

**DIRECTORY
OF
ENVIRONMENTAL
RESEARCH FACULTY**

December 1972

ENVIRONMENTAL RESOURCES



CENTER

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**COUNCIL
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FOREWARD

The purpose of this directory is to provide a listing of CSU faculty having specialized training and research experience in fields directly related to environmental quality.

It consists of an alphabetized list of the faculty members, their departments and special fields of research or study, and some of their recent activities. No attempt has been made, however, to be complete in listing publications, research, or other information.

A keyword index has been provided in Section III to assist you in locating faculty having particular specialties. The numbers following keywords refer to the number assigned to each faculty member found along the right hand margin in Section I of the directory. An additional cross reference may be found in Section II in which the faculty are listed by college and department.

The assistance of deans and department heads who submitted the names of qualified faculty and reviewed the information in this directory is acknowledged with appreciation.

Because of the broadness of the field of environmental research and study, some errors of omission and commission undoubtedly have been made. Suggestions to improve subsequent directories will be welcome.



Norman A. Evans
Director

SECTION I
DIRECTORY OF FACULTY
ENVIRONMENTAL SPECIALTIES AND EXPERIENCE

ABEL, JOHN H. JR. **1**
Associate Professor Physiology and Biophysics

Specialties: Endocrine control of growth and cellular differentiation in the hypothalamic-pituitary adrenal stress axis and the hypothalamic-pituitary-gonadal-reproduction axis in the vertebrates.

Experience: Scientific Specialist to work on Biosatellite II, NASA. Chief investigator, Effect of Environmental Pollutants on Salt Gland Function in Mallards, NSF.

ADAMS, ROBERT P. **2**
Assistant Professor Botany and Plant Pathology

Specialties: Biochemical and numerical plant systematics.

Experience: Computer Programmer/Systems Analyst for Control Data Corporation, Palo Alto, Calif. Co-investigator, Vegetational Resource Inventory of Colorado; variability in *Juniperus* in relation to geography and environment.

ALBERTSON, MAURICE L. **3**
Centennial Professor Civil Engineering

Specialties: Fluid mechanics; hydraulics; water resource systems; international development engineering.

Experience: 30 years experience in design and development of hydraulic structures, energy dissipation, alluvial hydraulics, boundary layer studies and diffusion. U.S. Coordinator, Asian Institute of Technology, Bangkok, Thailand, 1959-present. Developed CSU Hydromachinery Laboratory. Consultant: Johns-Manville Corp., Denver Water Board, University of Houston, AID, national and international engineering firms.

ALDEN, HOWARD R. **4**
Associate Professor Recreation Resources

Specialties: Recreation comprehensive planning; impact studies.

Experience: Special Assistant to Governor of Idaho on outdoor recreation. Consultant: Idaho Park Board and Department of Recreation; recreation development, Potlatch Forests, Inc; outdoor recreation, Idaho Association of Soil Conservation Districts.

ALEXANDER, ARCHIBALD F. 5
Professor and Dept. Head Pathology

Specialty: Cardiovascular disease as related to high altitude adaptation in cattle.

Experience: Heart research funded since 1956-present by NIH and Heart Institute. Veterinary teaching and research in Europe, Kenya, Chile, and Peru. Consultant: Faculty of Veterinary Medicine, Austrol University, Valdivia, Chile.

ALTMAN, JACK 6
Professor Botany and Plant Pathology

Specialties: Plant pathology; effect of air pollution on plants.

Experience: Research Plant Pathologist, Iranian Ministry of Power and Water. Research: diseases of turf grass, onions, sugar beets; pollution damage to Colorado plants; evaluation of fungicides and nematocides.

AUKERMAN, ROBERT 7
Assistant Professor Recreation Resources

Specialty: Water based recreation.

Experience: Research Consultant: Water Resources Center for Army Corps of Engineers. Co-director, Feasibility and Recommendations for Classifying Water report to National Water Commission.

BAGBY, JOHN R., JR. 9
Professor Microbiology
Director, Institute of Rural Environmental Health

Specialty: Epidemiology.

Experience: Deputy Director, National Communicable Disease Center, USPHS, 1966-1969. Co-Chairman, Interagency Committee on Back Contamination, NASA, 1966-present. Member, World Health Organization, Malaria Eradication Coordination Conferences, 1966, 1968, 1969. Consultant: National Center for Disease Control; Planetary Quarantine Advisory Committee, NASA-AIBS.

BAKER, RALPH P. 11
Professor Botany and Plant Pathology

Specialty: Space biology.

Experience: Chairman, American Institute of Biological Science Committee (AIBS) for planning Manned Orbital Research Laboratory experiments in space biology. Member, AIBS committee for study of role of Lunar Receiving Laboratory in the post-Apollo Biological and Biomedical activities. Visiting Professor and Senior Postdoctoral Fellow (NSF), University of Cambridge, England.

BALDWIN, LIONEL V. 12
Professor Civil Engineering
Dean, College of Engineering

Specialties: Fluid mechanics; thermo sciences.

Experience: Member, Colorado Air Pollution Variance Board. Originator of CSU Resources in Graduate Education (SURGE). Six years of research with NASA, Lewis Research Center, Cleveland, Ohio. Co-recipient of NASA award for development of particle beam power density probe.

BALDWIN, PAUL H. 13
Professor Zoology

Specialty: Avian ecology.

Experience: Visiting Professor, University of Montana Biological Station. Consultant: Ecology Consultants, Inc.

BALL, JAMES W. 14
Associate Professor Civil Engineering

Specialties: Hydraulic engineering; hydrology.

Experience: Forty years of research and consulting in hydraulic engineering. Director, Western Canada Hydraulic Laboratories, Ltd.

BALL, WILLIAM S. **15**
Assistant Professor Agronomy
Extension Agronomist

Specialty: Crop production.

Experience: Widely experienced in crop production and land use.
Extension agronomist in eastern Colorado.

BARNES, ALBERT H. **16**
Associate Professor Civil Engineering

Specialties: Photogrammetry; hydrology; hydraulics.

Experience: Hydraulic engineer, U.S. Waterways Experiment Station,
U.S. Corps of Engineers. Consultant: problems of surface
storm drainage, Metropolitan Sewer District, Louisville, Ky.

BARNEY, CHARLES W. **17**
Professor Forest and Wood Sciences

Specialties: Forest ecology; silviculture; tree shelterbelts; forest
regeneration on harsh sites; effects of clear cutting forest
stands.

Experience: Head, CSU Department of Forest Management and
Utilization, 1952-1966.

BARTLETT, E. THOMAS **18**
Assistant Professor Range Science

Specialties: Management and economics of range ecosystems; decision
analysis in range science.

Experience: Instructor and Research Associate, University of Arizona.
Consultant: DMJM, Redwood City, Calif.

BEHNKE, ROBERT J. 19
Associate Professor Fishery & Wildlife Biology
Assistant Leader, Colorado Cooperative Fishery Unit

Specialties: Systematics; zoogeography; genetics of fishes, especially salmonids.

Experience: Consultant: Rare and Endangered Species Committee, American Fish Society; aquatic biology, Mianus Gorge Foundation, Stamford, Conn. Research Zoologist, University of California, Berkeley. National Research Council Fellow at Leningrad. Senior Scientific Editor, Scripta Technica; translation editor (Russian to English) of Journal of Ichthyology, Journal of Hydrobiology.

BELL, JAMES M. 20
Associate Professor Civil Engineering

Specialty: Soil mechanics.

Experience: Consultant: soils and foundation engineering.

BENTON, DOUGLAS A. 21
Associate Professor Business

Specialties: Organization and human resources management.

Experience: Research Associate, Roy Jorgensen and Associates, Washington, D.C.. Principal investigator, Programming of Highway Safety Improvements, U.S. Bureau of Public Roads. Co-author of **Computer-Assisted Management Simulation**. Contributor: Management Methods for Urban Water Systems Institute, CSU; Environmental Design for Public Projects, NSF/CSU. Co-director, law enforcement research project. Management and Industrial relations consultant.

BERG, WILLIAM A. 22
Assistant Professor Agronomy

Specialties: Mine tailing reclamation; soils.

Experience: Reclamation of disturbed sites; revegetation of strip mine spoils; soil survey and classification. Basic training at PhD level in soil chemistry. Research Soil Scientist, USFS, Berea, Ky.

BILLENSTIEN, DOROTHY C. **23**
Associate Professor Anatomy

Specialty: Neuroendocrinology.

Experience: Research and numerous publications on the neuroendocrine systems in fish.

BOES, DUANE C. **24**
Associate Professor Statistics

Specialties: Statistical modelling; queueing theory; statistical inference; stochastic hydrology.

Experience: Consultant: modelling, and probability and statistical problems in hydrology to CSU water resources engineers.

BOHMONT, BERT **25**
Agricultural Chemical Coordinator Agricultural Sciences

Specialties: Weed control; pesticides; herbicide injury to croplands.

Experience: Consultant: herbicide injury; conversion of educational material on agricultural chemicals from English to Spanish, R. J. Hernandez and Associates, EPA grant.

BOLE, JAMES B. **26**
Assistant Professor Civil Engineering

Specialties: Hydraulics; air-sea interaction.

Experience: Engineering studies on environmental criteria influencing the design of off-shore ocean tower structures, Chevron Oil Field Research Co.

BONHAM, CHARLES D.

Associate Professor

27

Range Science

Specialties: Quantitative ecology; research methods.

Experience: Consultant: World Resources Corp. in statistical ecology. Conducted research at Cornell Aero Space Laboratory on statistical and mathematical characterizations of forest community components; University of Arizona on statistical and mathematical modelling of insect life cycles as affected by environmental factors; statistical and mathematical analyses of plant species associations; autoecological parameters.

BOSE, RAJ CHANDRA

Professor

28

Mathematics and Statistics

Specialties: Design of experiments; combinatorial problems of design; information theory and coding; graph theory; finite geometries.

Experience: 43 years teaching and research in mathematics and statistics, approximately 123 published technical papers and articles. Head, Statistics Department, Calcutta University (1945-49); Professor, University of N. Carolina (1949-71) (Kenan Professor, 1966-71); Fellow, International Statistical Institute; Fellow, Royal Statistical Society; President, Institute of Mathematical Statistics; Honored by International Symposium on Combinatorial Mathematics, 1971.

BOWDEN, DAVID C.

Assistant Professor

29

Statistics

Specialties: Regression analysis; statistical applications in fish and game problems.

Experience: Conducts annual summer statistical workshops for game and fish biologists, 1966-72. Consultant: state and federal game and fish departments. Co-investigator, fish and game research since 1965.

BOYD, WILLIAM 30
Professor Microbiology

Specialty: Arctic microbiology.

Experience: Microbiologist, U.S. Antarctic Research Program, NSF.
Consultant: biological-medical program, University of Tromsø, Norway. Research: Arctic Sewage Disposal, ONR.

BREngle, KENNETH G. 31
Associate Professor Agronomy

Specialty: Soil conservation.

Experience: Special knowledge of dry land agriculture; soil conservation under low rainfall conditions; use of land without irrigation. Superintendent, San Juan Basin Branch Station.

BREWER, J. WAYNE 32
Assistant Professor Zoology

Specialty: Entomology.

Experience: Member, Colorado Apiary Advisory Board; CSU Dutch Elm Disease Committee. Research: pinon pine insect control; honey bees; ornamental plant pests.

BRINK, KENNETH M. 33
Professor and Dept. Head Horticulture

Specialties: General horticulture; vegetables.

Experience: Wide experience in horticultural programs related to land beautification; plants to enhance man's environment. Member, Denver Botanic Gardens Board of Trustees. Associate Professor of Horticulture, Purdue University. Outstanding Service Award, Indiana Vegetable Growers Assn.

BRINK, JAMES S. 34
Professor Animal Science

Specialty: Cattle breeding.

Experience: Director, project examining influence of in-breeding on hybrid vigor in beef cattle.

BRUNER, HOWARD **36**
Professor Education

Specialties: Environmental education; school administration

Experience: Director, Title III Proposal for Regional Outdoor Science Center. Consultant: Title III Development of Curriculum Plan for Junior High School, Poudre R1, Colorado.

BURNS, LARY K. **37**
Assistant Professor Geology

Specialties: Igneous and metamorphic petrology and petrography; electron microprobe analysis; low temperature gas chemistry; geologic controls of groundwater pollution.

Experience: Consultant: American Smelting and Refining Co. Assistant Professor, San Fernando Valley State College.

BUTLER, JACKIE D. **38**
Extension Associate Professor Horticulture

Specialty: Turf management.

Experience: Associate Professor and Extension Turf Specialist, Department of Agriculture, University of Illinois. Recipient of 1969 Illinois Turf Foundation Award for outstanding contributions to turf grass industry. 1971 recipient of Service Award from midwest golf course superintendents' association.

CAMPBELL, JOHN A. **39**
Associate Professor Geology

Specialties: Stratigraphy; sedimentary petrology; paleoecology of the Lower Paleozoic Systems of west central Colorado; applications of statistics and computer science to geologic problems.

Experience: Research: the Devonian system of Colorado, northern New Mexico, and the Colorado Plateau; stratigraphy of the Chaffee Group (Upper Devonian) in west central Colorado; petrology of Upper Devonian shelf carbonate rocks of west central Colorado. Industrial and federal agency experience in sub-surface geology and groundwater geology.

CARLSON, CLARENCE A. 40
Associate Professor Fishery & Wildlife Biology

Specialties: Ecology of fishes; aquatic radioecology; water quality.

Experience: Assistant Professor of Biology, Augustana College, Ill.
Assistant leader, Cooperative Fishery Unit, Cornell
University. Consultant: environmental impact of large dams.

CARD, C. SEYMOUR 41
Assistant Professor Clinical Sciences

Specialty: Cattle cardiorespiratory responses in high altitudes.

Experience: Developed mastitis control program for dairy cattle.

CAULFIELD, HENRY P. 42
Professor Political Science

Specialties: Public administration; politics of natural resources.

Experience: Executive Director, Water Resources Council, Washington,
D.C., 1966-1969. Consultant on water planning in the
United States and internationally. Director, USDI Resources
Program. Chairman, Environmental Advisory Panel to the
Texas Water Development Board on the Texas Water Plan.

CERMAK, JACK E. 43
Professor Civil Engineering
Professor-in-charge, Fluid Mechanics Program

Specialties: Fluid mechanics; environmental and structural aerodynamics;
atmospheric simulation and diffusion.

Experience: Director, CSU Fluid Dynamics and Diffusion Laboratory.
Developed unique meteorological wind tunnel for
simulation of atmosphere. Consultant: national and
international government agencies and engineering
consulting firms. 1969 recipient of Aeronautics and
Astronautics Award for Distinguished Leadership in
Aerospace Engineering, American Institute for Aeronautics
and Astronautics. Founding member, Wind Engineering
Research Council. Member, Committee on Natural
Disasters, National Academy of Engineering; Joint
Committee on Planning and Design of Tall Buildings,
ASCE; International Association for Bridge and Structural
Engineering. Past Chairman, Engineering Mechanics Division,
American Society for Engineering Education.

CHAN, P. W. **44**
Assistant Professor Electrical Engineering

Specialties: Laser plasma diagnostics.

