

September 1970

Water Resources Research Activities and Interests at the University of Connecticut

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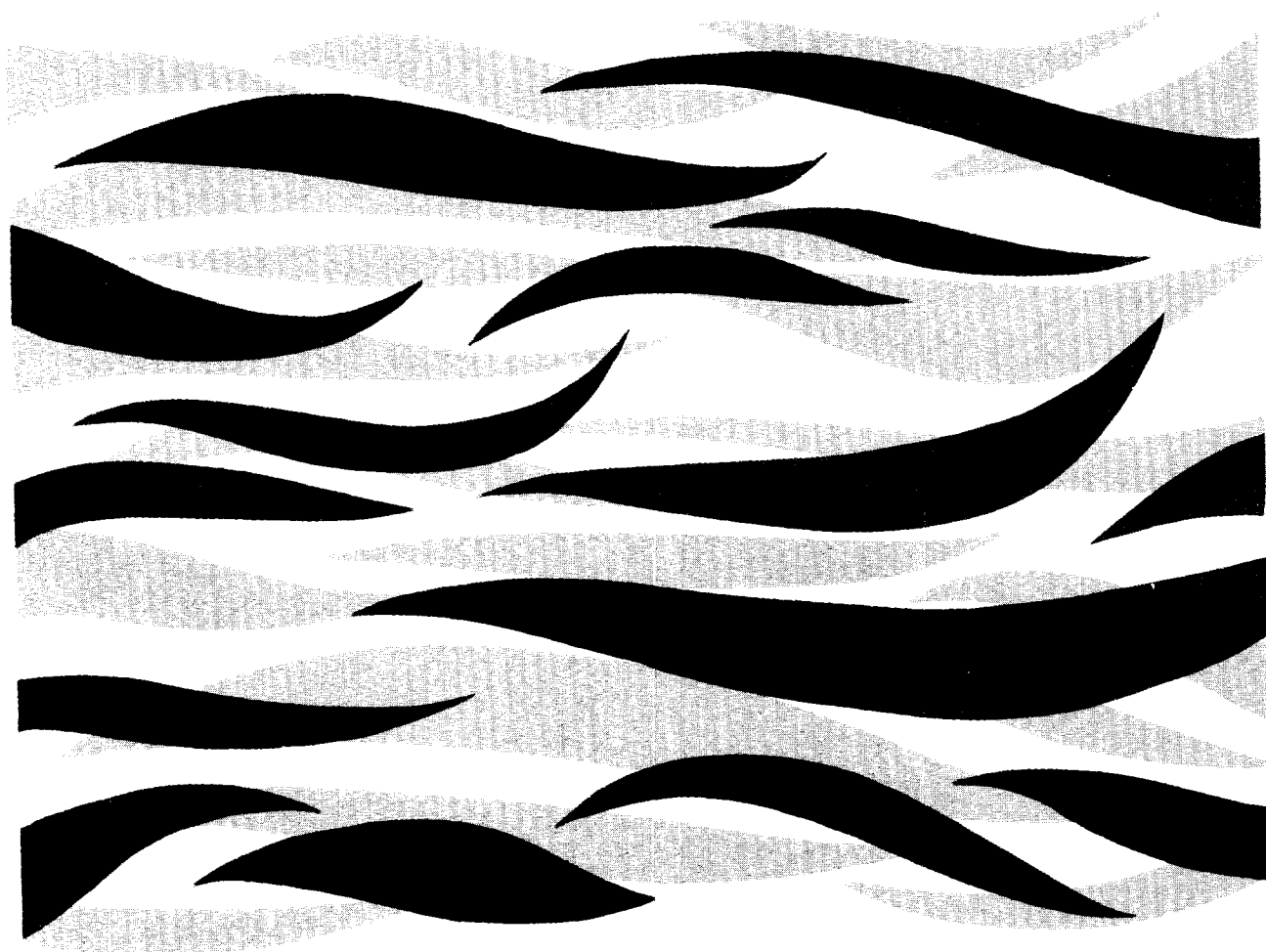
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WATER RESEARCH ACTIVITIES AND INTERESTS

