduate research in analytical/environmental chemistry. Promotion to Associate Professor at GSU awarded in 1994, which would have taken effect in the fall semester of 1994.

1985-1990, Graduate Teaching Assistant, University of Tennessee. Taught general chemistry lab and discussion, analytical chemistry lab; participated in the tutorial center, served as a TV proctor, and served as Head Teaching Assistant for four quarters of general chemistry.

1983-1985, Undergraduate Teaching Assistant, University of Tennessee at Martin. Taught general chemistry labs.

External Grant Activity

Participant in Ohio Board of Regents' "Enhancing Undergraduate Education in Ohio," 1999-2001, principal investigator Bill Rauckhorst of Miami University (Ohio), \$4,000.

"Environmental Applications of Supercritical Fluids via the Discovery Approach," National Science Foundation's Instrumentation and Laboratory Improvement Program, with coprincipal investigators G. Trampe and N. Bryson, 1996-1999, \$73,569.

"Southeastern Consortium: Intermediate Oxidant Network Site Operation," Environmental Protection Agency (with co-principal investigator Dr. Mike Rogers of Georgia Tech), operation of air quality monitoring site at the George L. Smith State Park, 1992-1993, \$48,000.

"Integration of Advanced Electroanalytical Instrumentation into the Curriculum," National Science Foundation's Instrumentation and Laboratory Improvement Program, co-principal investigator with Dr. Norman Schmidt, 1991-1993, \$24,194.

Reviewer for grant proposals for the National Science Foundation's Course, Curriculum, and Laboratory Improvement Program (1998 and 1999). Served as panel chair in 1999.

Publications

"A History of Chemistry at the University of Central Arkansas," J.Manion and R. Mauldin, in progress.

"A Novel Approach to Teaching Scientific Reasoning to Future Journalists: An Intellectual Framework for Evaluating Press Reports About Scientific Research," R.F. Mauldin, *Science Communication*, 34(2), 283-291 (2012).

"A Check on the Expansion of the Major: Potential Positive Impact of a Limit on Total Hours for New Degree Programs," R.F. Mauldin, list-serve posting for the Association for General and Liberal Studies (2012).

"Definition and Formulation of Scientific Prediction and its Role in Reaching Conclusions in Inquiry-Based Labs," R.F. Mauldin, *Journal of Chemical Education*, April, 449-451 (2011).

"The Six Regional Accrediting Bodies: An AGLS Study of Best Practices in General Education," for the Association for General and Liberal Studies' website (approved for online publication by the AGLS Executive Council at the annual meeting in Austin, Texas in 2010). See <u>http://web.oxford.emory.edu/AGLS</u>. "Administration of General Education: The Tragedy of the Commons," R. Mauldin and J. Hinni, invited position paper of the Association for General and Liberal Studies, published on website (2007): <u>http://web.oxford.emory.edu/AGLS</u>.

"Improving Learning in General Education: An AGLS Guide to Assessment & Program Review," J. Nichols, R. Mauldin, and J. Gaff, publication of the Association for General and Liberal Studies (2006).

Understanding Scientific Reasoning, Fifth Edition, R. N. Giere, J. Bickle, and R.F. Mauldin, Thomson/Wadsworth (2005).

"Theory of Supercritical Fluid Extraction via the Discovery Approach," R.F. Mauldin, D.J. Burns, I.K. Keller, K.K. Koehn, M.W. Johnson, and S.L. Gray, *The Chemical Educator*, 4, 1-9 (1999).

"Scientific Reasoning for Non-Science Majors: Ronald Giere's Approach," R.F. Mauldin and L.W. Lonney, *Journal of College Science Teaching*, May, 416-421 (1999).

"Comparison of Methods for the Deposition of Polycyclic Aromatic Hydrocarbons on the Surface of Coal Stack Ash," B.W. May, L.L. Martin, and R.F. Mauldin, *Chemosphere*, 34, 2251-2257 (1997).

"Introducing Scientific Reasoning with the Penny Lab," R.F. Mauldin, *Journal of Chemical Education*, 74, 952-955 (1997).

"The Effect of Ultrasonic Extraction on the Recovery of Polycyclic Aromatic Hydrocarbons Adsorbed on Coal Stack Ash," D.L. Stephens, Jr., T. McFadden, O.D. Heath, and R.F. Mauldin, *Chemosphere*, 28, 1741-1747 (1994).