Experience: Lecturer, University of Hong Kong, 1968-1970. Post doctoral Research Fellow, National Research Council, Ottawa, Canada, 1967-1968.

CHOLAS, GUS **45**
Associate Professor Microbiology

Specialties: Wildlife disease; epidemiology; community health; preventive medicine; World Hunger Programs.

Experience: Consultant: food hygiene to clinics.

CHURCHILL, RUSSELL J. **46**
Professor and Dept. Head Electrical Engineering

Specialties: Gaseous electronics; plasma diagnostics.

Experience: Professor and chairman, Department of Electrical Engineering, Clarkson College of Technology, Potsdam, N.Y., 1965-1967. Chief of Engineering Physics, Power Conversion and Instrumentation Division, Republic Aviation Corporation, Farmingdale, N.Y., 1963-1965.

CLYMA, WAYNE **47**
Associate Professor Agricultural Engineering

Specialties: Evapotranspiration; irrigation management; groundwater resources.

Experience: Research as Agricultural Engineer with USDA-ARS-SWC, Bushland, Texas. Assistant Professor, Imperial Ethiopian College of Agriculture and Mechanical Arts, AID/Oklahoma State University.

COLE, STANLEY M. 48
Professor Education

Specialty: Public school lands.

Experience: Active on Colorado Education Association's Committee on Public School Lands. Author of publications in his specialty.

COLEMAN, DAVID 49
Affiliate Professor Agronomy
Decomposer Integrator, Natural Resources
Ecology Laboratory

Specialty: Soil ecology with emphasis on soil microfauna.

Experience: Research Associate and Assistant Professor of Zoology, Savannah River Ecology Laboratory of the University of Georgia, 1965-1971. Post doctoral Fellow, University of Wales, Great Britain.

COOK, C. WAYNE 50
Professor and Dept. Head Range Science

Specialty: Research, management, and administration of range ecosystems.

Experience: Consultant: CSIRO of Australia; NSF for Argentina and U.S. International Education Programs; Alaska Agricultural Experiment Station; State of Utah Range Management. Assistant Dean, College of Natural Resources, Utah State University.

COREY, ARTHUR T. 51
Professor Agricultural Engineering

Specialties: Subsurface drainage; evaporation from soils; similitude for two-phase flow in porous media and diffusion of gases in porous media; groundwater.

Experience: Consultant: Petroleum Research Corp., Denver. Director, engineering phase of water management project, West Pakistan/CSU. Permanent member, International Committee on Multiphase Flow of the International Association for Hydraulic Research. Visiting Professor, Institute of Hydromechanics and Water Resources Management, Swiss Federal Institute of Technology, Zurich, 1972-1973. Research with Gulf Research and Development Co.

CORRIN, MYRON L. **52**
Professor Atmospheric Science

Specialties: General physical chemistry; surface chemistry with emphasis on solids and gas absorption on solids; physics and chemistry of atmospheric aerosols in the field of atmospheric chemistry with regard to particulate pollutants.

Experience: Concerned with the mechanism of heterogeneous nucleation since 1959. Professor of Chemistry, University of Arizona. Member, advisory board of *Journal of Colloid Science*. Consultant: Airesearch Corp.; Phillips Petroleum Co. Also studying possible inadvertent weather modification caused by airborne lead, NSF.

COX, STEPHEN K. **53**
Associate Professor Atmospheric Science

Specialties: Radiation physics; general atmospheric circulation.

Experience: Consultant: national weather services of Greece, India, Malaysia, and Hong Kong; NOAA; NCAR; Ball Bros. Research: Denver Olympic Committee. Outstanding Educators of America Award, 1971. Associate Scientist, Space Science and Engineering Center, University of Wisconsin. Chairman, NCAR Research Flight Facility Advisory Panel. Member, NCAR Instrumentation Advisory Committee.

CRINGAN, ALEXANDER T. **54**
Professor Fishery and Wildlife Biology

Specialties: Wildlife management; factors affecting productivity of populations of wildlife especially large mammals, including carnivores; techniques, including remote sensing and biotelemetry.

Experience: Associate Professor, Department of Zoology, University of Guelph, Canada. Director, Canadian Society of Wildlife and Fishery Biologists, Ottawa. Member, Advisory Committee on Migratory Birds, Wildlife Society, Washington, D.C. Founding Executive Director, Ontario Waterfowl Research Foundation.

CRISWELL, MARVIN A. 55
Assistant Professor Civil Engineering

Specialty: Structures.

Experience: Structural Engineer, protective structures, U. S. Army Engineers Waterways Experiment Station, Vicksburg, Miss.

CULLEY, JACK F. 56
Professor Management

Specialties: Retirement programs; conservation of human resources; labor management and personnel.

Experience: Labor arbitrator for American Arbitration Association and the Federal Mediation and Conciliation Service. Management consultant to industry. Dean, College of Liberal and Fine Arts, University of Liberia, Africa. Consultant: Federal Department of Education, National Planning Board; AID.

DANIELSON, ROBERT E. 57
Professor Agronomy

Specialties: Soil physics; water use and irrigation practices.

Experience: Water requirements of plants; irrigation practices; movement of nutrients through soils; influence of water on growth of plants. Research: soil and water projects, Colorado Agricultural Experiment Station; groundwater recharge and surface water management, OWRR. Consultant in Nigeria.

DAVIS, ROBERT W. 58
Centennial Professor Anatomy

Specialties: Gross and microanatomy.

Experience: Head, CSU Department of Anatomy, 1948-1970. Visiting Scientist, Armed Forces Institute of Pathology, Washington, D.C. Research: deer antler growth; blindness in elk, NIH.

DAVIS, THOMAS **59**
Instructor Recreation Resources

Specialties: Environmental planning; environmental education program development for adult education.

Experience: Land use recreational planning including regional and reservoir, Missouri Extension Service.

DECKER, EUGENE **60**
Assistant Professor Fishery and Wildlife Biology

Specialties: Public relations in natural resources management and conservation education; law enforcement.

Experience: Consultant: engineering firms on environmental impacts; to State of New Mexico on exotic big game introductions.

DILS, ROBERT E. **61**
Professor Watershed Sciences
Dean, College of Forestry and Natural Resources

Specialties: Watershed hydrology and management.

Experience: Consultant: watershed management, FAO, Argentina; soil and water conservation, FAO, El Salvador, Central America; graduate education in forestry and natural resources, University of the Andes, Venezuela; watershed management, AID, Taiwan. Fulbright Research Scholar, Tussock Grasslands and Mountain Lands Institute, Lincoln College, New Zealand.

DIX, RALPH L. **62**
Professor Botany and Plant Pathology

Specialty: Ecology of grasslands and forests.

Experience: Editor of **Ecology**. Associate Professor, University of Saskatchewan Research: ecological approaches to mine waste revegetation and classification of coniferous forests in the southern Rocky Mountains.

DOTSON, A. BRUCE **63**
Assistant Professor Sociology

Specialties: City and regional planning; planned social change and urbanization.

Experience: Partner, Systems Gaming Associates, gaming consultants to universities and industry. Consultant to environmental consultants.

DOTZENKO, ALEXANDER D. **64**
Professor Agronomy

Specialties: Crop ecology; weed control.

Experience: Plant ecologist specializing in pasture plants; development of draught-resistant grasses. Experienced in soil survey and land classification. Conducted revegetation project of campgrounds for National Park Service. Visiting Lecturer in agronomy, University of Canterbury, New Zealand.

DOXTADER, KENNETH G. **65**
Associate Professor Agronomy

Specialties: Soil microbiology; biogeochemistry; pollution; degradation of pesticides in soils.

Experience: Studies of influence of soil microflora on metal immobilization and mineralization. Consultant: analysis of ecosystems, IBP. Member, Colorado Committee for Environmental Information.

DUPONT, JACQUELINE **66**
Associate Professor Foods and Nutrition

Specialties: Diet; lipid metabolism.

Experience: Assistant Professor biochemistry, Howard University. Principal Investigator, diet and lipid metabolism research for NIH, Colorado Experiment Station, Colorado Heart Association, NSF.

DYER, A. ALLEN 67
Assistant Professor Forest and Wood Sciences

Specialties: Land-use planning; resource allocation on wildlands; improved timber harvesting; forest economic modelling.

Experience: Research in forest economics, Utah State University. Consultant: recreation site inventory systems.

DYER, MELVIN I. 68
Affiliate Professor Fishery and Wildlife Biology
Rate Process Studies Director, Natural Resources
Ecology Laboratory

Specialties: Avian physiology and ecology; population biology; vertebrate pest control.

Experience: Assistant Professor of Zoology and Director of Avian Population Research Station, University of Guelph, Ontario, Canada. Biologist-Supervisor, Field Research Station, Sandusky, Ohio for USDI Bureau of Sport Fisheries, and Wildlife, Patuxent Wildlife Research Center. Associate Professor of Zoology, Ohio State University, Columbus, Ohio.

ECHOLS, JAMES W. 69
Extension Assistant Professor Agronomy

Specialty: Seed production and certification.

Experience: Primarily concerned with selection and maintenance of pure seed and assurance of reliable seed supplies. Seed advisor, Farm Land Industries, Kansas City, Mo. Chairman, Sorghum Committee. Member, Foundation Seed Committee and Grass Committee of the International Crop Improvement Assn.

EDWARDS, DAVID F. 70
Professor Electrical Engineering, Physics

Specialties: Quantum electronics; solid state physics.

Experience: Fulbright Professor, Instituto de Fisica, Universidad do Rio Grande do Sul, Porto Alegre, Brazil. Co-chairman, Physics

of Quantum Electronics Conferences, University of Arizona, 1968, 1969, 1970; organizer and chairman of conferences in Colorado, 1966 and 1967.

EDWARDS, HARRY W. **71**
Assistant Professor Mechanical Engineering

Specialty: Chemistry.

Experience: Principal investigator of study on the Impact on Man of Environmental Contamination Caused by Lead, NSF. Assistant Professor, Chemistry, University of Arizona.

ECKERT, JERRY **73**
Assistant Professor Economics

Specialties: Agricultural development; food economics; agricultural policy; production economics.

Experience: Agricultural Planning Advisor to Pakistan, Ford Foundation. Agricultural Economist, Agri-Research, Inc. Research Associate, Economic Research Service, USDA.

ELLIS, JAMES **74**
Affiliate Professor Sociology and Anthropology
Consumer Integrator, Natural Resources
Ecology Laboratory

Specialties: Socio-ecological systems in ungulates and primates; systems ecology; environment-population interaction among vertebrates.

Experience: Postdoctoral research on animal socio-ecological systems, University of Bristol, England. Member, biological expeditions to Gulf of California and to Mexico. Conducted field studies on pronghorn antelope and wild turkeys. Developed systems models of pronghorn antelope and wild turkeys. Developed systems models of pronghorn populations.

ELLS, JAMES E. **75**
Extension Associate Professor Horticulture

Specialty: Nonpolluting systems for plant production, processing, and marketing.

Experience: CSU Extension Horticulturalist since 1961. Developed pilot facility for processing and evaluating processed vegetables.

EPLING, GLENWOOD **76**
Professor and Dept. Chairman Anatomy

Specialties: *Electronmicroscopy; histology; embryology (heart and lungs).*

Experience: Past President, Mountain States Society of Electron Microscopists. Fellow, The Royal Microscopical Society, London, England. President, American Association of Veterinary Anatomists. Research: emphysema, NIH.

EVANS, NORMAN A. **77**
Professor Agricultural Engineering
Director, Environmental Resources Center

Specialties: Hydrology; irrigation engineering; drainage and salinity control; groundwater mechanics.

Experience: Head, CSU Department of Agricultural Engineering, 1959-1969. Vice-chairman, Colorado Water Pollution Control Commission. Consultant: irrigation project planning and design, Thailand; drainage and salinity control, Turkey; numerous irrigation and drainage system design projects. Vice-president, American Society of Agricultural Engineers.

FEAD, JOHN N. **78**
Professor and Dept. Head Civil Engineering

Specialties: Structures; soil mechanics.

Experience: Twenty years of research and teaching at Canadian and U.S. universities. Structural and/or Foundation Design Engineer for a number of U.S. and Canadian engineering firms.

FECHNER, GILBERT H. **79**
Professor Forest and Wood Sciences

Specialties: Forest genetics; morphology; ecological impact of cloud-seeding (phenology).

Experience: Project Leader, genetic characteristics and their use in the improvement of Rocky Mountain forest trees, McIntire-Stennis Project, Colorado Agricultural Experiment Station.

FLICKINGER, STEPHEN A. **80**
Assistant Professor Fishery & Wildlife Biology

Specialty: Culture of bait, food, and sport fishes.

Experience: Teaching and research on culture of warm-water fishes.

FOSS, PHILLIP O. **81**
Professor Political Science

Specialty: Environmental politics and administration.

Experience: Consultant: National Academy of Sciences; Bureau of Land Management; USDI. Research: water agencies, OWRR; agricultural development in West Pakistan, AID.

FRANKLIN, WILLIAM T. **82**
Associate Professor Agronomy

Specialty: Soil salinity.

Experience: Responsible for Colorado research program in soil salinity and associated water problems. Consultant: problems of soil salinity, sodic soils, irrigation water salinity (use and standards); feasibility of use of effluent water for irrigation water from a proposed pulp and paper mill, Whittemore & Parson, Inc., New York. Research: Mineral-Water-Ion Equilibria Related to Water Management Practices, CSU/W. Pakistan.

FRAYER, WARREN E. **83**
Associate Professor Forest and Wood Sciences

Specialties: *Natural resources biometry; natural resource inventories; sampling techniques; data processing; environmental inventory for natural resource planning.*

Experience: *Director of workshops on use of data processing and natural resource biometry. Consultant: sampling designs and computer applications. Mathematical Statistician, Biometrics Unit, Northeastern Forest Experiment Station, USFS; inventories, USFS, Denver.*

FREEMAN, DAVID M. **84**
Assistant Professor Sociology

Specialty: *Sociology of development with focus on diffusion of innovation in the context of social conflict and planning.*

Experience: *Project Director, sociological aspects of water management in West Pakistan, AID. Operations Officer, Peace Corps, Ceylon and Nepal.*

FRENCH, NORMAN R. **85**
Professor Fishery and Wildlife Biology
Director of Field Studies, Natural Resources
Ecology Laboratory

Specialties: *Ecosystem analysis; computer simulation; population dynamics; zoogeography; radiation effects on populations.*

Experience: *Research Ecologist (currently consultant) at UCLA Laboratory of Nuclear Medicine and Radiation Biology. Fellow, American Association for Advancement of Science.*

FREY, ANTHONY L. **86**
Associate Professor Agricultural Engineering

Specialties: *Food and biochemical engineering; effect of food processing on vitamin content; menu analysis and planning by computer.*

Experience: *Systems Development Engineer, The Dow Chemical Co. Assistant Professor of Chemical Engineering and*

Professor-in-charge, Chemical Industries Technology, Iowa State University. Fulbright Lecturer and Royal Norwegian Society for Scientific and Industrial Research Postdoctoral Fellow, Technical University of Norway, Trondheim.