Report No. 12

September 1970



INSTITUTE OF WATER RESOURCES
The University of Connecticut

Report No. 12

September 1970

Water Resources Research Activities and Interests at The University of Connecticut

William C. Kennard, Director
and
Jane S. Fisher, Research Assistant

Institute of Water Resources
The University of Connecticut

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Introduction

As the University of Connecticut increases in size and complexity, one of the continuing problems facing staff members is that of keeping informed about the myriad activities being carried out by their colleagues. The establishment in 1964 of the Institute of Water Resources provided the means for accomplishing this in one major disciplinary area, water resources. Two principal functions of the Institute are to sponsor and coordinate research and to increase opportunities for the interdisciplinary approach both to research and graduate training. This publication has been prepared to show staff interests in the broad field of water resources and to facilitate communication between individuals with interests in common. The information also will be of direct value to people throughout the State who are interested in learning about water resources research activities at the University of Connecticut.

Staff interests in water resources first were surveyed by the Institute in late 1964. New staff appointments and new programs dictate that such information be updated at intervals. The information provided in this publication is based on responses to a questionnaire sent in February 1970 to all staff members of the University. A total of 79 individuals responded, of which 59 are actively engaged in water related research and the remainder are interested in such an activity. The respondents represented 32 different departments or equivalent administrative units of the University. The largest number, 11, were from the Biological Sciences Group of the College of Liberal Arts and Sciences. Other units with a large number of staff members interested included the Civil Engineering Department with 8 and the Plant Science Department with 7. Individuals at the following off-campus locations also responded: Biological Sciences Group at the Hartford Branch, Biological Sciences Group at the Stamford Branch, Chemistry Department of the Torrington Branch and the Laboratory Medicine Department of the Health Center at Farmington. Also listed is the State Climatologist who, although a Department of Commerce employee, has his office on the Storrs Campus.

For convenience, the information obtained has been divided into the following six tables:

1. Faculty Conducting and/or Interested in Water Resources Research - All respondents are listed alphabetically by name and department.

2. Faculty Conducting Water Resources Research - Individuals are grouped by departments, and for each is given name, degree, academic rank, area of interest, current research and recent publications up to a maximum of five.
3. Faculty Interested in but not Currently Conducting Water Resources Research - Individuals are grouped by departments, and for each is given name, degree, academic rank and area of interest.
4. Summary of Water Resources Research Interests - Areas or topics of special interest are listed alphabetically.
5. Summary of Current Water Resources Research - Titles of experiments currently underway and the investigators are given.
6. Summary of Water Resources Research Proposed or Desired - Areas of research or specific topics needing investigation are listed alphabetically.

Review of the information in this publication may well serve to identify new areas of common interest and possible cooperative effort. Additional details can be obtained directly from the individuals concerned or through the Institute office.

William C. Kennard
Director
Institute of Water Resources

Table I

Faculty Conducting and/or Interested in
Water Resources Research

| <u>NAME</u> | <u>DEPARTMENT OR ADMINISTRATIVE UNIT</u> |
|--------------------------|---|
| Aho, William A. | Poultry Science |
| Aitken, Janet M. | Geology and Geography |
| Blocker, Robert W. | Biological Sciences Group - Stamford |
| *Bock, Paul | Civil Engineering |
| Bohlen, Walter F. | Marine Sciences Institute |
| Brumbach, Joseph J. | Environmental Science Services Administration, U.S. Department of Commerce |
| Buck, John D. | Biological Sciences Group |
| Burke, Carroll N. (Mrs.) | Animal Diseases |
| Collins, Ralph P. | Biological Sciences Group |
| Cosenza, Benjamin | Biological Sciences Group |
| Dammann, Antoni W.H. | Biological Sciences Group |
| Dewey, Arthur W. | Agricultural Economics |
| Dixon, J. Kenneth | Chemistry - Torrington |
| Dowling, John J. | Marine Sciences Institute |
| Dubos, Robert E. | Biological Sciences Group |
| Emmons, Harley H. | Health Service |
| Farling, John J. | Continuing Education Services |
| Fisher, David A. | Mechanical Engineering |

