



HARRY G. FAIR

Each year, a special lecture is given in memory of Harry G. Fair, an outstanding OU alumnus. Harry G. Fair was born in Okmulgee, Oklahoma, on June 3, 1916. He received his B.S. in Chemical Engineering in 1939. He joined Phillips Petroleum Company in 1939 and worked his way up to Vice President for Supply and Transportation, with responsibility for world-wide exchange of crude oil and all transportation facilities. In 1966, he joined the M.W. Kellogg Company as Executive Vice President, in charge of all engineering activities and became Executive Vice President of Coastal States Gas Corporation from 1971 until the time of his death on July 27, 1974. Harry G. Fair was active in service to society and to his alma mater. He was a member of a number of professional societies and was a licensed professional engineer.

This lecture is made possible by the Harry G. Fair Memorial Fund contributed by his widow, Jane Swift Fair. Arrangements are made by the School of Chemical Engineering and Materials Science.

Vita: Gary L. Haller

Born: 10 July 1941, Loup City, Nebraska
Degrees: B. S., University of Nebraska at Kearney, Nebraska, '62
 Ph.D., Northwestern Univ., Evanston, IL, '66

Professional Experience, Other than at Yale:

Sept. '66 - Sept. '67 NATO Postdoc, Fellow, Oxford University
 Dec. '71 - July '72 Univ. Catholique de Louvain, Belgium
 Summer '74 U. N. Industrial Development Org., Consultant, Bahia Blanca, Argentina
 Summer '75 Chairman, Gordon Research Conference on Catalysis
 Jan. '77 - Dec. '79 Council of the Gordon Research Confs.
 Jan. '89 - Dec. '91 International Union of Pure and Applied Chemistry, Associate Member, Commission on Colloid and Surface Chemistry
 Sept. '77 - Sept. '81 Science Research Council, Senior Visiting Fellow, University of Edinburgh
 Mar. '78 - Aug. '78 Chairman, Division of Colloid and Surface Chemistry, American Chemical Society
 Jan. '82 - Dec. '82 Visiting Scholar, National Bureau of Standards
 July '81 - Dec. '81 Member, Conn. Acad. of Sci. & Engr.
 Aug. '86 - present General Chairman, 11th International Congress on Catalysis

Editorial Boards

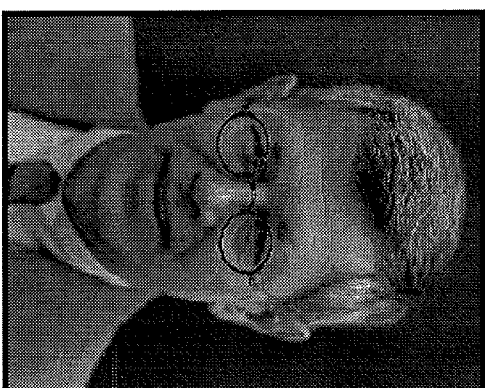
Mar. '82 - '90 Board of Editors, *American Scientist*
 July '84 - present Board of Editors, *Catal. Rev. - Sci. & Eng.*
 Jan. '85 - present Board of Editors, *J. Catal.*
 July '88 - '93 Co-Editor, *Journal of Catalysis*
 July '88 - present Advisory Board, *Catalysis Letters*
 May '89 International Editorial Board, *Reaction Kinetics and Catalysis Letters*

Catalysis Society

July '89 - June '93 President, The Catalysis Society
 Jan. '77 - Dec. '93 Board of Directors, The Catalysis Society
 Aug. '85 - June '89 Vice President, The Catalysis Society
 Aug. '83 - July '89 Foreign Secretary, The Catalysis Society

Experience at Yale:

July '67 - June '72 Asst. Prof., Dept. of Engr. & Applied Sci.
 July '71 - June '72 Yale University, Junior Faculty Fellow
 July '72 - June '80 Assoc. Prof., Dept. of Engr. & Applied Sci.
 July '80 - July '81 Professor, Dept. of Engr. & Applied Sci.
 Jan. '81 - June '81 Acting Master, Jonathan Edwards College
 July '81 - present Professor, Dept. of Chemical Engineering
 July '83 - Dec. '83 Acting Chairman, Dept. of Chemical Engr.
 July '84 - June '87 Chairman, Council of Engineering, Bection Prof. of Engr. & Applied Science
 July '85 - present Prof., Dept. of Chem. Engr. & Chemistry
 Aug. '87 - June '89 Deputy Provost for Phys. Sci. & Engr.