FRONK, W. DON

87

Professor

Zoology

Specialty: Insect ecology and controls.

Experience: Chairman, CSU Department of Entomology. Advisor on pesticides, Colorado Department of Agriculture. Western regional representative in Entomology, Plant Protection Workshop, St. Louis, 1972.

FULTS, JESS L.

88

Professor

Botany and Plant Pathology

Specialties: Turf grasses; weed science.

Experience: Principal Investigator, crabgrass herbicides, Velsicol Corp., Chicago; environmental pollution by herbicides, CSU Experiment Station.

GAVIN, JAMES F.

90

Assistant Professor

Psychology

Specialty: Social psychology.

Experience: Director, Behavioral Science Research, American Airlines. Research Associate, Life Management Assn. Member, CSU Task Force on Rural Development. Research: Martin-Marietta; Coors Brewing Co.; Ft. Collins Police Dept.

GALER, BETTINA B.

91

Assistant Professor

Anatomy

Specialty: Fish disease.

Experience: Research: "whirling disease" in trout.

- GESSLER, JOHANNES** **92**
 Associate Professor Civil Engineering
 Specialties: Fluid mechanics; hydraulics.
 Experience: Research Engineer, Laboratory for Hydraulic Research, Swiss Federal Institute of Technology. Engineer, Hydropower Plants, Swiss consulting firm.
- GIBSON, JAMES H.** **93**
 Associate Professor Chemistry
 Director of Administration and Services,
 Natural Resources Ecology Laboratory
 Specialties: Analytical methods involving atomic emission and atomic absorption spectroscopy; gas chromatography; solution of specific analytical problems.
 Experience: Assistant Chairman, CSU Department of Chemistry, 1968-1969. Manager, Office of Divisional Activities and Informal Communications, American Chemical Society, 1969-1971.
- GIFFORD, CURTIS** **94**
 Assistant Professor Library Science
 Specialties: Forestry; agricultural sciences; ecology.
 Experience: Dane Biomedical Library, Dartmouth College. Author, **Agriculture and Forestry, Reference Sources.**
- GILBERT, DOUGLAS L.** **95**
 Professor Fishery and Wildlife Biology
 Assistant Dean, College of Forestry
 and Natural Resources
 Specialties: Ecology, wildlife biology and management; wildlife-range management, behavior; public relations in natural resources management.
 Experience: Professor, Wildlife Science; Extension Leader, Department of Natural Resources, Cornell University. Director, short courses in wildlife research and natural resources, Cornell University and CSU. Recipient, 1972 American Motors Conservation Award.

GOLDSBERRY, KENNETH L. **96**
Associate Professor Horticulture

Specialties: Greenhouse management; house and garden plants; landscape and environmental design.

Experience: President, Rocky Mountain Botanical Foundation, 1970-1971. President, Tenth National Agricultural Plastics Conference, Chicago, 1971. Research on fiberglass greenhouses.

GOODMAN, JAMES R. **97**
Professor Civil Engineering

Specialty: Structural mechanics and materials.

Experience: Co-investigator, Orthotropic Elastic and Strength Behavior of Wood, NSF. Consultant on bridge designs to highway departments.

GORMAN, HARRY A. **98**
Professor Clinical Sciences

Specialties: Surgery--orthopedic and implant; bioelectronics.

Experience: Manager, Department of Life Sciences, Martin-Marietta Corp., 1961-1964. CSU research involving biotelemetry, NASA, NIH, and Morris Animal Foundation.

GRANT, LEWIS O. **100**
Professor Atmospheric Science

Specialties: Cloud and precipitation physics; weather modification; synoptic and mountain meteorology.

Experience: Research: weather modification with emphasis in cloud studies to increase mountain snowpack, NSF and USBR; mountain-induced precipitation in the Rockies and western plains; possible inadvertent weather modification caused by airborne lead, NSF. Advisor, Colorado legislature on weather modification and Denver Olympic Committee. Consultant: USBR; NSF; National Academy of Sciences; universities, federal and state agencies; and private industries.

GRAY, S. LEE **102**
Assistant Professor Economics

Specialties: Water; natural resources economics.

Experience: CSU representative, Natural Resources Committee, Western Agricultural Research Council. Consultant: urban water intelligence systems, CSU College of Engineering. Research: National Water Commission.

GRAY, WILLIAM M. **103**
Associate Professor Atmospheric Science

Specialties: Tropical meteorology; turbulence; weather forecasting; atmospheric vortices; cumulus convection; severe storms.

Experience: Exchange Scientist in Japan under U. S. Japan Cooperative Scientific Research contract, NSF. Research sponsors: NOAA, NSF, NAVY, NASA. Member, Committee on Hurricanes and Meteorology, AMS. CSU member, UCAR-GARP Council.

GRIGG, NEIL S. **104**
Associate Professor Civil Engineering

Specialties: Urban water resources management; water resources systems analysis.

Experience: Chairman, Civil and Environmental Engineering, University of Denver, 1971-1972. Assistant Dean of Engineering, University of Denver, 1970-1971. Consultant: storm drainage studies for municipalities; water resources; waste water; disposal; flood hydrology; river mechanics; and general municipal engineering.

GROSS, JACK **105**
Assistant Professor Fishery and Wildlife Biology

Specialties: Wildlife population dynamics; simulation modelling; systems analysis.

Experience: Acting Leader, Colorado Cooperative Wildlife Research Unit. Assistant Professor of Wildlife Management, North Dakota State University.

HAGAN, HAROLD K. **106**
Associate Professor Fishery & Wildlife Biology

Specialties: Fishery biology and management; trout culture.

Experience: Consultant, Olympic National Park, U. S. National Park Service. Director, Western Fisheries Consultants. Research: thermal pollution in Yellowstone National Park and other water, USDI and OWRR.

HALL, PETER **107**
Associate Professor Physiology and Biophysics

Specialty: Use of altered atmospheric pressure, particularly hyperbaric oxygen, as an experimental and therapeutic tool.

Experience: Physician in charge of hypo/hyperbaric chamber. Consultant: Martin-Marietta Corp., Denver. Member, Anesthesia and Hyperbaric Oxygenation Committee, American Society of Anesthesiology.

HANAN, JOE J. **108**
Professor Horticulture

Specialties: Water use, efficiency and automation; air pollution effects on plants; physical factors affecting plant growth; use of polluted water for flower production.

Experience: Advisor and consultant to Colorado Flower Growers Assn.

HANSEN, RALPH W. **109**
Extension Associate Professor Agricultural Engineering

Specialties: Feedlot waste disposal and water pollution control; agricultural structures and environment.

Experience: CSU Department of Agricultural Engineering, 1956-present. Fullbright Lecturer, Helsinki, Finland. New Idea Division of Avco Corp., design of farm machinery.

HANSEN, RICHARD M. **110**
Professor Range Science

Specialty: Range biology.

Experience: Range Biologist, Colorado Agricultural Experiment Station. Consultant: private, state, federal, and foreign organizations on scientific and technical principles in zoology, wildlife, range and ecology.

HANTSBARGER, WILLIAM M. **111**
Extension Associate Professor Zoology

Specialty: Entomology.

Experience: Advisor to pesticide committees, industrial, and university groups.

HARPER, JUDSON M. **112**
Professor and Dept. Head Agricultural Engineering

Specialties: Extrusion processing; novel thermal processes; computer assisted menu planning; nutrient analysis.

Experience: Initiated Food Engineering Program at CSU. Venture Manager, Industrial Venture Team, General Mills, Inc. Head, Process Development Dept., GM. Consultant: Office of Economic Opportunity.

HARRILL, INEZ **113**
Professor Food Science and Nutrition

Specialties: Nutrition; protein metabolism.

Experience: 17 years teaching and research at CSU. Research: nutrient content of food served in nursing homes; influence of vitamins in body.

HART, WILLIAM E. **114**
Associate Professor Agricultural Engineering

Specialties: Irrigation water distribution; land preparation for irrigation; land disposal of sewage sludge.

Experience: Lecturer and Associate Specialist, University of California (Davis). Project Engineer, Hawaiian Sugar Planters' Assn.

HARTMAN, LOYAL M. **115**
Professor Economics

Specialties: *Water resources; agricultural economics; economic development.*

Experience: *Consultant: USBR, USDA, state water agencies.*

HAYMAN, ROBERT W. **116**
Associate Professor *Civil Engineering*

Specialties: *Highways, soil mechanics; photogrammetry.*

Experience: *Director, computer-managed Learning Systems Laboratory, a Control Data Corporation project at CSU. Consultant: engineering firms, highway departments, and industry in photogrammetry and project simulation.*

HEENEY, MARVIN W. **117**
Extension Associate Professor Animal Science

Specialty: *Animal reproduction.*

Experience: *Research: swine nutrition. Advisor to Colorado Swine Growers Assn.*

HEIKES, P. EUGENE **118**
Extension Professor Botany and Plant Pathology

Specialty: *Weed control.*

Experience: *Weed Specialist, Montana Extension Service.*

HEIL, ROBERT D. **119**
Assistant Professor Agronomy

Specialties: *Soil survey; land use planning.*

Experience: *Extension Soils Specialist in charge of CSU program in soil survey, soil use. Experienced in soil fertility and soil testing. Consultant: Meheen Environmental Consultants; Panhandle Eastern Pipeline Co. Developed soil interpretation guides for 400 soils in Colorado.*

HEIN, DALE 120
Associate Professor Fishery and Wildlife Biology

Specialties: Small game management; ecology; population dynamics; biometrics.

Experience: Research Biologist, Highlands Biological Station, North Carolina. Assistant Professor of Biology, Wake Forest University.

HELD, R. BURNELL 121
Professor Recreation Resources

Specialties: Recreation economics; regional planning.

Experience: Chief, Division of Research and Education, Bureau of Outdoor Recreation, USDI. Assistant Study Director, Scenic Roads and Parkway Study, Office of Under Secretary for Transportation, USDC. Study director to determine the value of water in various uses for each of six regions in the United States, National Water Commission. Consultant: public use of private land, Resources Program Staff, USDI; economic impact of recreation, USDI; carrying capacity study, National Park Service.

HENDRICKS, DAVID W. 122
Associate Professor Civil Engineering

Specialties: Water chemistry, sanitary engineering; water resources.

Experience: Consultant: Eimco Corp., Salt Lake City; Cornell, Howland, Hayes, and Merryfield; waste disposal, WSWRC Western Regional Commission.

HERVEY, DONALD 123
Professor Range Science

Specialties: Range seeding, brushland management; grazing management, range ecology.

Experience: Director, CSU Experiment Station, 1969-1972; Associate Director, 1963-1969. Head, CSU Department of Range Management, 1957-1963.

HIBLER, CHARLES P.
Professor

124
Pathology

Specialty: Wildlife diseases, specifically parasitic diseases.

Experience: Director, CSU Wild Animal Disease Center. Research: blindness in elk; Colorado trout; Big Horn sheep lamb mortality; fawn mortality; filarial disease in general; blood sucking orthipods as vectors.

HILL, DUANE W.
Professor

125
Political Science

Specialties: Water resources; environmental engineering.

Experience: President, Resources Development Consultants, Ft. Collins and Minneapolis. Consultant: Water Resources Program, Dept. of Geography and Environmental Engineering, The Johns Hopkins University; underground construction, American Society of Civil Engineers. Visiting Professor, Water Resource Center, Georgia Institute of Technology. Member, executive committee, ASCE Water Resources Council.

HILLEMANN, DANIEL
Instructor
Specialist, Community Communication Services
and Continuing Education

126
Technical Journalism

Specialty: Communication aspects and theory of citizen feedback on environmental issues.

Experience: Production of films on environmental problems: "Poudre River, a Time for Action;" "Agenda, Tomorrow, a New Growth Ethic;" "Man, in Harmony with.....;" and on the San Luis Valley mountain subdivision growth and its solid waste disposal problems.

HOLLEY, WINFRED D. **127**
Professor Horticulture

Specialties: Floriculture; flower production; landscape and environmental design.

Experience: Recipient of 1969 Colorado Carnation Research Award, Colorado Flower Growers Assn, Inc. World renowned specialist in flower production, particularly carnations. Studied flower production and marketing practices in European areas, South Africa, and Latin America.

HORTON, DALLAS **128**
Assistant Professor Clinical Sciences

Specialties: Applied nutrition; clinical medicine; preventative medicine in large animals.

Experience: Consultant: food-animal health with main objectives prevention and control of diseases rather than diagnosis and treatment. Work involves close liaison with other disciplines on campus to provide total service to livestock producers.

HUSZAR, PAUL C. **129**
Assistant Professor Economics

Specialties: Urban economics.

Experience: Joint research with University of Colorado on natural hazards study. Investigator, OWRR research.

INNIS, GEORGE S., JR. **130**
Associate Professor Mathematics and Statistics
Director of Systems Analysis, Natural Resources
Ecology Laboratory

Specialties: Mathematical applications of quantitative techniques to biological problems; complex variables; time series analysis; numerical analysis.

Experience: Associate Professor of Mathematics and Computer Science, Texas Tech University, 1967-1971. Staff Member, Los Alamos Scientific Laboratory, 1967. Director of Computer Centers at University of Texas and Texas Tech University. Chairman, Computer Science Program, Texas Tech, 1968-1971. Research Scientist, Defense Research Laboratory, University of Texas, 1958-1967.

JAENKE, ROGER
Assistant Professor

131
Pathology

Specialties: Cellular pathology; electronmicroscopy; physiology (functional and cellular); biochemistry; bioengineering.

Experience: NIH Graduate Training Program in Pathology. Chief, Research and Development Laboratory, Madigan General Hospital, Tacoma, Wash.

JAMESON, DONALD A.
Professor

132
Range Science

Specialties: Grassland and brushland ecology; soil-plant relationship; modelling and evaluation of ecological problems; quantitative management of natural resource-economic-community complexes.

Experience: Range scientist, Rocky Mountain Forest and Range Experiment Station, USFS. Intensive Site Director, IBP-Grassland Biome Project. Research: Optimization of Land Management Practices, CSU Experiment Station.

JANSEN, G. RICHARD
Associate Professor and Dept. Head

133
Food Science and Nutrition

Specialty: Amino acid fortification.

Experience: Research Fellow, regulation of food intake, amino acid fortification, Merck Institute for Therapeutic Research. Chairman, state and regional conferences on food, nutrition, and health. Project Director, western regional project on food acceptance as related to selected environmental factors.

JENKINS, LEONARD E. **134**
Assistant Professor Zoology

Specialty: Entomology.

Experience: Research on root maggot control in sugarbeets.

JOHNSEN, RICHARD E. **135**
Associate Professor Zoology

Specialties: Chemistry; pesticide residue in plants, animals and the environment.

Experience: Supervisor, CSU Toxic Residue Laboratory. Research: ultrasonic extraction of pesticides; rate of volatilization of insecticides from plants.

JOHNSON, DONAL D. **136**
Professor Agronomy
Dean, College of Agricultural Sciences

Specialties: Land management; forest and range soils; land use.

Experience: Research and publications related to nitrogen transformations in soil systems, soil testing for nitrogen, soil classification, and soil microbial ecology. Consultant: USFS; Meheen Environmental Consultants; Panhandle Eastern Pipeline Co. on soils and land use. Coordinator of agricultural development programs in Eastern Nigeria, West Pakistan, and Brazil.