| | |
|------------------------|--------------------------------------|
| Fitch, Robert M. | Chemistry |
| Frankel, Larry | Geology and Geography |
| Franz, David R. | Biological Sciences Group |
| Giambalvo, Vincent | Mathematics |
| Glazier, Lynn R. | Animal Industries |
| Greene, Norbert D. | Metallurgy |
| Greiner, John B. | Agricultural Engineering |
| Griffin, Gary F. | Plant Science |
| Guttay, A.J. Robert | Plant Science |
| Hamill, Hugh M. Jr. | History |
| Hansmann, Eugene W. | Biological Sciences Group |
| Healy, Kent A. | Civil Engineering |
| Helfgott, Theodore | Civil Engineering |
| Hilding, Winthrop E. | Mechanical Engineering |
| Janes, Byron E. | Plant Science |
| Johnson, Julian F. | Chemistry |
| **Kennard, William C. | Institute of Water Resources |
| Klei, Herbert E. | Chemical Engineering |
| Klemens, Paul G. | Physics |
| Kolega, John J. | Agricultural Engineering |
| Koontz, Harold V. | Biological Sciences Group |
| Koontz, Roberta (Mrs.) | Biological Sciences Group - Hartford |
| Laak, Rein | Civil Engineering |
| *Leonard, Robert L. | Agricultural Economics |

| | |
|-------------------------|---------------------------|
| Lin, Jia D. | Civil Engineering |
| Lindstrom, Richard E. | Pharmaceutics |
| *Masterton, William L. | Chemistry |
| Moran, Thomas I. | Physics |
| Nightingale, Charles H. | Pharmaceutics |
| Paskausky, David F. | Marine Sciences Institute |
| Peters, Robert A. | Plant Science |
| Pillai, N. Narayana | Agricultural Engineering |
| Pollack, Edward | Physics |
| *Posey, Chesley J. | Civil Engineering |
| Prince, Ralph P. | Agricultural Engineering |
| Richard, Clyde C. | Mechanical Engineering |
| Roberts, Arthur D. | Education |
| Sarsenski, Joseph E. | Civil Engineering |
| Schoeplein, Robert N. | Economics |
| Schramm, Robert J. Jr. | Plant Science |
| Schultz, Clarence W. | Electrical Engineering |
| Schultz, Mary E. (Mrs.) | Biological Sciences Group |
| Scotttron, Victor E. | Civil Engineering |
| - Shelly, Eugene P. | Mathematics |
| Skauen, Donald M. | Pharmaceutics |
| Slater, James A. | Biological Sciences Group |
| Smith, H. Fairfield | Statistics |
| Stock, John T. | Chemistry |

| | |
|----------------------|----------------------------------|
| Stuart, James D. | Chemistry |
| Sundstrom, Donald W. | Chemical Engineering |
| Swarbrick, James | Pharmaceutics |
| Tanaka, John | Chemistry |
| Tenzer, Morton J. | Institute of Urban Research |
| Tilton, Richard C. | Laboratory Medicine - Farmington |
| *Trainor, Francis R. | Biological Sciences Group |
| Turner, Frederick C. | Political Science |
| Wachman, Murray | Mathematics |
| Warkov, Seymour | Sociology |
| *Wengel, R. William | Plant Science |
| Wheeler, William C. | Agricultural Engineering |
| Whitworth, Walter R. | Plant Science |

*Member, Executive Committee, Institute of Water Resources

**Director, Institute of Water Resources

Table 2

Faculty Conducting Water Resources Research

AGRICULTURAL ECONOMICS

Arthur W. Dewey, M.S., Professor

Area of Interest:

Municipal regulation and control of liquid waste disposal; sewer benefit assessments; state policy for septage disposal.