"The Effect of Extraction Time and Heating on the Recovery of Polycyclic Aromatic Hydrocarbons from Coal Fly Ash Surfaces Using Ultrasonic Extraction," O.D. Heath, M.A. Peavey, Jr., and R.F. Mauldin, *Georgia Journal of Science*, 50, 124-131 (1992).

"Accumulation of Methane from a Landfill in Georgia Homes: Extrapolation to Bunsen Burner Safety," R.F. Mauldin, *Journal of Chemical Education*, 69, 350 (1992).

"Photodecomposition of Anthracene and Anthracene-9,10-dione Adsorbed on the Surface of Coal Fly Ash," R.F. Mauldin and M.A. Peavey, Jr., *Georgia Journal of Science*, 49, 135-141 (1991).

"Supercritical Fluid Extraction of Vapor-Deposited Pyrene from Carbonaceous Coal Stack Ash," R.F. Mauldin, J.M. Vienneau, E.L. Wehry, and G. Mamantov, *Talanta*, 37, 1031-1036 (1990).

"Adsorption and Photodegradation of Pyrene on Magnetic, Carbonaceous, and Mineral Subfractions of Coal Stack Ash," T.D.J. Dunstan, R.F. Mauldin, Z. Jinxian, A.D. Hipps, E.L. Wehry, and G. Mamantov, *Environmental Science & Technology*, 23, 303-308 (1989).

Selected Presentations

"A Rubric for the Assessment of Research Papers in Capstone Courses in the Sciences," R. F. Mauldin, Association for General and Liberal Studies, St. Louis, MO, October 1-3, 2009.

Invited speaker for Bethel College's Convocation, fall semester 2008.

"Professional Accreditation and the Design of Curricula," R.F. Mauldin, Association for General and Liberal Studies, Pittsburgh, PA, October 10-13, 2001.

"The Interdisciplinary Senior Seminar at Shawnee State University," R.F. Mauldin, J. Coll, and J.H. Lorentz, Association for General and Liberal Studies, Chicago, IL, November 2-4, 2000.

"Success in General Education: Building Internal Campus Partnerships," R.F. Mauldin, D. Benfield, R. Brown, and A. Sisson, Association for General and Liberal Studies, Chicago, IL, November 2-4, 2000.

"Supercritical Fluid Extraction via the Discovery Approach," R.F. Mauldin, Meeting of the Ohio Board of Regents' Project entitled "Enhancing Undergraduate Education in Ohio," Ohio State University, Columbus, OH, April 6, 2000.

"Using the Review Process to Enhance General Education," R.F. Mauldin and J.B. Hinni, Association for General and Liberal Studies, Richmond, VA, October 28-30, 1999.

"Scientific Reasoning for Non-Science Majors," Association for General and Liberal Studies, St. Louis, MO, October 15-17, 1998.

"Comparative Study of Procedures for the Deposition of Polycyclic Aromatic Hydrocarbons (PAH) on Coal Fly Ash," presented by undergraduate research student Brian May and "Examination of the Viability of the Suspension Deposition Method," presented by undergraduate research student Lorie Martin, Annual Meeting of the Ohio Academy of Science, Malone College, Canton, OH, May 4, 1996.

"Analysis of Rural Photochemical Oxidants," Georgia Academy of Science Meeting, Kennesaw State University, Kennesaw, GA, presented by undergraduate research student R. Bryan Hughes, Spring, 1994.

"Environmental Photochemistry of Anthracene and Anthracene-9,10-dione Adsorbed on the Surface of Coal Fly Ash," University System of Georgia Research Symposium, University of Georgia, Athens, GA, presented by undergraduate research student Daniel Stephens, Jr., May 9, 1992.

"The Effect of Extraction Time and Heating on the Recovery of Polycyclic Aromatic Hydrocarbons from Coal Fly Ash Surfaces Using Ultrasonic Extraction," poster presentation at University System of Georgia Research Symposium, University of Georgia, Athens, GA, presented by undergraduate research student O. David Heath, May 8, 1992.

"Photodecomposition of Anthracene and Anthracene-9,10-dione Adsorbed on the Surface of Coal Fly Ash," Georgia Academy of Science Meeting, Georgia Southern University, Statesboro, GA, presented by undergraduate research student M. Alex Peavey, Jr., May 2, 1992.