JOHNSON GESTUR **137**
Professor Chemistry

Specialties: Food chemistry; natural fungicides to control plant disease.

Experience: Thirty-one years as food chemist at CSU. Current research in the isolation of plant phytoalexins-disease resistant anti-fungal substances, produced upon infection in living cells of specific plants.

JOHNSON, JAMES E. **138**
Associate Professor Animal Science

Specialty: Radiation biology.

Experience: Measurement and influence of radioactive fallout in agriculture; use of whole body counter to evaluate body composition of man and animals. Director, CSU Whole-Body Counter Laboratory. Lecturer, radio chemistry, Oak Ridge Institute of Nuclear Studies.

JOHNSON, ROBERT B. **139**
Professor and Dept. Chairman Geology

Specialties: Geophysics, engineering and hydrogeologic application; engineering geology; statistical applications to geology; geology of aggregate materials.

Experience: WAE Geophysicist, USBR. Consultant: Quebec, North Shore and Labrador Railway, Sept Iles and Schefferville, Quebec; development of solution brine field in rock salt, Pennsalt Chemical Co., Wyandott, Mich.; geophysical exploration for kaolin deposits, J. M. Huber Corp., Huber, Ga.; West Lafayette Water Co., Indiana. Head, Engineering Geology Area, School of Civil Engineering, Purdue University, 1956-1966. Member, Engineering Geology and Exploration and Classification of Earth Materials Committees, Highway Research Board, National Research Council.

JONES, GARTH N. **140**
Professor Political Science

Specialties: Water resources management; planned organizational change; modernization of financial management.

Experience: Research on water projects in West Pakistan. Participant in AID program at CSU to improve expertise in water resource management.

JONES, THOMAS B., JR. **141**
Assistant Professor Electrical Engineering

Specialties: *Electrohydrodynamics and environmental engineering.*

Experience: Instructor, MIT. Research: Investigation of Electrohydrodynamic EHD Heat Pipes.

JORDAN, JOHN PATRICK

Professor
Acting Director, Experiment Station

142
Biochemistry

Specialties: Effects of environmental conditions on metabolism; energy metabolism; intermediary metabolism with special emphasis on the enzymes and co-factors involved in lipid metabolism; biosystems analysis.

Experience: Affiliate Research Professor of Environmental Health, University of Oklahoma Medical Center. Consultant: recommendation of future uses for Lunar Receiving Laboratory, NASA American Institute of Biological Sciences; Huston Laboratories, Inc., Oklahoma City; Meheen Engineering Co., Denver. Member, AIBS Council 2, Manned Orbiting Research Laboratory Planning Committee. Director, NASA grants.

JORGENSEN, CARL J.

Professor

143
Horticulture

Specialty: Ornamentals.

Experience: Broad interest in plants to enhance man's environment, landscape, and environmental design. Director of Agriculture, Universidad Nacional, Bogata, Columbia. Senior Irisarian, American Iris Society. Fort Collins City Arborist.

KAINER, ROBERT A.

Professor

144
Anatomy

Specialties: Histology; exfoliative cytology.

Experience: Research: diagnosis of eye cancers in cattle, NIH/American Cancer Society; cardiopulmonary effects of immediate air pollutants; bovine emphysema, NIH.

KARAKI, SUSUMU

Professor

145
Civil Engineering

Specialties: Fluid mechanics; hydraulics; sedimentation.

Experience: Design and research in hydraulics and hydraulic structures. Consultant: design of water supply and hydroelectric power plant systems.

KEMPER, W. DORAL **146**
Professor Agricultural Engineering

Specialties: Saline soils; soil chemistry and soil physics; disposal and utilization of municipal wastes in soils.

Experience: Holds joint appointment with CSU Department of Agronomy. Director, U.S. Soils Laboratory, Beltsville, Md. Fellow, American Society of Agronomy. Board of Directors, ASA. Consultant: development of theory to describe geologic water movement, Petroleum Research Corp.; reorganization of federal soil and water research, Volcani Institute Rehovot, Israel.

KLEIN, DONALD A. **147**
Assistant Professor Microbiology

Specialties: Soil and environmental microbiology; microbial physiology.

Experience: Research, Soil Microbial Ramifications of Silver Iodide Used in Weather Modification, NCAR; Decomposer Activity in a Semi-Arid Grassland Soil, NSF.

KLEIN, WILLIAM M. **148**
Associate Professor Botany and Plant Pathology

Specialty: Biosystematic studies on plants.

Experience: Assistant Director, Missouri Botanical Gardens, St. Louis. Faculty advisor to student environmental groups. Investigator, basic plant life studies in relation to land use planning; Vegetational Resource Inventory of Colorado; effects of shock on plant species and plant communities, USGS.

KLUTE, ARNOLD **149**
Professor Agronomy

Specialty: Soil physics.

Experience: Soil Scientist, Soil and Water Conservation Research Division, ARS. International authority on water flow in soil and measurement of soil fluid properties. CSU research on water movement in soils and water conservation by land forming and manipulation of soil properties. Professor of Soil Physics, University of Illinois, 1953-1970. Fellow, American Society of Agronomy.

KNOP, EDWARD C. **150**
Assistant Professor Sociology

Specialty: Population; community.

Experience: Director/Co-director, Social Significance of Migration in the West (USDA); Community Cleavages in New Mexico (NIMH). Consultant: Community Action Programs; OWRR; AEC; HUD; WICHE. Research Sociologist, Jefferson County Health and Welfare Council, Louisville, Ky.

KOLOSEUS, HERMAN J. **151**
Professor Civil Engineering

Specialties: Hydraulics; fluid mechanics.

Experience: Research related to free-surface flow.

KOWALSKI, BRUCE R. **152**
Assistant Professor Chemistry

Specialties: Use of computers in analytical chemistry. Pattern recognition via computer studies to identify pollution sources.

Experience: Research Chemist and Geophysicist, Shell Development Co. Research Chemist, Lawrence Laboratory, University of California.

KRESS, GEORGE J. **153**
Associate Professor Marketing

Specialties: Marketing; location analysis.

Experience: Consultant: Colorado flower industry.

KREUTZER, WILLIAM A. **154**
Professor Botany and Plant Pathology

Specialty: Plant pathology.

Experience: Research on interactions of soil microbes. Chief Plant Pathologist, Agriculture Research Division, Shell Development Company.

LAWRENCE, ROBERT A. **155**
Associate Professor Political Science

Specialties: Energy; politics and administration of energy resources.

Experience: Consultant: Hudson Institute; Stanford Research Institute; RAND.

LEHNER, PHILLIP N. **156**
Assistant Professor Zoology

Specialty: Wildlife behavior.

Experience: Geologist-ornithologist, Contagious Disease Center, USPHS, Atlanta, Ga. Research Assistant: Pacific Ocean Biological Survey Program, Smithsonian Institute; Department of Conservation, N.Y.; Cooperative Wildlife Research Unit, Cornell University. Consultant: sheep predator control, Thorne Ecological Institute.

LENTZ, WILLIAM E. **157**
Assistant Professor Hearing and Speech Science

Specialties: Noise pollution; hearing conservation; audiology.

Experience: Consultant: Maico Hearing Instruments. Director, CSU Hearing Clinic; Services in Speech Pathology and Audiology, Lovelace Clinic, Albuquerque. Research Associate: Audiology and Otoneurology, University of Utah College of Medicine; University of Colorado Medical Center, Denver. Noise consultant to industry, Denver area. Member, Committee on Community Noise Abatement, Albuquerque.

LEWIS, JAMES H. **158**
Professor Economics

Specialties: Agricultural economics; marketing.

Experience: Consultant: marketing studies, Western Farms, Inc., Ft. Collins, Colo.; Colorado Cooperative Council, Denver; Colorado Interstate Gas Co.

LEYENDECKER, LISTON E. **159**
Associate Professor History

Specialty: The American West.

Experience: Director, "Little Kingdom Council," a program for restoration of Central City. Member, advisory board, Rocky Mountain Center for Environmental Control. Advisor, Denver Junior League's Historic Building Survey group.

LIVINGSTON, CLARK H. **160**
Associate Professor Botany and Plant Pathology

Specialty: Potato diseases.

Experience: Co-director of CSU Potato Virus Laboratory.

LÖF, GEORGE O. G. **161**
Professor Civil Engineering

Specialties: Fluid mechanics; hydraulics; sanitary engineering; environmental engineering; water desalting; solar energy conversion.

Experience: Project associate, Solar Energy Laboratory, University of Wisconsin. Consulting chemical engineer. Research Associate, Resources for the Future, Inc.

LONGENBAUGH, ROBERT A. **162**
Assistant Professor Civil Engineering

Specialties: Groundwater; hydrology.

Experience: Artificial recharge studies, pumping plant efficiency studies, and development of mathematical models for hydraulically connected surface and groundwater systems.

LOOMIS, ROSS J. **163**
Associate Professor Psychology

Specialty: Social psychology.

Experience: Principal Investigator, CSU interdisciplinary study on awareness of air pollution and its causes in a number of Colorado communities; Clean West: A Systematic Analysis of the Economic and Social Implications of Environmental Problems.

LUDWICK, ALBERT E. **164**
Extension Assistant Professor Agronomy

Specialty: Soil management, fertility, and testing programs.

Experience: Developed soil fertility program at Federal University of Rio Grande del Sol, Brazil, AID/University of Wisconsin.

MAAG, DALE **165**
Professor Chemistry

Specialties: Metabolism; selenium toxicity; natural fungicides to control plant disease.

Experience: Chairman, CSU Department of Chemistry, 1960-1968. Current research in the isolation of plant phytoalexins--disease resistant anti-fungal substances, produced upon infection in living cells of specific plants.

MACKSAM, WILLIAM G. **166**
Associate Professor Horticulture

Specialties: Landscape architecture; use of plains-hardy species.

Experience: CSU turfgrass investigations. Principal teacher of landscape and ornamental materials classes as well as landscape design.

MAHMOUD, KHALID **167**
Assistant Professor Civil Engineering

Specialties: Water resource development; sedimentation problems.

Experience: Executive Engineer, West Pakistan Irrigation Department. Supervisor, analytical and laboratory research on sediment conduction in irrigation turnouts; water resource planning in semi-arid lands.

MACIEL, GARY E. **168**
Professor Chemistry

Specialties: Experimental and theoretical aspects of Nuclear Magnetic Resonance; development of NMR methods of analysis of heavy metals.

Experience: Internationally recognized authority on NMR. Professor of Chemistry, University of California (Davis).

MARLATT, WILLIAM E. **169**
Professor and Dept. Head Watershed Sciences

Specialties: Remote sensing of atmosphere and earth surfaces; environmental quality; interaction of climate and surface environment.

Experience: Professor, Department of Atmospheric Science, CSU. Senior Scientist, Environmental Resources Associates, Inc. Consultant: National Bureau of Standards, Boulder, Colorado; Martin Marietta Co., Denver; NASA, Manned Space Flight Center. Member: AIAA Committee on Sensor Systems; National Research Council, NAS; Biometeorology Panel for IBP; Committee on Radiation for BOMEX.

MARQUARDT, WILLIAM C. **170**
Professor Zoology

Specialties: Environmental health and parasitology with primary interest in the broad area of epidemiology and transmission of protozoan and metazoan parasites of vertebrates; invertebrate ecosystems.

Experience: Field Director, Southern Illinois Zoonotic Observational Network of the Illinois Center for Zoonoses Research. Consultant: oil shale environmental impact to ...orne Ecological Institute.

MARSHALL, JOHN **171**
Affiliate Professor Botany and Plant Pathology
Producer Integrator, Natural Resources
Ecology Laboratory

Specialties: Plant autecology; environmental heterogeneity; techniques and methodology in experimental ecology.

Experience: Senior Research Scientist, microclimatological ecology, CSIRO, Division of Plant Industry, Australia, 1967-1971.

MARTIN, ROBERT D. **172**
Professor Biochemistry

Specialties: Steroid biochemistry in large domestic animals; steroid analysis in human plasma and urine.

Experience: Research Associate, Department of Biological Chemistry, Harvard Medical School and Massachusetts General Hospital. CSU advisor to premedical students.

MARTIN, STEPHEN G. **173**
Assistant Professor Zoology

Specialties: Terrestrial ecosystems; vegetational analysis; strip mine reclamation.

Experience: Chief, Terrestrial Environment Section for the Western Slope Resources Study, Stearns-Roger Corp., Denver.

MATSUSHIMA, JOHN **174**
Professor Animal Science

Specialties: Animal nutrition; beef feeding.

Experience: Specialist in management of feedlots to avoid odor pollution by use of wood chips as bedding and sagebrush in ration. Consultant: cattle feeding industry, Kenya, Africa for the United Nations; National Research Council, National Academy of Sciences.

MAXWELL, EUGENE L. **175**
Instructor Watershed Sciences

Specialties: Applications of remote sensing to natural resource management; detection and mapping of subsurface mineral deposits and groundwater deposits; development of environmental modelling techniques; measurement of the electrical properties of materials; use of remote sensing to monitor environmental conditions.

Experience: Developed graduate course and text, "Active Remote Sensing of Natural Resources." Section Manager, Westinghouse Georesearch Laboratory; developed a computer model for predicting world-wide atmospheric noise statistics from thunderstorms and lightning statistics; managed a

project to develop communications/location system for coal mine disaster use; managed projects leading to new equipment and techniques for mineral exploration; managed projects to measure electrical properties of earth materials (rocks, soil, water, permafrost, snow and ice) from the surface to the Mohorovicic discontinuity; measured atmospheric noise conditions at several world-wide locations.

McCALLUM, MALCOLM E. **176**
Professor Geology

Specialties: Igneous and metamorphic petrology and petrography; structural geology; x-ray analysis; low temperature geochemistry; mineral resources.

Experience: WAE geologist, geologic research with USGS Northern Rocky Mountain, Rocky Mountain Mineral Resources, and Environmental Geology Branches 1956-present. Guest lecturer for Geologic Society of American Penrose Conferences.

McCLELLAN, J. FORBES **177**
Associate Professor Zoology

Specialty: Physiology of protozoa.

Experience: Director, NSF/CSU Summer Institute for College Biology Teachers.

McCONNELL, WILLIAM J. **178**
Unit Leader, Colorado Cooperative Fishery Unit Fishery & Wildlife Biology

Specialties: Primary and secondary productivity in fisheries; watershed effect on fisheries.

Experience: Professor of Fishery Science and Unit Leader, Arizona Cooperative Fishery Unit.

McWHORTER, DAVID B. **179**
Assistant Professor Agricultural Engineering

Specialties: Groundwater recharge; diffusion of gas in porous media; movement of fresh water in saline aquifers; infiltration.

Experience: Exploitation Engineer, Shell Oil Co.

MEEK, ROY L. **180**
Assistant Professor Political Science

Specialties: Water management and law; environmental problems.

Experience: Principal investigator, water projects involving agency planning and management and their economic, political, and legal aspects.

MEIMAN, JAMES R. **181**
Associate Professor Watershed Sciences

Specialties: Soil and water conservation; snow hydrology.