Current Research:

To describe septage and make recommendations for its handling.

Robert L. Leonard, Ph.D., Asst. Prof.

Area of Interest:

Economic implications of alternative definitions of water rights and forms of public regulation; economic incentives for waste water control and treatment.

Current Research:

Estimate volume of septage generated in Connecticut; identify and evaluate alternative methods of financing septage disposal facilities.

Recent Publications:

Leonard, R.L. 1966. Diversions and Alterations of Stream Flow. Proc. of Water Rights Law Conference, New England Council of Water Center Directors, Nov. 10, 1966, Boston, Mass. pp. 55-66.

Leonard, R.L. 1966. Water Rights in Connecticut - Existing Laws and Future Possibilities. Coop. Ext. Serv., Coll. of Agr., Univ. of Conn. No. 66-7.

AGRICULTURAL ENGINEERING

John J. Kolega, Ph.D., Assoc. Prof.

Area of Interest:

Water and waste water.

Current Research:

Treatment processes - wastes pumped from septic tanks.

Recent Publications:

Kolega, J.J., W.C. Wheeler and G.W. Hawkins, Jr. 1966. Current Septic Tank System Practices in Connecticut. J. Water Pollut. Contr. Fed. 38(10):1592-1600.

Nelson, G.L., J.J. Kolega, U. Agena, Q. Graves and G. Hoffman. 1968. Basic Performance Parameters for Oxygenation and Liquid Circulation in Rotor-Aerated Liquid Waste Systems. Paper No. 68-932 presented at the 1968 Winter Mtg., Amer. Soc. Agr. Eng., Chicago, Ill., Dec. 10-13, 1968.

Kolega, J.J., G.L. Nelson and Q.B. Graves. 1969. Analyses for Oxygen Transfer Coefficients in Roter Aeration Systems. Proc. Cornell Univ. Conf. on Agr. Waste Management.

Kolega, J.J. 1969. Septic Tank Pumping -- A Long Neglected Problem in Connecticut. In: Milestones in Conn. Agr. and Home Eco., Spring-Summer, p 13.

N. Narayana Pillai, Ph.D., Res. Asst. III

Area of Interest:

Hydraulics; hydrology; water pollution control.

Current Research:

An economical aerator for individual household waste treatment.

A package plant for individual household waste treatment.

Recent Publications:

Pillai, N.N. 1966. Improvements in Stilling Basins Designs Using New Shapes for Baffle Piers. Symposium on Spillways, Gates and Outlet-works, Central Water and Power Research Station, Poona, India. Jan. 1966.

Pillai, N.N. 1967. The Drag on Baffle Piers in a Hydraulic Jump. Symposium on High Velocity Flow, Indian Institute of Science, Bangalore, India.

Pillai, N.N. and V.V. Jayaraman. 1967. Cavitation on Baffle Piers in Stilling Basins. Symposium on High Velocity Flow, Indian Institute of Science, Bangalore, India.

Pillai, N.N. 1969. Stilling Basins with Wedge Shaped Baffle Blocks. Water and Water Engineering, London, Dec. 1969:506-509.

Ralph P. Prince, M.S., Assoc. Prof.

Area of Interest:

Agricultural waste pollution.

Recent Publication:

Prince, R.P. and G.W. Hawkins. 1969. Liquid Level Detection with Solid State Devices. Paper No. 69-359 presented at Summer Meeting of Amer. Soc. Agr. Eng., Purdue University.

William C. Wheeler, M.S., Professor

Area of Interest:

Water quality; waste water and treatment; farm waste.

Current Research:

Individual waste disposal systems.