"Photochemistry of Polycyclic Aromatic Hydrocarbons Adsorbed on Coal Stack Ash Fractions," Area Collegiate Chemistry Meeting, University of Tennessee at Martin, TN, April 22, 1989 (invited).

"Supercritical Fluid Extraction - Gas Chromatography of Pyrene from Coal Stack Ash Fractions," Pittsburgh Conference and Exhibition, Atlanta, GA, March 6-10, 1989.

"Analysis of Herbicides in Soil by High Performance Liquid Chromatography," Area Collegiate Chemistry Meeting, University of Tennessee at Martin, Martin, TN, April 22, 1985.

Service (University of Central Arkansas)

Requested and received capital equipment funds to purchase a microwave chemical reactor, lab stools, Millipore water system, bomb room shelving, polarimeter, balances, SpeedVac, and a mobile computer lab (2009-2014).

Coordinated several efforts to increase retention, including improving prerequisites for the first semester of our two general chemistry sequences, expanding tutoring, expanding student employment, and offering a delayed-start preparatory chemistry class (2009-2014).

Coordinated multiple safety improvements, including updating Chemical Hygiene Plan, establishing a comprehensive chemical inventory, installing new storage cabinets for flammables (bolted to the wall with stops to prevent bottles from falling in the event of an earthquake), new acid storage cabinets vented to the hoods, installation of safety alarms on fume hoods, removal of explosives, developing safety training materials for student researchers and teaching assistants, equipping all research labs with required safety devices, authoring the Building Emergency Plan, posting safety signs, designating a cryogen storage room with oxygen sensors, moving a glove box to a room with ventilation, and developing safety agreements (2010-2014).

Assisted with the implementation of an application and selection process for the placement of undergraduate research students in open positions in research laboratories (2012-2014).

Arranged numerous improvements to Chemistry's facilities, including fresh paint in all of the lecture rooms and hallways, new hallway furniture, new lab stools, new Smart Boards, new marker boards, new flooring in select areas, conversion of computer lab into research space, and new boards for display of research posters (2009-2014).

Facilitated curricular changes: elimination of two service courses in biochemistry, change in the description of the minor in chemistry, revision of requirements for BS in Environmental Science, Chemistry Track, elimination of Cell Biology from BS in Chemistry, Biochemistry Track, and change in prerequisites for the first semester of two general chemistry sequences (2009-2014).

Assisted Jerry Manion in an extensive upgrade of the department's web page. Additions to site included extensive news events, a section on safety, an electronic waiting list form, a laboratory safety agreement form, a research registration form, addition of advising documents, documentation of research publications, presentations, grants, and equipment, description of honors program in chemistry, and student employment opportunities in the department (2009-2014).

Routinely submitted, or coordinated submission, of articles and pictures to the newsletter for the College of Natural Sciences and Mathematics (2009-2014).

Assembled policies and procedures manual for the department, along with annual updates (2010-2014).

Revised assessment plan for BS in Chemistry, approved by curriculum committee; drafted vision statement; department revised and approved vision statement. Also, assisted chemistry department and other departments in the College of Natural Sciences and Mathematics in developing and implementing assessment plans. Addressed college-wide curriculum and assessment committee regarding and provided a document outlining the fundamentals of assessment. For the chemistry department, summarized/disseminated results from 10 years of Senior Survey and 3 years of Major Field Tests; developed/implemented assessment of oral communication, and assisted Rick Tarkka in implementation of ABET model of assessment for the department's programs (2009-2014).

Created brochure for the department, updated several times (2009-2014).

Participated in on-campus training sessions for: sexual harassment (annual), diversity (annual), responsible conduct of research, hazardous materials shipping, fire safety, supervisor skills training, leadership training for department chairs, P-Card liaison training, radiation safety, Title IX Awareness, Child Abuse Awareness & Prevention, and the National Incident Management System (2009-2014).

Established enrollment management policy for the department, utilizing an electronic waiting list procedure. Established two-year schedule for the offering of courses by the department and decreased the frequency of offering of three historically low-enrolled upper-

level courses in chemistry in order to help meet the demand for freshman-level courses (2009-2014).