Experience: Consultant: environmental impact of oil shale development, Thorne Ecological Institute, Boulder; review of USFS management plans for Magruder Corridor, USDA. Research Project Leader, overall coordination of integrated resource studies on Little South Poudre Watershed, CSU; watershed management practices on irrigation projects, USBR; snow evaporation, OWRR. Director, snow hydrology research, Swiss Forest Research Institute. Applied watershed management training, University of the Andes, Venezuela.

MERCER, ALBERT G. **182**
Associate Professor Civil Engineering

Specialties: Hydraulics; structures; hydromachinery.

Experience: Indus Basin projects in Pakistan for Tipton & Kalmbach, Inc. Head, Hydraulics and Hydrology Section, Hydroelectric Division, International Power and Engineering Consultants, Vancouver, B.C.

MERONEY, ROBERT N. **183**
Associate Professor Civil Engineering

Specialties: Fluid dynamics; heat transfer.

Experience: Engineer, Naval Ordnance Laboratory, Silver Springs, Md. Design consultant: concrete block drying and curing kiln. Principal investigator, numerous wind tunnel model studies related to atmospheric and environmental conditions for federal agencies and private industries.

MEYERS, ALBERT I. **184**
Professor Chemistry

Specialties: Organic chemistry; synthesis of insect pheromones.

Experience: Professor of Chemistry, Wayne University. Research: synthesis of a variety of naturally occurring substances (insect attractants, anti-cancer, and cardiovascular drugs); photochemistry of heterocyclic compounds; and use of heterocyclic compounds as useful new reagents for organic synthesis. National Academy of Sciences Exchange Lecturer in Poland. Consulting Professor, Louisiana State University system.

MIELKE, PAUL W. **185**
Associate Professor Statistics

Specialties: Nonparametric statistics; Statistical applications in speech and hearing; Statistical applications in atmospheric science.

Experience: Member, Statistical Advisory Committee, National Academy of Science Weather Advisory Group. Consultant: CSU Atmospheric Science Department since 1965; CSU Speech and Hearing Department since 1967. Co-investigator, Bureau of Reclamation contract on Weather Modification analysis.

MILES, DONALD L. **186**
Extension Assistant Professor Agricultural Engineering

Specialties: Infiltration in sprinkler and gravity irrigation; irrigation systems design.

Experience: CSU Extension Irrigation Engineer. Numerous publications in 13 years of irrigation work in Colorado. Kansas Extension Irrigation Engineer.

MILLER, BYRON E. **187**
Associate Professor Avian Science

Specialties: Poultry products; avian physiology; poultry management.

Experience: Research: biological conversion of animal wastes to nutrients, NIH; conversion of poultry manure to edible protein via growth of flies; animal waste disposal; development of new poultry products.

MILLER, LARRY L. **188**
Professor Chemistry

Specialties: Organic electrochemistry; photochemistry of DDT.

Experience: Recipient of the 1972 Alfred F. Sloan Foundation Fellowship for Research Chemist, American Cyanamid Co. Visiting Professor, University of Southampton, England. Member, advisory committee to NSF Chemistry Section.

MILLER, LEE D. **189**
Associate Professor Watershed Sciences

Specialty: Remote sensing.

Experience: Consultant: U.S. Department of the Army; Interamerican Geodetic Survey; Venezuelan Ministries of Public Works and of Mines and Hydrocarbons; University of Alaska. Physical Scientist, WAE, Environmental Geology, USGS. Computer Scientist, Glacial Geology and Polar Research Laboratory, University of Michigan.

MILLER, W. DWAIN **190**
Instructor Recreation Resources

Specialty: Recreation area planning.

Experience: Director, Parks and Recreation, Boulder, Colo. Park Ranger, Yellowstone National Park.

MOGREN, EDWIN W. **191**
Professor Forest and Wood Sciences

Specialties: Forest ecology; site classification; ecological impact of cloud seeding (biomass production); water yields in relation to forest cover.

Experience: Director, Pingree Park Campus. CSU representative on Executive Committee for Coniferous Biome, IBP.

MOORE, FRANK D. **192**
Associate Professor Horticulture

Specialties: Plant production at high elevations; basic problems related to plant growth.

Experience: Senior Research Horticulturist, 3M Company, St. Paul, Minn.

MOREL-SEYTOUX, HUBERT J. **193**
Associate Professor Civil Engineering

Specialties: Hydrology; mechanics; statistics in decision theory and multivariate analysis.

Experience: Research Engineer, Reservoir Analysis and Applied Mathematics Section, Chevron Oil Field Research Co.

MORRISON, SUMNER M. **194**
Professor Microbiology

Specialties: Environmental health; water quality.

Experience: Consultant to EPA, NIH-HEW, industry and municipalities. Member, Colorado Board of Examiners in the Basic Sciences, 1960-present.

NAGY, JULIUS **195**
Associate Professor Fishery and Wildlife Biology

Specialties: Wildlife nutrition; physiology; bacteriology; applied chemistry (of plants as related to wildlife).

Experience: Study of wildlife nutrition in Hungary and Germany.

NASH, DONALD J. **196**
Professor Zoology

Specialties: Birth defects; radiation biology and genetics of the mouse.

Experience: Visiting Investigator, Canadian Department of Agriculture. Consultant: Ecology Consultants, Inc.

NOBE, KENNETH C. **197**
Professor and Dept. Chairman Economics

Specialties: Natural resources economics; economic development; agricultural economics; regional economics.

Experience: Chief Economist, Federal Outdoor Recreation Program, USDI Bureau of Outdoor Recreation. Chief, Economics Section, Colorado River Basin Project, USPHS. Leader, Potomac River Basin Party, USDA ARS. Chief, Agriculture and Economics Branch, Harza Engineering Company International, West Pakistan.

OAKLEAF, S. KENNETH **198**
Extension Associate Professor Economics
Assistant Director, Community Resources Development

Specialties: Community and rural development; agricultural policy.

Experience: Extension community relations specialist. Leadership: in 22 community-wide program planning workshops involving 10 western states; state, regional, and national CRD workshops; National 4-H Leaders Forums on youth in CD; National Public Policy Education Committee; national and state advisory councils on vocational education.

O'DONNELL, C. MICHAEL **199**
Assistant Professor Chemistry

Specialties: Photochemistry; analysis of pesticides and atmospheric pollutants using phosphorimetry.

Experience: Current research in laboratory studies indicating the usefulness of phosphorimetry in the particular problem of distinguishing between DDT and chlorinated biphenyls.

OETTING, EUGENE R. **200**
Professor Psychology
Director, CSU Counseling Center

Specialty: Applied social psychology.

Experience: Research Director, Mental Health and Manpower Dept., U.S. Department of Labor.

ODGEN, DANIEL M. **201**
Professor Political Science
Dean, College of Humanities and Social Sciences

Specialties: Natural resources policy and politics (outdoor recreation policy, electric power policy, water and land resources); political parties; pressure groups; legislative process.

Experience: Staff Assistant, Resources Program; Assistant Director, Bureau of Outdoor Recreation; Director of Budget, USDI, 1961-1968. Special consultant to the Chairman, Democratic National Committee, 1960-1961.

OLSON, HILDING G. **202**
Associate Professor Mechanical Engineering
Head, CSU Radiation Institute

Specialties: Radon progeny; nuclear power reactors; cavitation.

Experience: Director, St. Vrain Nuclear Plant training program. Consultant: Public Service Co., 1966-present. Currently working on start-up test program. Laboratory Supervisor, Phoenix Memorial Laboratory and Senior Operator, Ford Nuclear Reactor, University of Michigan.

OSHIMA, NAGAYOSHI **203**
Associate Professor Botany and Plant Pathology

Specialties: Forest and plant pathology.

Experience: Consultant to physicians on allergy problems due to air-borne fungi. Research: diseases of canning crops, foliage disease of conifers, and Dutch Elm disease.

OSTERYOUNG, JANET **204**
Assistant Professor Civil Engineering

Specialties: Fundamental electrochemistry; electroanalytical development methods; trace metal analysis and metal toxicity; chemistry of natural waters.

Experience: Assistant Professor of Chemistry, University of Montana. Consultant: CSU fisheries program. Holds joint appointment with CSU Department of Microbiology. Co-investigator, Pulse Polarographic Analysis, NSF; Chemical Oxidation of Sewage.

OSTERYOUNG, ROBERT A. **205**
Professor and Chairman Chemistry

Specialties: Electrochemistry, including fused salts; electronanalytical methods.

Experience: Group Leader, Physical Chemistry, North American Aviation Science Center. Director, Materials and Process Laboratory, Autonetics Division, North American Aviation. Associate Director, Science Center, Thousand Oaks, Calif.

OXLEY, JAMES W. **206**
Professor and Dept. Head Animal Science

Specialty: Animal production; sheep and wool production.

Experience: Widely experienced in Animal Science and influence of grazing animals on land. Consultant: Animal Science, Faculty of Agriculture, Kabul University, Afghanistan.

PACKARD, GARY C. **207**
Assistant Professor Zoology

Specialty: Thermal regulation and metabolic compensation in amphibians and reptiles.

Experience: Research Associate in Zoophysiology, Department of Zoology, Washington State University. Visiting Scientist, Laboratory of Environmental Patho-Physiology, Desert Research Institute, University of Nevada.

PARANKA, STEPHEN **208**
Professor Marketing
Associate Dean, College of Business

Specialties: Marketing; management.

Experience: Consultant and member of the Tri-County regional planning commission, Akron, Ohio. Research: Shopping Center Effects on Small Business, Housing and Home Finance Agency. Consultant on marketing problems with emphasis on pricing problems. Author of **Price Policies and Procedures**.

PARKE, ROBERT V. **209**
Professor Botany and Plant Pathology

Specialties: Plant anatomy; infrared photography of plant tissue.

Experience: Fulbright Lecturer, University of Rhodesia and Nyasaland, Salisbury, Southern Rhodesia. Co-investigator, Effect of Weightlessness on Biological Systems, NASA.

PETERKA, JON A. **210**
Assistant Professor Civil Engineering

Specialties: Simulation of atmospheric flows; turbulence.

Experience: Consultant: U.S. Army Missile Command.

PETIT, MICHAEL G. **211**
Assistant Professor Microbiology

Specialty: Metallic pollutants.

Experience: Research Chemist, Beckman Instruments, Fullerton, Calif. Research: Baseline Study of Mercury in the Environment, Rockefeller Foundation; feedlot odors; effects of silver iodide on rumen microorganisms.

PETTUS, DAVID **212**
Professor Zoology

Specialties: Environmental relations of cold-blooded animals; oil shale impact; poikilothermal ecology.

Experience: Chairman, Genetics Institute, CSU. Consultant: Thorne Ecological Institute; Ecology Consultants, Inc.

PHEMISTER, ROBERT D. **213**
Associate Professor Pathology
Deputy Director, Collaborative Radiological Health Laboratory

Specialties: Diseases of pre- and postnatal development in dogs; teratology; nephropathology; canine embryology.

Experience: Diplomate, American College of Veterinary Pathologists.

POST, GEORGE **215**
Associate Professor Fishery & Wildlife Biology

Specialties: Fish nutrition and pathology; immunology; comparative physiology; histology and biochemistry; drug therapy; toxicology; cold water fish culture.

Experience: Assistant Cooperative Fishery Unit Leader, Colorado State University; Fish Pathologist and Nutritionist Supervisor, Utah Department of Fish and Game Experimental Fish Cultural Station. Consultant on fish pathology for several groups.

QUARLES, CAREY L. **216**
Associate Professor Avian Science

Specialty: Poultry.

Experience: International Director of Customer Services and Production Research, Indian River Poultry Farms. Authority in poultry production, marketing efficiency, and consumer education specializing in poultry meat and eggs. Wide experience in Central and South America.

RADOSEVICH, GEORGE E. **217**
Assistant Professor Economics

Specialties: Environmental and water law; international water development.

Experience: Consultant: water law, Pakistan, AID, FAO. Attorney (Vid-ahovich, Barney, and Radosevich).

RAGOUZIS, PERRY M. **218**
Professor and Dept. Chairman Art

Specialty: Development of programs, with community leaders and public planners, involving the aesthetic design and planning of architecture, town and city planning, housing and housing developments, parks, public lands, and historical buildings and sites.

Experience: Consultant: building and site for Illinois Community College; Fine Arts Center at Macalester College, St. Paul, Minn. Fine Arts Center, Chicago, Perkins and Will, Archi-

tects. Chairman, planning committee for Illinois State University Student Union building; CSU Creative and Performing Arts Center.

RASMUSSEN, JAMES L. **219**
Associate Professor Atmospheric Science

Specialties: Atmospheric water resources; management; hydrometeorology and synoptic meteorology; climatology.

Experience: Hydrometeorological research and water resources studies in Colorado Rockies and western plains and Africa. CSU member on UCAR-GARP Council. Member, USGATE Small Scale Focal Group. Research: NASA, NSF, and State of Colorado.

REED, EDWARD B. **220**
Professor Zoology

Specialties: Aquatic ecosystems; alpine limnology; strip mine reclamation.

Experience: Consultant: environmental planning, Western Slope Survey, Stearns-Roger Corp.; Black Canyon National Monument, U.S. National Park Service. President, Ecology Consultants, Inc.

REHNBERG, REX **221**
Professor Economics

Specialties: Agricultural policy and development.

Experience: Research consultant to University of Puerto Rico. Consultant: University of Nebraska in Columbia, South America.

REID, CHARLES P. P. **222**
Assistant Professor Forest and Wood Sciences

Specialties: Tree physiology; nutrient cycling following clearcutting; effects of herbicides; mycorrhizae; ecological impact of cloud seeding (moisture stress).

Experience: Research Plant Physiologist (NAS-NRC Postdoctorate), Plant Sciences Laboratories, Fort Detrich, Maryland. Principal Investigator, Effects of Clearcutting on Nutrient Cycling, USFS.

REITER, ELMAR R. **223**
Professor and Dept. Head Atmospheric Science

Specialties: Clear air turbulence; jet-stream structure; satellite meteorology; numerical wind forecasting; radioactive debris transport; general circulation.

Experience: Consultant to federal agencies, universities, industries, and private meteorological facilities. Chairman, Scientific Advisory Panel to National Committee for Clear Air Turbulence, 1966. Member, Advisory Committee for Environmental Sciences, NSF, 1973. Associate Director of Research, Denver Air Pollution project, HEW. Fellow, American Meteorological Society.

REUSS, JOHN O. **224**
Associate Professor Agronomy

Specialties: Soil chemistry and fertility; nitrogen transformation in nature.

Experience: Developed procedures for evaluating fertility program results by computer; programming and systems analysis by computer. Staff member, Grasslands Biome Program, IBP. Soil Fertility Specialist, Eastern Nigeria.

RHOADES, MARJORIE **225**
Associate Professor Library Science

Specialties: Engineering; water resource management.

Experience: Science and Technological Reference Librarian and Technical Reports Librarian, Georgia Institute of Technology. Head, Fernbank Science Center Library, Atlanta, Ga. Currently establishing a Water Management Research Library. Member, CUSUSWASH library committee to develop catalog.