Waste disposal in rural areas.

Recent Publication:

Kolega, J.J., W.C. Wheeler and G.W. Hawkins. 1966. Current Septic Tank System Installation Practices in Connecticut. J. Water Pollut. Contr. Fed. 38(10):1592-1600.

BIOLOGICAL SCIENCES GROUP - HARTFORD

Roberta Koontz, M.S. Instructor

Area of Interest:

Biological and chemical contamination.

Current Research:

Investigation of seasonal changes in chemical and organismal
(bacteria, certain algae) content in Lake Wangumbaug, Coventry.

BIOLOGICAL SCIENCES GROUP - STAMFORD

Robert W. Blocker, M.S., Instructor

Area of Interest:

Sewage pollution.

Current Research:

Examination of the extent to which the Greenwich and Stamford
treatment plants pollute the respective harbors.

BIOLOGICAL SCIENCES GROUP

John D. Buck, Ph.D., Asst. Prof.

Area of Interest:

Marine (estuarine) microbiology; microbial aspects of thermal
pollution.

Current Research:

Effects of thermal effluents on microbiology and chemistry of the
Connecticut River.

Recent Publications:

Buck, J.D. 1968. Connecticut River Microbiology. Final Rept.,
USDI, FWPCA. Contract No. PH14-12-36. pp. 1-71.

Buck, J.D. 1969. Occurrence of False-positive MPN Tests for Fecal Streptococci in Marine Waters. Appl. Microbiol. 18(4):562-565.

Ralph P. Collins, Ph.D., Professor

Area of Interest:

Identification of organic constituents in water supplies; water quality.

Current Research:

Development of instrumental techniques for the analysis of trace organic constituents in water.

Characterization of taste and odor in water.

Recent Publications:

Collins, R.P. and K. Kalnins. 1966. Carbonyl Compounds Produced by Cryptomonas ovata var palustris. J. Protozool. 13:435-437.

Collins, R.P. and K. Kalnins. 1967. The Fatty Acids of Synura petersenii. Lloydia 30:437-440.

Collins, R.P. and K. Kalnins. 1968. Sterols Produced by Cryptomonas ovata var palustris. Can. J. Microbiol. 14:837-839.

Collins, R.P. and K. Kalnins. 1969. Sterols Produced by Synura petersenii (Chrysophyta). Comp. Biochem. Physiol. 30:779-782.

Collins, R.P. and K. Kalnins. 1969. The Fatty Acid of Cryptomonas ovata var palustris. Phytol. 26:47-50.

Benjamin Cosenza, Ph.D., Assoc. Prof.

Area of Interest:

Water quality - private supplies; microbiology of septage.

Current Research:

Microbiology of septage.

Antoni W.H. Damman, Ph.D., Assoc. Prof.

Area of Interest:

Growth and floristic composition of ombrotrophic sphagnum bogs.

Nutrient losses by leaching.

Current Research:

Regional differences in composition, growth and nutrition of sphagnum bogs in eastern North America.

David R. Franz, Ph.D., Asst. Prof.

Area of Interest:

Ecology and life history of shallow-water marine invertebrates.

Current Research:

Ecology and development of the estuarine gastropod, Acteocina canaliculata (Say).

Recent Publications:

Franz, D.R. 1967. On the Taxonomy and Biology of the Dorid Nudibranch Doridella obscura. Nautilus 80(3):73-79.

Franz, D.R. 1968. Occurrence and Distribution of New Jersey Opisthobranchia. Nautilus 82(1):7-12.

Franz, D.R. and K. Clark. 1969. Occurrence of the Cephalaspid Philine sinuata (Stimpson) in Southern New England, with a Discussion of the Species. Veliger 12(1):69-71.

Franz, D.R. 1970. The Distribution of the Nudibranch Doris verrucosa Linne in the Northwest Atlantic. Nautilus 83(3):80-85.