With Dr. Bill Taylor, provided updated plan for proposed new chemistry building. Contributed to plan to include Chemistry in the new science building. When learned that Chemistry would not be included in the new science building due to cost, wrote proposal for a laboratory addition to Laney Hall (2009-2012).

Coordinated the development of guidelines for student awards in the Department of Chemistry (2012).

Co-authored, with J. Manion, nomination of 1979 chemistry graduate Joe Allison as UCA Distinguished Alumnus (2011 and 2012), awarded in 2013.

Coordinated donation to and creation of Jerald Manion Student Award with donor and UCA alumnus Slaton Fry (2012).

Served on search committee for Registrar (2012).

Trained as an external reviewer for the Higher Learning Commission of the North Central Association of Colleges and Schools, November 10-12, 2010, Chicago, Illinois.

Chair of Ad Hoc Committee in the College of Natural Sciences with task of assessing student learning outcomes in the science and math requirements of UCA's General Education Program (2011-2012).

Requested and received \$100,000 of bond money to purchase and install flow-control technology to decrease high humidity in the building during the summer months and to install alarms on fume hoods that indicate when there is sufficient air flow for safe usage of the fume hoods. Coordinated installation and training of faculty in using the new equipment (2011).

Established faculty salary for addition of a lab to an existing course and research courses offered in the summer, approved by provost (2010).

Authored policy that requires students conducting research for course credit for ACSapproved degrees to submit a comprehensive research report, approved by department (2010).

Updated Arkansas Course Transfer System (ACTS) transfer equivalencies of chemistry courses at UCA to other ACTS institutions in the state (2010).

Altered advising model in department from a model in which the chair advised all chemistry majors to one in which the advising load is distributed among all chemistry faculty, with chair's responsibility being the advising of post-baccalaureate and first-time transfer students (2010).

Revised (and created) advising documents for the Department of Chemistry (2009).

Coordinated probation workshops for students in the College of Natural Sciences and Mathematics (2009).

Service (Bethel College)

Conducted a review of the Common Core, Bethel College's general education program.

Enforced policies on academic probation, suspension, and dishonesty.

Directed faculty governance to correct the fact that there were three different published policies on academic dishonesty.

With division chairs, developed criteria for prioritizing requests for new faculty members.

Wrote institutional effectiveness section for the Common Core for response to concerns from the Southern Association of Colleges and Schools; included classroom-based assessments in order to fill gaps in assessment plan for the Core. Accreditation reaffirmed in December of 2008.

Worked with Division Chair of Science & Math (Dr. Sarah Roberts) and Director of the Physician Assistant Program (Johnna Tanner) to maintain professional accreditation by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA).

Worked on multiple drafts of Bethel's Quality Enhancement Plan (on critical thinking), with Dr. Carl Seaquist, QEP Director.

Facilitated fall 2008 Faculty Workshop featuring Dr. Margie Hobbs of the University of Mississippi (expert on institutional effectiveness).

Coordinated the publication of an advising handbook.

Coordinated changes in staffing and roles in the library to address needs of distance education sites and cataloging.

Developed forms for curricular and policy proposals with signature lines, associated questions, and procedures to convey existing policies and roles of committees.

Service (Shawnee State University)

Coordinator/Director of the General Education Program (1997-2008).

Association for General and Liberal Studies, President-elect (2000-2002), President (2002-2004), Past-President (2004-2006).

Council for the Administration of General and Liberal Studies, Executive Board Member (1999-2002).

Member of standing committees: General Education Advisory Council (1997–2008); Honors Council (2002–2008), Educational Policies and Curriculum (2000–2008), Assessment (1998–2008), New Employee Orientation Committee (2004–2008).

Member of search committee committees: provost (2007-2008); faculty members in inorganic chemistry (1999, 2004), biochemistry (1997, 1998), environmental engineering technology (1998), plastics engineering technology (1998), secondary education (1996); dean of arts and sciences (1996).