RICHARDSON, EVERETT V. **226**
Professor Civil Engineering

Specialties: Fluid mechanics; open channel flow; fluvial hydraulics; stream morphology.

Experience: Consultant: USGS; Kentucky Highway Department; National Park Service; Army Corps of Engineers; and private irrigation companies on alluvial channel and water measurement problems.

RIEHL, HERBERT **227**
Professor Atmospheric Science

Specialties: Tropical meteorology; hurricanes; jet streams.

Experience: One of world's foremost authorities in tropical meteorology, jet streams, and application of new developments in meteorology to practical weather forecasting. Recipient of Meisinger Award, AMS; Losey Award, AIAA; CSU Distinguished Service Award. Counselor and Fellow, AMS. Principal Investigator of Venezuelan International Meteorological and Hydrological Experiment. Head, CSU Department of Atmospheric Science, 1961-1968.

ROHDY, DONALD D. **228**
Professor Economics

Specialties: Agricultural economics and marketing; water resources; management and commodity analysis.

Experience: Research Director on economics of water use in Colorado's economy; groundwater development in Colorado; water transfer in the west. Consultant: Hunt-Wesson Foods; American Can Co.; Prentice-Hall, Inc.

ROSELIUS, TED L. **229**
Associate Professor Management

Specialties: Small business; managerial economics; tourism.

Experience: Business consultant; petroleum geology consultant. Petroleum Geologist, Phillips Petroleum Co. Co-director, law enforcement research project.

RUFF, JAMES F. **230**
Assistant Professor Civil Engineering

Specialties: Hydrodynamics; remote sensing.

Experience: Electrical-Electronics Engineering Assistant, U.S. Army, Fort Ord, Calif. Aerospace Technology Assistant NASA, Marshall Space Flight Center, Ala.

RYDER, RONALD A. **231**
Professor Fishery and Wildlife Biology

Specialties: *Waterfowl and small game management; ecology, behavior; marsh ecology; control of nuisance species; rare and endangered species; raptors; bird ecology.*

Experience: *Visiting Professor, Ecology, NSF Institute in Ecology, College of Guam, Agana; Animal Ecology, NSF Institute in Biology, Northern Colorado University, Greeley; NSF Institute in Alpine Biology, Colorado College.*

SABEY, BURNS R. **232**
Professor Agronomy

Specialties: *Soil microbiology; solid waste disposal.*

Experience: *Nitrogen transformations in nature; loading studies of waste disposal in soil systems; influences of waste on subsequent plant growth. Co-investigator, Metropolitan Denver Municipal Sewage Sludge Project.*

SADEH, WILLY Z. **233**
Associate Professor Civil Engineering

Specialty: *Fluid mechanics.*

Experience: *Professional Engineer in Aeronautical and Mechanical Engineering, Ministry of Labor, Israel. Design Engineer with General Aeronautique Marcel Dassault, Paris. Research Assistant, Aerothermal Laboratory, Rarefied Gases Group, Centre National de la Recherche Scientifique, Paris. Turbo-machine Research Engineer, Desalination Plants, Tel-Aviv and Negev Institute for Arid Zone Research, Beersheba, Israel.*

SANDBORN, VIRGIL A. **234**
Professor Civil Engineering

Specialties: *Fluid mechanics; turbulent boundary layers; aerodynamics; aerodynamic instrumentation.*

Experience: *NASA Lewis Research Center, Ohio. Consultant: Gas-dynamics Section, AVCD Research and Development, Wilmington, Mass. Co-recipient of NASA award for development of particle beam power density probe.*

SARDO, JOSEPH 235
Associate Professor Sociology

Specialties: Demography; rural social organization; Latin American studies.

Experience: Consultant: Committee on Gerontology, CSU; Operations Crossroads in Africa, Office of International Programs; development of criteria for determining carrying capacity of National Park System, USDI.

SAVAGE, ELDON P. 236
Associate Professor Microbiology

Specialties: Environmental and chemical epidemiology.

Experience: Chief, Chemical Epidemiology Section, Institute of Rural Environmental Health. Consultant: epidemiology, PHS, Food and Drug Administration; mosquito control.

SCHIAGER, KEITH 237
Associate Professor Radiology and Radiation Biology

Specialty: Environmental radiation.

Experience: Health Physicist with various technical, administrative, and educational responsibilities, Argonne National Laboratory. Senior Reactor Operator, Chief Reactor Supervisor, Radiation Control Officer, and Director of Radiation Health Specialists Training Program, CSU. Consultant: programs on radiological control, radiation protection and safety; environmental radiation sources, nuclear training of engineers, and bioenvironmental studies.

SCHMEHL, WILLARD R. 238
Professor Agronomy

Specialties: Soil chemistry; salinity; land use; phosphorus reactions in soil production of sugar beets; influence of fertilizer elements on plant growth.

Experience: CSU special assignment on water management in West Pakistan, Associated Western Universities, Inc. Member, Commission on Oil Shale Resources.

SCHMIDT, FRED C., JR. **239**
Assistant Professor Library Science

Specialty: Government publications.

Experience: Documents Librarian, Ft. Hays Kansas State College. Currently establishing a Water Management Research Library at CSU. Member, Colorado Library Association subcommittee on state documents.

SCHROEDER, HERBERT A. **240**
Associate Professor Forest and Wood Sciences

Specialties: Wood chemistry; chemical processing of wood and wood residues.

Experience: CSU research sponsored by Federal Water Pollution Control Administration and USPHS. Research Chemist, Pulping Section, USFS, Forest Products Laboratory, Madison, Wisconsin. Consultant: feasibility of pipeline transportation of wood chips, Bechtel Corp.

SCHULZ, EDMUND F. **241**
Associate Professor Civil Engineering

Specialties: Hydrology; development of water resources.

Experience: In charge of Hydrology Teaching and Research Program, Asian Institute of Technology, Bangkok, Thailand, 1965-1969. Awarded two-year Fulbright-Hays grant at the University of Witwatersrand, Johannesburg, South Africa.

SCHUMM, STANLEY A. **242**
Professor Geology

Specialties: Fluvial geomorphology; river morphology; geomorphology and hydrology of watersheds.

Experience: Research Geologist, USFS, 1954-1967. Vice-chairman, U.S. National Commission for International Association for Quaternary Research (INQUA). Member, national committees and commissions. International guest lecturer and visiting scientist. Numerous research projects in specialty fields.

SECKLER, DAVID W. **243**
Professor Economics

Specialty: Agricultural economics.

Experience: Waste disposal research, Seckler Feedyards, Inc., Sterling, Colo. Consultant in Africa and the Middle East.

SHARP, EMMIT F. **244**
Professor Sociology

Specialties: Population and demography; social stratification; community organization.

Experience: Consultant: Department of Agriculture and Conservation, Manitoba, Canada; Industrial Relations Center, University of Chicago.

SHEN, HSIEH W. **245**
Professor Civil Engineering

Specialties: Hydraulics; fluid mechanics; erosion and sedimentation.

Experience: Consultant to state and federal highway departments and private engineering firms. Investigator: Sedimentation and Contaminant Criteria for Water Resource Planning, OWRR; Transport and Dispersion of Bed Materials in Open Channels, NSF.

SIDDIQUI, MOHAMMED M. **246**
Professor Statistics

Specialties: Statistical distribution theory; applications of statistics in hydrology; demographic statistics.

Experience: Research and teaching in statistics since 1949. Mathematical statistician, Bureau of Standards. Consultant: CSU Department of Civil Engineering since 1965. Project leader, Bureau of Reclamation contract on Weather Modification analysis. Fellow, American Association for the Advancement of Science.

SIMONS, DARYL B. **247**
Professor Civil Engineering
Associate Dean for Engineering Research

Specialties: Hydraulics; fluid mechanics; water resource systems.

Experience: Hydraulic consultant: engineering projects for the United Nations, U.S. Corps of Engineers, and others dealing with river mechanics, flood control, and navigation problems. Member, national and international panels delegated to outline research needs in hydraulics, irrigation, and drainage.

SIMS, PHILLIP L. **248**
Associate Professor Range Science

Specialties: Range animal nutrition; secondary productivity; plant-animal relationships; dynamics of primary productivity.

Experience: Research: plant succession, Oklahoma State University; vegetation of arid ecosystems and range animal nutrition, Utah State University; range animal nutrition, primary and secondary productivity, CSU. Consultant to private industry.

SIMPSON, ROBERT G. **249**
Associate Professor Zoology

Specialties: Field crop entomology; pheromones.

Experience: Research: biological control of Canadian thistle; chemical and biological control of alfalfa insects.

SINCLAIR, PETER C. **250**
Associate Professor Atmospheric Science

Specialties: Aircraft and theoretical investigations of severe storms; weather (hailstone) modification; aircraft cloud physics instrumentation.

Experience: In charge of CSU participation in national hail research experiment in northeastern Colorado, NSF. Research Assistant, Institute of Atmospheric Physics, University of Arizona, 1959-1965.

SKINNER, MORRIS M. **251**
Assistant Professor Civil Engineering

Specialties: Hydraulics; groundwater; remote sensing related to water resources; photogrammetry.

Experience: Participated in Colorado water resource investigations and is familiar with state and area-wide water resource conditions. Lecturer, remote sensing related to river systems, Venezuela Ministry of Public Works; Institute of Water Resources Engineering, University of Sarajevo, Yugoslavia.

SKOGERBOE, GAYLORD V. **252**
Associate Professor Agricultural Engineering

Specialties: Subcritical (submerged) flow analysis; development of hydraulic structures; salinity control from irrigated agriculture; water quality management in urban-rural areas.

Experience: Research: Grand Valley, Colo. on Colorado River Basin Salinity Control Program, EPA, USBR, seven western basin states. Vice-chairman, ASAE Irrigation Water Supply Conveyance Committee. Chairman, Water Conveyances and Distribution Committee of the Irrigation and Drainage Division, ASCE.

SKOGERBOE, RODNEY K. **253**
Associate Professor Chemistry

Specialties: Analytical chemistry with emphasis on trace analysis and identification of compound forms of environmental species.

Specialties: Member, CSU interdisciplinary environmental research on contamination caused by lead from traffic exhaust. Member, advisory board of Handbook of Spectroscopy, Chemical Rubber Co. Research Manager, Trace Analysis Group, Materials Science Institute, Cornell University.

SMITH, DWIGHT R. **254**
Assistant Professor Fishery and Wildlife Biology

Specialties: Wildlife ecology; big game biology and management; wildlife range; bighorn sheep.

Experience: Research Biologist, Idaho Fish and Game Department; Range Scientist, Rocky Mountain Forest and Range Experiment Station; Wildlife Research Biologist, RMFRES.

SMITH, FREEMAN **255**
Assistant Professor Watershed Science
Director for Synthesis and Integration
Abiotic Integrator, Natural Resources Ecology Laboratory

Specialties: Modelling strategy for developing hydrologic simulation models sensitive to ecosystem influence; systems ecology; spacial sampling designs and stochastic methods in hydrology.

Experience: Range conservationist and research botanist, Soil and Water Conservation Research Division, USDA Agricultural Research Service, Boise, Idaho, 1961-1971.

SMITH, GEORGE L. **256**
Associate Professor Civil Engineering

Specialties: Hydraulics; fluid mechanics.

Experience: Teaching and research engineer, water resources. Developed outdoor research laboratory for studies of discharge in storm sewer drains; storm characteristics of small watersheds; drainage basin evolutions and the influence of land forms on hydrologic variables.

SMITH, JAMES A. **257**
Assistant Professor Watershed Sciences

Specialties: Application of remote sensing techniques to natural resources, particularly the application of pattern recognition methods to automatic image analysis; modelling of energy exchanges in the environment; study of micro- and macro-physical properties of systems, particularly as they relate to remote sensing applications.

Experience: Consultant: Martin Marietta Corp., Denver; Philco-Ford Corp.; Inter-American Geodetic Survey, Defense Mapping Agency.

SMITH, JAMES L. **258**
Associate Professor Agricultural Engineering

Specialties: Farm machinery; solid waste disposal equipment.

Experience: Project Engineer, International Harvester Co. Instructor, Department of Mechanical Engineering, University of Utah.

SOLOMON, GORDON C. **259**
Associate Professor Anatomy

Specialties: *Histology; pathology; histochemistry; wildlife anatomy and bone research.*

Experience: Consultant: radiation damage from nuclear explosion, Heath Engineering Laboratory, Fort Collins, Colo.

SOMERVELL, WILLIS, JR. **260**
Associate Department Head Atmospheric Science

Specialties: Cloud seeding; weather modification and control.

Experience: Chief Scientist, Environmental Services Operation, EGG&G, Inc.; Director, Colorado River Basin Project, 1970-present. Responsible for overall direction of Project Skywater opportunity recognitions and cloud seeding program in San Juan Mountain of southwestern Colorado. Captain, U.S. Navy, Commanding Officer, Navy Weather Research Facility, Norfolk, Va., 1966-1970.

SORENSEN, DONALD M. **261**
Associate Professor Economics

Specialties: Community development; economic growth and development.

Experience: Research Associate, Agricultural Finance Center, Ohio State University. Consultant and Technical Coordinator: Brazil Peace Corps Training Program. Coordinator: Fifth National Workshop in Community Resources Development, 1970; Western Regional Workshop in CRD, 1971. Member, Four-Corners Regional Commission study on agricultural development.

SRIVASTAVA, JAGDISH N. **262**
Professor Statistics

Specialties: *Combinatorial Mathematics, multivariate analysis; statistical design and analysis of experiments.*

Experience: Approximately 53 published technical papers, books, and articles. Fellow, American Statistical Association. Director, International Symposium on Combinatorial Mathematics (1971). Chairman, COPSS National Committee on Distinguished Visiting Lecturers. Consultant: Bureau of Reclamation Weather Modification analysis.

STEINHOFF, HAROLD W. **263**
Centennial Professor Fishery and Wildlife Biology

Specialties: Wildlife biology; population dynamics; zoogeography; biometrics, ecology; wildlife economics; big game range.

Experience: Principal Investigator, Mesa Verde Mule Deer Study, USBR; elk study, small mammal project, and forest ecosystems administration, CSU. Team Leader, forest ecosystems, USBR San Juan Ecology Project. Research Professor of Wildlife Management, University of Alaska, 1968-1969.

STEINHORST, R. KIRK **264**
Assistant Professor Statistics
Statistician, Natural Resources
Ecology Laboratory

Specialty: Statistics.

Experience: Statistician, Biometrics Unit of CSU Statistical Laboratory. Instructor, School of Business Administration, San Diego State College.

STERMITZ, FRANK R. **265**
Centennial Professor Chemistry

Specialties: Organic chemistry; natural product chemistry; natural toxicants in the food chain; chemical (nontoxic) control of predators.

Experience: Timber milkvetch poison study.

STEWART, WILLIAM G. **266**
Extension Associate Professor Agronomy

Specialty: Crop production.

Experience: All aspects of soils, soil management, crops and crop production over entire state of Colorado. Recipient, Distinguished Service Award, 1969, Colorado Seed Growers Assn. Consultant: Colorado Wheat Administrative Committee; Rocky Mountain Plant Food Assn; Colorado Grain Dealers Assn. and other agri-business organizations.