Franz, D.R. and G. Hendler. Substrate Diversity and the Taxonomy of Crepidula convexa (Say) (Gastropoda:Prosobranchia). Occ. Pap. Univ. of Conn. (Biol.) 1(4). (In Press).

Eugene W. Hansmann, Ph.D., Asst. Prof.

Area of Interest:

Algal ecology.

Current Research:

Similarities of artificial substrate communities to natural benthic communities found in polluted and non-polluted streams.

Similarities of artificial substrate biomass to natural autotrophic biomass found in polluted and non-polluted streams.

Eutrophication of an unpolluted stream.

Recent Publication:

Hansmann, E.W. 1969. The Effects of Logging on Periphyton Communities of Coastal Streams. Ph.D. Thesis, Oregon State University. 220 pp.

Harold V. Koontz, Ph.D., Assoc. Prof.

Area of Interest:

Chemical contamination.

Current Research:

Investigation of seasonal changes in chemical and organismal (certain bacteria and algae) content in Lake Wangumbaug, Coventry.

Mary E. Schultz, Ph.D., Res. Assoc. II

Area of Interest:

Reproductive biology and morphological variability of planktonic diatoms.

Current Research:

Variability in diatom morphology and water pollution.

Recent Publications:

Schultz, M.E. and F.R. Trainor. 1968. Production of Male Gametes and Auxospores in the Centric Diatoms Cyclotella meneghiniana and C. cryptica. J. Phycol. 4:85-88.

Schultz, M.E. and F.R. Trainor. Production of Male Gametes and Auxospores in a Polymorphic Clone of the Centric Diatom Cyclotella. Can. J. Bot. (In Press).

Francis R. Trainor, Ph.D., Professor

Area of Interest:

Plankton, nutrition, heterotrophy.

Current Research:

Variability in diatom morphology and water pollution.

Utilization of organic matter by algae.

Study of flotation mechanisms in algae.

Heterotrophy in blue green algae.

Heterotrophy in diatoms.

Recent Publications:

Schultz, M.E. and F.R. Trainor. 1968. Production of Male Gametes and Auxospores in the Centric Diatoms Cyclotella meneghiniana and C. cryptica. J. Phycol. 4:85-88.

Schultz, M.E. and F.R. Trainor. Production of Male Gametes and Auxospores in a Polymorphic Clone of the Centric Diatom Cyclotella. Can. J. Bot. (In Press).

CHEMICAL ENGINEERING

Herbert E. Klei, Ph.D., Asst. Prof.

Area of Interest:

Purification processes.

Current Research:

Automatic control of an activated sludge reactor.

Regeneration of spent activated carbon.

Membrane polarization by bacteria.

Recent Publications:

Klei, H.E. 1968. Capital Costs of Sewage Plants. Water & Waste Eng. 5:61.

Klei, H.E., D.W. Sundstrom and A.E. Molvar. 1969. Response and Stability of a completely Mixed Activated Sludge Reactor. Chem. Eng. Prog. Symposium Series, 65(97):232.

Sundstrom, D.W. and H.E. Klei. 1970. Chemical Engineering Programs in Water Pollution Control. Chem. Eng. Education 4(1):41.

Klei, H.E. and D.W. Sundstrom. The Role of Chemical Engineering in Water Purification. Chem. Eng. Prog. Symposium Series. (Accepted for Publication).

Donald W. Sundstrom, Ph.D., Assoc. Prof.

Area of Interest:

Water Pollution control and treatment.

Current Research:

Air oxidation of organic compounds in aqueous systems.

Optimal control of activated sludge reactors.

Removal of organic compounds from activated carbon by regeneration with air.

Recent Publications:

Klei, H.E., D.W. Sundstrom and A.E. Molvar. 1969. Response and Stability of a Completely Mixed Activated Sludge Reactor. Chem. Eng. Prog. Symposium Series, 65(97):232.