Prepared successful policy proposals: proposal for requiring initiator of a faculty senate proposal to incorporate approved friendly amendments as part of the faculty governance approval process (2007); proposal that established on-campus approval process for application of transfer credits (2006); revision of operating procedures of the Educational Policies and Curriculum Committee (2004); proposal that required faculty members to include a statement in the syllabus for each course in the GEP (2003); along with Steve Midkiff and Steve Rader, catalog rights for students (2003); proposal that gave equal representation on the General Education Advisory Council to the College of Professional Studies and the College of Arts and Sciences (2001); proposal for limiting total hours in new degree programs (2000); administrative policy concerning regional accrediting body's expectations regarding credentials of faculty teaching general education courses (2000); along with Larry Lonney, general education policy proposal entitled "Definition of a Laboratory Component" (2000); on-campus procedure for revising SSU's transfer module (2000); administrative policy regarding requests for course substitutions in the GEP (1998).

Prepared successful curricular proposals (selected): proposal for deleting two science courses and changing the hours for three science courses in the science requirement of the General Education Program (2008); proposal for increasing the required number of upperlevel hours in the major in the Bachelor of Individualized Study (2008); proposal to change number of preparatory chemistry course (CHEM 1101) from the 1000 level to the developmental level (2007); semester conversion of SSU's General Education Program (2005-2006); modification of general chemistry sequence for non-science majors (course deletion, change in prerequisites, change in title of course, 2004); changed general education requirements for the Associate of Individualized Studies, Associate of Arts and Associate of Science in order to be consistent with the general education requirements of four-year degrees (2003); distinguished a foundational level of the GEP from an upperlevel, integrative level of the program (2003); Ohio Board of Regents' proposal that revised the guidelines for approval of science courses in general education transfer modules in Ohio by allowing theme-based interdisciplinary science courses (2001), proposal that revised the options for foreign language credit in the GEP (2001); member of committee for proposal that revised the curriculum for the BS in Chemistry and composed a minor in chemistry

(1997); member of committee that designed a degree program in Secondary Education with Science Certifications (1996); proposal for Environmental Chemistry 1 and 2 (1995); member of committee that determined objectives for NTSC 110S, Scientific Reasoning and Methodology (1995).

Participated in program review and accreditation efforts: member of program review team for the Department of Social Sciences (2001); prepared document concerning assessment of general education for North Central's focused visit (2001); presented program review workshop to department chairs in the College of Arts and Sciences (2000, invited); coordinated external program review of the GEP (1999); member of program review team for the Department of Mathematics (1995); consultant for the review of general education at Great Basin College, Elko, Nevada, (2000); member of an on-site review team for the Southern Association of Colleges and Schools (SACS), at Louisiana State University at Alexandria (2001).

Member of Semester Conversion Coordinating Council and Faculty Committee for Semester Conversion (2005-2008).

Chair of General Education Faculty Learning Community (2005-2006).

Chair, Title III Advising Task Force (2001).

Member of internal monitoring team for \$1.6 million Title III grant that focused on at-risk students, advising, and the freshman year experience (1999-2004).

Obtained secretarial support for the General Education Program (2000).

Prepared and disseminated an annual study of grading practices in the General Education Program with Kimberly Patton, Institutional Research Analyst (2000-2008).

Prepared/revised a Curriculum, Policies, and Procedures Faculty Handbook for the General Education Program (2000-2008)

Conducted, with Gene Burns, an advising session for science students interested in graduate school each fall quarter (1999-2003).

Published "Perspectives in General Education" in SSU's student newspaper *The University Chronicle*; included quotes regarding general education (2000-2003).

Member of faculty subcommittee of Ohio Board of Regents' Articulation and Transfer Advisory Council (1997-2005).

Coordinated general education orientations for new faculty members (1999-2004).

Conducted NSF-funded workshop for six high school teachers concerning the development of discovery-based educational laboratories for chemistry courses (1997).

Promotion Screening Committee (1998) and University Promotion Committee (1996).

Service (Georgia Southern University)

Member of search committees for faculty positions in biochemistry (1994), organic/biochemistry (1992),* physical chemistry (1993), inorganic chemistry (1991), oneyear temporary position in general chemistry (1991); Director of General Chemistry (1994)*; Department Chair (1991). *Served as chair of search committee.

Chair of committee of site operators involved in air quality network (1992-1994).

Prepared brochure for the Chemistry Department of Georgia Southern University (1993).

Representative of Georgia Southern on the organizing committee for the University System of Georgia Research Symposium, University of Georgia, Athens, GA (1992).

Representative of the Chemistry Department, Visitation Day (1991-1994).