STRAAYER, JOHN A. **267**
Associate Professor and Dept. Chairman Political Science

Specialties: Water planning and management.

Experience: Research Associate, Water Research Center and Department of Government, University of Arizona. Specialist, CSU study on Fish and Wildlife Resources on Public Lands. Director, Institute of Intergovernmental Relations in Water Resources Planning at CSU. Director, Title VIII Project, Institute on Water Resource Management, HUD.

STRIFFLER, WILLIAM D. **268**
Associate Professor Watershed Sciences

Specialties: Forest hydrology; grassland hydrology.

Experience: Research Forester and Project Leader, groundwater hydrology and streambank erosion project, Lake States Forest Experiment Station, USFS. Hydrologist, strip-mined areas restoration research project, Northeastern Forest Experiment Station, USFS. Research: Hydrology of Grasslands as part of IBP Grassland Biome Studies and study of water yield prediction from mountain watersheds using a watershed partitioning or hydrologic response unit model.

SUNADA, DANIEL K. **269**
Associate Professor Civil Engineering

Specialty: Groundwater mechanics.

Experience: Principal Investigator, OWRR, NSF, and CSU Experiment Station groundwater projects.

SWAN, HENRY **270**
Professor Clinical Sciences

Specialties: Surgery; shock; metabolism; cardiovascular physiology.

Experience: Professor and Head of Department of Surgery, University of Colorado Medical School, 1950-1961. Chief Investigator, heart transplants in miniature swine. Principal Investigator, interdisciplinary research on support of arterial vein autogenous grafts, HEW.

SWANSON, BERT T. **271**
Associate Professor Horticulture

Specialties: Ornamental horticulture; plants to improve the environment; highway beautification; landscape and environmental design.

Experience: Nursery manager.

SWANSON, GUSTAV A. **272**
Professor and Dept. Chairman Fishery and Wildlife Biology

Specialties: Wildlife policy, law, and administration; wildlife ecology and management.

Experience: Head, Department of Conservation. Director, Biological Field Station, Cornell University. Executive Director, Laboratory of Ornithology. Consultant: New York Joint Legislative Committee on Natural Resources; conservation to Director of Budget, State of New York. Member, committees on plant pest control and on wildlife-land use relationships, National Research Council, National Academy of Science.

TELLER, H. LEO **273**
Associate Professor Watershed Sciences

Specialties: Weather modification ecology; water quality; foreign watershed management.

Experience: Consultant: preliminary study of power line location in New Mexico, COLSPAN Environmental Services; environmental studies for hail suppression research, NCAR. Research Coordinator, San Juan Ecology Project, an interdisciplinary, inter-university study of weather modification ecology, USBR. Project leader, disposition of silver from cloud seeding projects, USBR and NCAR; decomposition of wood chips on forested slopes study, USFS. Hydrologist and watershed lecturer, visiting scientist, and advisor to European, Asian, So. American, and Australian universities and governments.

TENGERDY, ROBERT P. **274**
Professor Microbiology

Specialties: Immunochemistry and cell differentiation; mechanism of antigenantibody reactions; the effect of environmental stress on the immune response and cell differentiation; hypobaric research.

Experience: Exchange Scientist, Hungary National Academy of Sciences. Visiting Scientist, Pasteur Institute, Paris, France; Max Planck Institute for Physical Chemistry, Gottingen, West Germany.

TERWILLIGER, CHARLES **275**
Professor Range Science

Specialties: Forest and range soils; range ecology; range measurements.

Experience: Instructor to Professor, CSU, 1950-present. Range Scientist, Colorado Agricultural Experiment Station, 1960-present. Consultant: Burlington Northern Railroad.

THOMPSON, ERIK G. **276**
Associate Professor Civil Engineering

Specialty: Soil mechanics.

Experience: Chairman of Engineering Science, University of Idaho, 1967. Consultant to industry and governmental agencies.

THURLOW, SANDRA **276a**
Assistant Professor Consumer Sciences and Housing

Specialties: Household equipment with emphasis on laundry equipment and procedures.

Experience: Research: evaluation techniques of washing condition effects on soiled fabric and washing results with phosphate detergents. Consultant: Arkansas Rural Electrification Council; Design and Manufacturing Co., Connersville, Ind.; the Board of the Colorado Power Council.

TINNERMIER, RONALD L. **277**
Associate Professor Economics

Specialties: Farm management; production economics; economic development.

Experience: Participated in agricultural development workshops on small farmers and small farmers' credit in less developed countries. Seven years in Latin America, AID. Leader, economic CSU/CUSUSWASH group in West Pakistan, AID.

TODOROVIC, PETAR N. **278**
Associate Professor Civil Engineering

Specialties: Hydrology; applied mathematics and its engineering applications.

Experience: Cooperated with International Atomic Energy Agency, Vienna; Institute for Nuclear Sciences, and Institute for Development of Water Resources, Belgrade; Yugoslav Mathematical Institute.

TORNABENE, THOMAS G. **279**
Assistant Professor Microbiology

Specialties: Degradation of agricultural and industrial wastes; biogenesis and distribution of hydrocarbons; metabolic pathways and mechanisms of synthesis of biochemical compounds.

Experience: Postdoctoral Fellow, National Research Council, Ottawa, Canada. Research: environmental lead project, NSF; identification of *Yersinia pestis* strains, NIH.

TRLICA, MILTON J., JR. **280**
Assistant Professor Range Science

Specialties: Ecophysiology; primary productivity; photosynthesis in range plants; carbohydrate reserves in range plants; plant ecology.

Experience: Research: Carbon dioxide exchange of range plants as influenced by several ecological parameters; carbohydrate reserves in range plants as affected by development and defoliation; burning effects on native vegetation; nuclear power generating station effects on native vegetation of the surrounding area. Consultant: Thorne Ecological Institute; Public Service Co. of Colorado.

TROXELL, HARRY E. **281**
Professor Forest and Wood Sciences

Specialties: Wood utilization; wood science and technology.

Experience: Director, CSU Wood Science Laboratory. Consultant to private companies in wood science and technology. Member, CSU Wood Waste Task Force.

TULLIS, J. PAUL **282**
Associate Professor Civil Engineering

Specialties: Hydraulics; fluid mechanics.

Experience: Work on cavitation including numerous valve testing programs for municipalities and private firms. Consultant: consultant engineering firms, municipalities, and industry on cavitation, design of protective equipment to avoid transients in pump discharge line, analysis of vibrations and pressure surges in a nuclear pump test loop, design of pipe systems, and development of new pressure reducing equipment.

VANDERBILT, M. DANIEL **283**
Associate Professor Civil Engineering

Specialties: Structures; mechanics.

Experience: Investigator, elastic analysis of shear test plate and structure.

VAN DYNE, GEORGE M. **284**
Professor Fishery and Wildlife Biology
Director, Natural Resources
Ecology Laboratory

Specialties: Nutrition of range plants and animals, forage evaluation; modelling, analysis and computer applications to biological problems; soil-plant-animal relationships; systems ecology.

Experience: Committee on Terrestrial Productivity, National Academy of Sciences. Ecologist and Associate Professor of Biology, a joint appointment with Radiation Ecology Section, Oak Ridge National Laboratory and the Department of Botany, University of Tennessee. Consultant: Icelandic Research Institute; Union Carbide Corp. (modelling and analysis of ecological problems; United Nations Development Project, FAO, Kenya (range research and survey).

VAN VALEY, THOMAS L.

Assistant Professor

285

Sociology

Specialties: Population problems--demography, ecology, methodology.

Experience: Population Fellow, University of North Carolina. Computer Programmer and Research Assistant, Institute for Research in Social Sciences, University of North Carolina. Consultant: Meheen Environmental Consultants, Denver. Co-investigator, medical care facilities in rural Colorado, NIH.

VICKERS, ROGER S.

Associate Professor

286

Electrical Engineering

Specialties: Electro-optical systems; remote sensing.

Experience: Vice-president and Director of Science and Applications, ERA, Inc., Houston, Texas, 1969-1970. Research Physicist, CSU Department of Atmospheric Science, 1968-1969; Stanford University, 1966-1968.

VLACHOS, EVAN

Associate Professor

287

Sociology

Specialties: Urban studies; demography and population analysis; methodology; southeastern Europe.

Experience: Research director, Social Sciences Center and Greek Government, Athens. Consultant: regional development of the Island of Lesbos, Greece. Research Associate, The Greater Athens Master Plan, Town Planning Division of Greater Athens and Greek Government; New Towns Project, HUD. Action Program Supervisor, Juvenile Delinquency Demonstration Project, HEW Office of Juvenile Delinquency and Youth Development.

VONDER HAAR, THOMAS H.

Associate Professor

288

Atmospheric Science

Specialties: Satellite meteorology; atmospheric radiation.

Experience: Chairman, AMS Committee on Radiation Energy. Member, COSPAR Committee on Space Research. Associate Scientist, Space Science and Engineering Center, University of Wisconsin. Consultant: U.S. Army, U.S. Air Force, NCAR, World Meteorological Organization, and private industry. Outstanding Educators of America award, 1971.

WALSH, RICHARD G. **289**
Professor Economics

Specialties: Natural resources economics; industrial organization.

Experience: Professor of Economics, University of Nebraska. Member, natural resources committees. Economic consultant: University of Maryland. Research consultant: Experiment Station, University of Puerto Rico.

WALTZ, JAMES **289a**
Assistant Professor Geology

Specialty: Hydrogeology.

Experience: Principal investigator for OWRR research projects concerning mountain water pollution and groundwater basins.

WALTERS, FOREST E. **290**
Associate Professor Economics

Specialties: Agri-business and economic growth in rural areas.

Experience: Head: Agricultural Products Group, W.R. Grace and Co.; long range projection group, USDA Economic Research Service. Senior Instructor, Graduate School for Federal Employees.

WANGAARD, FREDERICK F. **291**
Professor and Dept. Head Forest and Wood Sciences

Specialties: Wood science and technology; physical and mechanical properties of wood; tree growth-property interrelationships; wood fiber-paper property relationships; wood residue disposal and utilization.

Experience: Professor of Forest Products, Yale University. Chairman of CSU Wood Waste Task Force, responsible for analyses of Environmental Consequences of Wood-Waste Alternatives for the western states and the nation.

WAPLES, ELIOT O. **292**
Associate Professor Finance

Specialty: Land development and use.

Experience: Gathered preliminary data on raw land market between Fort Collins and Loveland. Research: Case Analyses of Kodak Employees Relocation from Rochester, N.Y. to Colorado, Eastman Kodak.

WARD, GERALD M. **293**
Professor Animal Sciences

Specialties: Dairy nutrition; radiation biology.

Experience: Measurement and influence of radioactive isotopes in agriculture and measurement of body composition by radioactivity. Established fallout standards. Experienced in evaluation of livestock industry in relation to world food supply. Head, Animal Production and Health Section, FAO/IAEA, Vienna, Austria. International lecturer and consultant: radioisotope applications and techniques in animal science.

WARD, JOHN C. **294**
Professor Civil Engineering
Professor-in-charge, Environmental Engineering Program

Specialty: Sanitary engineering.

Experience: Consultant: Mississippi River Commission. Diplomat, American Academy of Environmental Engineers.

WARD, RICHARD T. **295**
Professor and Dept. Chairman Botany and Plant Pathology

Specialty: Plant ecology.

Experience: Research: vegetation and environment of tundra in the Rocky Mountains, Aleutians, and southern Andes; ecological plant races in relation to the environment; deciduous beech forests.

WARD, ROBERT C. **296**
Assistant Professor Agricultural Engineering

Specialties: Water management in poultry processing; modelling tile drainage systems for optimum design.

Experience: Research Associate, North Carolina State University.

WARREN, C. GERALD **297**
Professor Chemistry

Specialty: *Geochemical cycles for sulfur, selenium, uranium, and nitrogen.*

Experience: Research: investigation of inorganic chemistry responsible for the formation of ore deposits; the isotope fractionation of various elements in ore deposits; natural organometallic compounds. Consultant: geochemistry of uranium deposits, USGS.

WASSER, CLINTON H. **298**
Professor Range Science

Specialties: Range management; range ecology.

Experience: Dean, College of Forestry and Natural Resources, 1957-1968. Coordinator, Peace Corps Kenya Program, 1969-1970.

WEITZ, JOSEPH L. **299**
Professor Geology

Specialties: Geologic mapping; environmental geology; geological education.

Experience: Chairman of Department of Geology, Hanover College. WAE geologist, USGS, 1966-present. Director, Earth Science Curriculum Project.

WENGERT, NORMAN I. **300**
Professor Political Science

Specialties: Water; natural resources.

Experience: Chairman, Department of Political Science, Wayne State University, 1960-1968. Consultant: Water Resources Institute, Office of the Chief, U.S. Army Corps of Engineers; ecological impact of oil shale development in western Colorado, Thorne Ecological Foundation, Boulder; water research project, University of Michigan, School of Natural Resources.

WESTON, FREDERICK C., JR. **301**
Assistant Professor Management Science

Specialty: Management.

Experience: Management Analyst, U.S. Naval Ammunition Depot, Crane, Indiana. Investigator, Planning for Denver Winter Olympics, HUD.

WETZLER, THEODORE F. **302**
Assistant Professor Microbiology

Specialty: Sanitation microbiology.

Experience: Consultant: National Sanitation Foundation for Environmental Microbiology; to institutions on hospital environmental problems.

WHALEY, ROSS S. **303**
Professor Forest and Wood Sciences
Associate Dean, College of Forestry and Natural Resources

Specialties: Economics of natural resources; land use planning; environmental inventory.

Experience: Professor of Natural Resource Economics; Head, Department of Forest Science, Utah State University. Research Economist, Michigan Department of Conservation. Research Forester, Southern Forest Experiment Station, USFS. Consultant: Public Land Law Review Commission, USFS.

WHICKER, F. WARD **304**
Associate Professor Radiology and Radiation Biology

Specialty: Radioecology.

Experience: Visiting Associate Professor, Institute of Arctic Biology, University of Alaska; Department of Botany, University of North Carolina. Consultant: radioecology, Los Alamos Scientific Laboratory; wildlife, Nevada Test Site, Southwest Radiological Health Laboratory, USPHS; environmental plutonium, Dow Chemical, Rocky Flats Plant; environmental impact of uranium mining, Utah International, Inc.

WHITE, BETTY JO **305**
Assistant Professor Consumer Sciences and Housing

Specialty: Family housing.

Experience: Community Development Representative, programs of water and sewer facilities grants, public facility loans, open space land, urban beautification and improvement, historic preservation, and studies of the satisfaction-dissatisfaction of condominium owners, HUD Manchester, N.H. office.

WHITNEY, ROBERT S. **306**
Professor and Dept. Head Agronomy

Specialty: Soil chemistry and management.

Experience: Over 35 years professional experience in soil science and land use. Equally qualified in salinity and salinity reclamation. President, American Society of Agronomy.

WILBER, CHARLES G. **307**
Professor and Dept. Chairman Zoology

Specialties: Environmental toxicology; aquatic ecosystems; heavy metal poisoning.