Sundstrom, D.W. and H.E. Klei. 1970. Chemical Engineering Programs in Water Pollution Control. Chem. Eng. Education 4(1):41.

Klei, H.E. and D.W. Sundstrom. The Role of Chemical Engineering in Water Purification. Chem. Eng. Prog. Symposium Series. (Accepted for Publication).

CHEMISTRY

Robert M. Fitch, Ph.D., Assoc. Prof.

Area of Interest:

Formation of colloidal dispersions in water by chain growth processes.

Current Research:

Mechanism of particle formation in polymer colloids.

Recent Publications:

Fitch, R.M. 1965. The Theory of Emulsion Polymerization. Off. Digest, 37, Part II:32-48.

Fitch, R.M. 1966. The Mechanism of Particle Formation in Polymer Hydrosols, I: Kinetics of the Aqueous Polymerization of Methyl Methacrylate. Symposium on New Concepts in Emulsion Polymerization, Am. Chem. Soc., New York Meeting Sept. 14, 1966. Polymer Reprints 7(2):707 (1966) (with K.J. Sprick and M.B. Prenosil), J. Polymer Sci., Part C, No. 27:95-118 (1969).

Fitch, R.M. and T.J. Chen. 1968. A Dilatometer for Chemically Initiated Reactions. J. Polymer Sci., Part A-1, 6:3411-3414.

William L. Masterton, Ph.D., Professor

Area of Interest:

Thermodynamics and structure of water solutions; water solubilities of non-electrolytes (including pesticides).

Current Research:

Solubility of pesticides in water and aqueous salt solutions.

Ion-molecule interactions in aqueous salt solutions.

Recent Publications:

Masterton, W.L. 1967. Osmotic and Activity Coefficients of trans-Chloroisoithiocyanatobis (ethylenediamine) cobalt (III) Salts. J. Phys. Chem. 71(9):2885-2889.

Masterton, W.L., T.I. Munnelly and L.H. Berka. 1967. Osmotic and Activity Coefficients of cis- and trans-Nitrobis (ethylenediamine) amminecobalt (III) Salts. J. Phys. Chem. 71(4):942-946.

Masterton, W.L. and H.K. Seiler. 1968. Apparent and Partial Molal Volumes of Water in Organic Solvents. J. Phys. Chem. 72(12): 4257-4262.

Masterton, W.L., T.P. Lee, and R.L. Boyington. 1969. The Solubility of Aromatic Hydrocarbons in Aqueous Solutions of Complex Ion Electrolytes. J. Phys. Chem. 73(8):2761-2763.

Masterton, W.L. and T. Bierly. 1970. Ion Pairing in 2:2 Complex Ion Electrolytes. J. Phys. Chem. 74(1):139-143.

CHEMISTRY - TORRINGTON

J. Kenneth Dixon, Ph.D., Assoc. Prof.

Area of Interest:

Water quality control with synthetic polymeric flocculants.

Current Research:

Water quality control with synthetic polymeric flocculants.

Recent Publications:

Dixon, J.K. and M.W. Zielyk. 1969. Control of the Bacterial Content of Water with Synthetic Polymeric Flocculants. J. Env. Sci. & Tech. 3(6):551-558.

Tilton, R.C., J.R. Murphy and J.K. Dixon. Control of the Algal Content of Water with Synthetic Polymeric Flocculants. (In Press).

CIVIL ENGINEERING

Paul Bock, D.Eng., Professor

Area of Interest:

Hydrology.

Current Research:

Hydrologic analyses using atmospheric vapor data.

Estimate peak runoff rates from small rural watersheds.

Survey of atmospheric vapor flux investigations.

Recent Publications:

Bock, P. 1967. Development of a Scientific Framework for a World Water Balance Study, Annex V. COWAR Mtg. Bull. Int. Assn. Sci. Hydrol. XIIe. Annee No. 1. pp. 118-120.