GARY L. HALLER

Consulting Experience:

Jan. '69 - July '69 Dept. of Health, City of New Haven, CT
 Sept. '71 - Dec. '75 Monsanto Co. (Univ. Res. Inst. of Conn., Inc.)
 Oct. '74 - July '75 Olin Corp. (Univ. Res. Inst. of Conn., Inc.)
 Dec. '74 - July '75 Commerce Technical Advisory Board, U. S. Dept. of Commerce
 Dec. '75 - Jan. '77 Environment, Inc., Branford, CT
 Jan. '75 - Dec. '79 Warner-Lambert Co., Milford, CT
 Jan. '78 - Dec. '80 U. S. Department of Energy
 Summer, '82 Union Camp Corporation
 July '82 - Dec. '82 EXXON Research & Engineering Co.
 Nov. '82 - Nov. '83 Olin Corp., Metals Division
 April '82 - June '84 National Science Foundation
 April '82 - present American Cyanamid Co., Stamford, CT
 Jan. '86 - present Sun Refining and Marketing Co.
 Jan. '86 - present Engelhard Corp.

Professional Society Membership:

American Association for the Advancement of Science
 American Chemical Society
 American Institute of Chemical Engineers
 Catalysis Society
 The Royal Society of Chemistry, London
 Sigma XI

Awards:

Catalysis Society of Metropolitan New York Award for Excellence in Catalysis, sponsored by Exxon Research and Engineering Company, '93

YOU ARE CORDIALLY INVITED
TO ATTEND THE 21ST ANNUAL

Harry G. Fair Memorial Lecture

IN CHEMICAL ENGINEERING
AND MATERIALS SCIENCE

April 19, 1995, 3:30 P.M.

THE LECTURE WILL BE GIVEN ON CAMPUS,
IN SARKEYS ENERGY CENTER, ROOM N-202

COFFEE AND REFRESHMENTS WILL BE SERVED

Physical and Chemical Characterization of Mesoporous Molecular Sieve Materials

by Gary L. Haller
Department of Chemical Engineering,
Yale University

The mesoporous molecular sieves (MCM-41) recently discovered by Mobil are potentially interesting catalysts and catalyst supports. These materials have uniform parallel channels in the range of 15 - 100 Å. We have prepared a series of these materials with five Si/Al ratios (0.7, 1.1, 3.0, 5.0, and 16) with six pore sizes between 15 - 40Å. We have characterized these materials by small angle IR, XRD, TEM, 27Al, 29Si MAS NMR. The crystallinity, porosity and acidity are functions of the source of the pseudobornemite used in the preparation and of the pore size which was varied by the alkyl chain length of the alkyl trimethyl ammonium template used (C6, C8, C10, C12, C14, and C16). For chemical characterization, we have used hydrocarbon adsorption and two acid catalyzed reactions, cumene hydrogenolysis and 2-methyl-2-pentene isomerization. The acidity measured by the initial rate of methyl shift in 2-methyl-2-pentene, correlates with the fraction of alumina in tetrahedral sites. The complete grid of structural changes determined by 27Al and 29Si NMR and acidity determined by 2-methyl-2-pentene will be presented. The correlation between structure and acidity will be interpreted in terms of variation of bond length and bond angle which are not a unique function of either composition or pore size, but determine the overall acidity of the structure.

SCHOOL OF CHEMICAL ENGINEERING
AND MATERIALS SCIENCE
THE UNIVERSITY OF OKLAHOMA
SARKEYS ENERGY CENTER
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NORMAN, OKLAHOMA 73019-0628

THE UNIVERSITY OF OKLAHOMA
COLLEGE OF ENGINEERING

THE 21ST ANNUAL

Harry G. Fair Memorial Lecture

in



CHEMICAL ENGINEERING

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