Experience: Director of Marine Laboratories, University of Delaware. Dean of Graduate School and Professor of Physiology and Pharmacology, Kent State University. Consultant: USPHS on air and water pollution; American Institute of Biological Sciences; NSF; Surgeon General U.S. Army; U.S. Air Force Research and Development Command; Thorne Ecological Institute; Ecology Consultants, Inc. Editor, **American Lecture Series in Environmental Studies.**

WILCOX, ARTHUR T. **308**
Professor and Dept. Head Recreation Resources

Specialties: Recreation planning and administration.

Experience: Consultant: state, county, park, and recreation agencies; State of Hawaii. Member, Advisory Board, BLM, Colorado State Office; Park and Recreation Department, Navajo Tribe; ASCUFRO, Recreation Resource Supply Task Group.

WILKEN, GENE C. **309**
Associate Professor Economics

Specialties: Geography; impact of man on natural resources.

Experience: Teaching Associate in Climatology, San Francisco State College. Subcontractor, National Academy of Science. Statistical Assistant, Pacific Southwest Forest and Range Experiment Station.

WILLEFORD, JACK **310**
Professor Hearing and Speech Science
Director, Division of Audiology

Specialties: Noise pollution; hearing conservation; audiology.

Experience: President, Universal Noise Consultants, Ft. Collins, advisors to Colorado and Wyoming industries on noise analyses and design, and implementation of comprehensive hearing conservation program. Consultant: acoustical problems; CSU Environmental Health Service on USPHS project in Rulison blast region of western Colorado. Director, Ft. Collins area noise survey, Chairman, Noise Pollution Committee, Colorado Speech and Hearing Assn. Planned, implemented, and participated in hearing conservation programs in six states.

WILLIAMS, LESLIE P., JR. **311**
Associate Professor Microbiology

Specialties: Epidemiology; public health.

Experience: Research: Salmonella Cycles in Louisiana, NIH; Rabies Immunity in Native Dog Population, Colombia, South America, Tulane University; Resistant Transfer Factors in Cattle Feedlots and Poultry Production, FDA. Consultant: Poisonlab., Inc., Consulting Toxicologists, Denver, Colo.

WILSON, WILLIAM H. **312**
Associate Professor Geology

Specialties: Mineral exploration; economic geology; volcanic geology; geophysics.

Experience: Assistant State Geologist, Wyoming, 1951-1971.

WOOLLEY, TYLER A. **313**
Professor Zoology

Specialty: Inventory and classification of oribatid mites.

Experience: Numerous articles published on new genera and species of oribatid mites. Consultant to power industry on soil zoology of disturbed land.

WUNDER, BRUCE A. **314**
Assistant Professor Zoology

Specialties: Physiological ecology; temperature regulation and activity energetics in vertebrates; vertebrate zoology.

Experience: Consultant: *ecological impact of power developments on small mammals and game animals*, Electric Power Industry. NIH Postdoctoral Fellow in Physiological Ecology, Institute of Arctic Biology, University of Alaska. Reviewer for *Journal of Mammalogy* and *Institute of Arctic and Alpine Research*, University of Colorado.

WYKSTRA, RONALD A. **315**
Professor Economics

Specialties: Public finance and economic policy; manpower economics; economic theory.

Experience: *Economic Consultant*: Northern Natural Gas, Inc. Labor Relations Arbitrator, Federal Mediation and Conciliation Service. Economic Advisor, Western Publishing Company, Inc. Consultant: input-output analysis of Idaho economy, University of Idaho. Director, Economic and Manpower Research, Nebraska Research and Coordinating Unit.

YEVJEVICH, VUJICA **316**
Professor *Civil Engineering*

Specialties: Hydrology; water resource systems; hydraulics; hydraulic engineering.

Experience: Many years of practice in the water resources field (planning, design, and construction supervision). Several years of research and teaching in water resources. Long experience as national and international consultant on fluid mechanics, hydraulic engineering, hydrology, and on advanced scientific technology for difficult water resources.

YOUNG, ROBERT A. **317**
Associate Professor *Economics*

Specialties: Agricultural and natural resources economics involving public policy impact; economics of ground water management; intermountain water transfers; eastern slope of Colorado alternative land use changes.

Experience: Visiting Scholar, Resources for the Future, Inc. Consultant: economics of public water development, National Planning Association. Chairman, Regional Technical Research Committee on Economics of Water Transfer. Contract research for USBR and National Water Commission.

YOUNG, T.R. **318**
Associate Professor *Sociology*

Specialties: Social psychology; social organization; social stratification.

Experience: Research Associate, Colorado Psychopathic Hospital, Denver. Consultant: Western Interstate Commission for Higher Education; General Practitioner Evaluation project.

ZELLE, MAX R. **319**
Professor and Dept. Chairman *Radiology and Radiation Biology*

Specialties: Radiation biology; genetics; microbiology.

Experience: Professor of Genetics and Director, Center for Radiological Sciences, University of Washington, Seattle. Director, Division of Biological and Medical Research, Argonne National Laboratory.

ZIMDAHL, ROBERT L.
Assistant Professor

320
Botany and Plant Pathology

Specialty: Weed control.

Experience: Co-investigator, *Environmental Contamination Caused by Lead from Automotive Exhausts*, NSF. Research on weeds in sugarbeets, potatoes, herbicide persistence, and degradation.

SECTION II
LISTING BY COLLEGE AND DEPARTMENT

COLLEGE OF AGRICULTURAL SCIENCES

Agronomy: **Ball**, William; **Berg**, William; **Brengle**, Kenneth; **Danielson**, Robert; **Dotzenko**, Alexander; **Doxtader**, Kenneth; **Echols**, James; **Franklin**, William; **Heil**, Robert; **Johnson**, Donal; **Klute**, Arnold; **Ludwick**, Albert; **Reuss**, John; **Sabey**, Burns; **Schnehl**, Willard; **Stewart**, William; **Whitney**, Robert

Animal Science: **Brinks**, James; **Heeney**, Marvin; **Johnson**, James; **Matsushima**, John; **Oxley**, James; **Ward**, Gerald

Avian Science: **Miller**, Byron; **Quarles**, Carey

Horticulture: **Brink**, Kenneth; **Butler**, Jackie; **Ells**, James; **Goldsberry**, Kenneth; **Hanan**, Joe; **Holley**, Winfred; **Jorgensen**, Carl; **Macksam**, William; **Moore**, Frank; **Swanson**, Bert

Agricultural
Chemical Coordinator:
Bohmont, Bert

COLLEGE OF BUSINESS

Business: **Benton**, Douglas

Finance: **Waples**, Eliot

Management: **Culley**, Jack; **Roselius**, Theodore

Management Science:
Weston, Frederick

Marketing: **Kress**, George; **Paranka**, Stephen

COLLEGE OF ENGINEERING

Agricultural
Engineering: **Clyma**, Wayne; **Corey**, Arthur; **Frey**, Anthony; **Hansen**,
Ralph; **Harper**, Judson; **Hart**, William; **Kemper**, W. Doral;
McWorter, David; **Miles**, Donald; **Skogerboe**, Gaylord;
Smith, James; **Ward**, Robert

Atmospheric
Science: **Grant**, Lewis; **Gray**, William; **Corrin**, Myron; **Cox**, Stephen;
Rasmussen, James; **Reiter**, Elmar; **Riehl**, Herbert; **Sinclair**,
Peter; **Somervell**, Willis; **Vonder Haar**, Thomas

Civil
Engineering: **Albertson**, Maurice; **Baldwin**, Lionel; **Barnes**, Albert; **Ball**,
James; **Bell**, James; **Bole**, James; **Cermak**, Jack; **Criswell**,
Marvin; **Fead**, John; **Gessler**, Johannes; **Goodman**, James;
Grigg, Neil; **Hayman**, Robert; **Hendricks**, David; **Karaki**,
Susumu; **Koloseus**, Herman; **Löf**, George; **Longenbaugh**,
Robert; **Mahmoud**, Khalid; **Mercer**, Albert; **Meroney**,
Robert; **Morel-Seytoux**, Hubert; **Osteryoung**, Janet; **Peterka**,
Jon; **Richardson**, Everett; **Ruff**, James; **Sadeh**, Willy;
Sandborn, Virgil; **Schulz**, Edmund; **Shen**, Hsieh; **Simons**,
Daryl; **Skinner**, Morris; **Smith**, George; **Sunada**, Daniel;
Thompson, Erik; **Todorovic**, Petar; **Tullis**, J. Paul;
Vanderbilt, M. Daniel; **Ward**, John; **Yevjevich**, Vujica

Electrical
Engineering: **Chan**, P.; **Churchill**, Russell; **Edwards**, David; **Jones**,
Thomas; **Vickers**, Roger

Mechanical
Engineering: **Edwards**, Harry; **Olson**, Hilding

COLLEGE OF FORESTRY AND NATURAL RESOURCES

Fishery and Wildlife
Biology: **Cringan**, Alexander; **Decker**, Eugene; **Gilbert**, Douglas;
Gross, Jack; **Hein**, Dale; **Nagy**, Julius; **Ryder**, Ronald;
Smith, Dwight; **Steinhoff**, Harold; **Swanson**, Gustav

Fishery: **Behnke**, Robert; **Carlson**, Clarence; **Flickinger**, Stephen;
Hagen, Harold; **McConnell**, William; **Post**, George

Forest and

Wood Sciences: **Barney**, Charles; **Dyer**, A. Allen; **Fechner**, Gilbert; **Framer**, Warren; **Mogren**, Edwin; **Reid**, Charles; **Schroeder**, Herbert; **Troxell**, Harry; **Wangaard**, Frederick; **Whaley**, Ross

Range Science: **Bartlett**, E. Thomas; **Bonham**, Charles; **Cook**, C. Wayne; **Hansen**, Richard; **Hervey**, Donald; **Jameson**, Donald; **Sims**, Philip; **Terwilliger**, Charles; **Trlica**, Milton; **Wasser**, Clinton

Recreation

Resources: **Alden**, Howard; **Aukerman**, Robert; **Davis**, Thomas; **Held**, R. Burnell; **Miller**, W. Dwain; **Wilcox**, Arthur

Watershed

Science: **Dils**, Robert; **Marlatt**, William; **Maxwell**, Eugene; **Meiman**, James; **Miller**, Lee; **Smith**, James; **Stiffler**, William; **Teller**, H. Leo

COLLEGE OF HOME ECONOMICS

Consumer Sciences and Housing:

Thurlow, Sandra; **White**, Betty Jo

Food Science and Nutrition:

Dupont, Jacqueline; **Harrill**, Inez; **Jansen**, G. Richard

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

Art: **Ragouzis**, Perry

Economics: **Eckert**, Jerry; **Gray**, S. Lee; **Hartman**, Loyal M.; **Huszar**, Paul; **Lewis**, James; **Oakleaf**, S. Kenneth; **Nobe**, Kenneth; **Radosevich**, George; **Rehnberg**, Rex; **Rohdy**, Donald; **Seckler**, David; **Sorenson**, Donald; **Tinnermier**, Ronald; **Walsh**, Richard; **Walters**, Forest; **Wilken**, Gene; **Wykstra**, Ronald; **Young**, Robert

Education: **Bruner**, Howard; **Cole**, Stanley

History: **Leyendecker**, Liston

Political Science: **Caulfield**, Henry; **Foss**, Phillip; **Hill**, Duane; **Jones**, Garth; **Lawrence**, Robert; **Meek**, Roy; **Ogden**, Daniel; **Straayer**, John; **Wengert**, Norman

Sociology and
Anthropology: **Dotson**, Bruce; **Freeman**, David; **Knop**, Edward; **Sardo**, Joseph; **Sharp**, Emmit; **Van Valey**, Thomas; **Vlachos**, Evan; **Young**, T.R.

Hearing and
Speech Science: **Lentz**, William; **Willeford**, Jack

Technical
Journalism: **Hilleman**, Daniel

COLLEGE OF NATURAL SCIENCES

Biochemistry: **Jordan**, John; **Martin**, Robert

Botany and Plant
Pathology: **Adams**, Robert; **Altman**, Jack; **Baker**, Ralph; **Dix**, Ralph; **Fults**, Jess; **Heikes**, P. Eugene; **Klein**, William; **Kreutzer**, William; **Livingston**, Clark; **Oshima**, Nagayoshi; **Parke**, Robert; **Ward**, Richard; **Zimdahl**, Robert

Chemistry: **Johnson**, Gestur; **Kowalski**, Bruce; **Maag**, Dale; **Maciel**, Gary; **Meyers**, Albert; **Miller**, Larry; **O'Donnell**, C. Michael; **Osteryoung**, Robert; **Skogerboe**, Rodney; **Stermitz**, Frank; **Warren**, C. Gerald

Geology: **Burns**, Lary; **Campbell**, John; **Johnson**, Robert; **McCallum**, Malcolm; **Schumm**, Stanley; **Waltz**, James; **Weitz**, Joseph; **Wilson**, William.

Statistics: **Boes**, Duane; **Bose**, Raj; **Bowden**, David; **Mielke**, Paul; **Siddiqui**, Mohammed; **Srivastava**, J.

Psychology: **Loomis**, Ross; **Gavin**, James; **Oetting**, Eugene

Zoology: **Baldwin**, Paul; **Brewer**, J. Wayne; **Fronk**, W. Don; **Hantsbarger**, William; **Johnsen**, Richard; **Lehner**, Phillip; **Marquardt**, William; **Martin**, Stephen; **McClellan**, J. Forbes; **Nash**, Donald; **Pettus**, David; **Reed**, Edward; **Simpson**, Robert; **Wilber**, Charles; **Wooley**, Tyler; **Wunder**, Bruce

COLLEGE OF VETERINARY MEDICINE AND BIOMEDICAL SCIENCES

Anatomy: **Billenstien**, Dorothy; **Davis**, Robert; **Epling**, Glenwood;
Gayler, Bettina; **Kainer**, Robert; **Solomon**, Gordon

Clinical Sciences: **Card**, C. Seymour; **Gorman**, Harry; **Horton**, Dallas; **Swan**,
Henry

Microbiology: **Bagby**, John; **Boyd**, William; **Cholas**, Gus; **Klein**, Donald;
Morrison, Sumner; **Petit**, Michael; **Savage**, Eldon; **Tengerdy**,
Robert; **Tornabene**, Thomas; **Wetzler**, Theodore; **Williams**,
Leslie

Pathology: **Alexander**, Archibaid; **Hibler**, Charles; **Jaenke**, Roger;
Phemister, Robert

Physiology and
Biophysics: **Abel**, John; **Hall**, Peter

Radiology and
Radiation Biology:
Schiager, Keith; **Whicker**, F. Ward; **Zelle**, Max

ENVIRONMENTAL RESOURCES CENTER

Evans, Norman

LIBRARY SCIENCE

Gifford, Curtis; **Rhoades**, Marjorie; **Schmidt**, Fred, Jr.

NATURAL RESOURCES ECOLOGY LABORATORY

Coleman, David; **Dyer**, Melvin; **Ellis**, James; **French**, Norman; **Gibson**, James;
Innis, George; **Marshall**, John; **Smith**, Freeman; **Steinhorst**, R. Kirk; **Van
Dyne**, George

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