Bock, P. 1968. Satellites, Hydrology and the International Hydrological Decade. UNESCO paper delivered at United Nations Conf. Vienna. A/Conf. 34/IV.11. (June).

Welsh, J.G., H.M. Frazier and P. Bock. 1968. Computational Analysis of Moisture Flux over North America. Publ. No. 80, AIHS/IASH, UNESCO. 1:307-316.

Bock, P., H.O. Banks, V.T. Chow and R. Hazen. 1969. Useful Applications of Earth-Oriented Satellites--Hydrology. Nat. Acad. Sci., Washington, D.C. 73 pp.

Malhotra, G.P. and P. Bock. Hydrologic Budget of North America and Sub-Regions Formulated Using Atmospheric Vapor Flux Data. Symposium on World Water Balance, Reading, England, July 1970. (In Press).

Kent A. Healy, Sc.D., Assoc. Prof.

Area of Interest:

Ground water flow; ground water drainage and recharge; earth dams.

Current Research:

Development of prefabricated underdrains.

Deep well pumping affecting consolidation of varied clays in the Hartford area.

Internal erosion on earth slopes.

Theodore Helfgott, M.S., Asst. Prof.

Area of Interest:

Water and waste water treatment; aquatic chemistry and analysis; water renovation; electrodialysis.

Current Research:

Chemical analysis and process classification of constituents of effluents.

Recent Publications:

Helfgott, T. and P. Weber. 1965. The Atomized Suspension Technique for Sewage Sludge Disposal. Water Works & Wastes Eng., Sept. 1965.

Helfgott, T. 1966. Electrodialysis for the Removal of Phosphates from Waste Waters. M.Ch.E. Thesis, The City University of New York.

Helfgott, T. 1969. The Removal of Phosphates from Waste Water by Electrodialysis. WATER-1969, Chem. Eng. Progr. Symposium Series, 65:218-231.

Helfgott, T., J.W. Hunter and D. Rickert. A Classification and Analysis Approach to Higher Quality Effluents Through Advanced Waste Treatment. Presented before the Amer. Soc. of Civil Eng., Second National Symposium of Sanitary Engineering Research, Development and Design, July 15, 1969, Cornell Univ. (Accepted for Publication).

Rein Laak, Ph.D., Asst. Prof.

Area of Interest:

Urban and rural water resources problems; water pollution.

Current Research:

Pollution strengths of undiluted waste from households.

New London sewer outfall - estuary study.

Recent Publications:

Laak, R. 1966. Virus Dispersal by Water. Amer. Water Works Assoc. 58(7):920-928.

Laak, R. 1967. Virus Transfer Through a Sewage Disposal Unit. Can. J. Public Health 58(4):172-176.

Laak, R. 1970. Cattle, Swine and Chicken Manure Challenges Waste Disposal Methods. (Accepted for Publication, Water & Sewage Works J. March 1970.)

Jia D. Lin, Sc.D., Assoc. Prof.

Area of Interest:

Pollution related turbulent flow phenomena; coastal and estuarine hydrodynamics.

Current Research:

Experimental studies of air and water interfacial interaction.

Spatial growth of eddies in shear flows.

Chesley J. Posey, M.S., Professor

Area of Interest:

Open channel flow; flood control; erosion prevention.

Current Research:

Measurement and analysis of natural-type roughness surfaces affecting fluid flow.

Determine effective critical depth for over-bank flow type cross-sections.

Recent Publications:

Posey, C.J. 1965. Are Flood Plain Regulations Sound? Civil Eng. 35(6):68.

Posey, C.J. 1967. Computation of Discharge Including Over-Bank Flow. Civil Eng. 37(4):62.

Posey, C.J. 1967. Analysis of Quasi-Periodic Weather Data. Inst. of Water Resour., Univ. of Conn. Rept. 3.

Posey, C.J. 1968. Spillway Design and Channel Capacity. Rept. of AWWA Comm. 8120, Willing Water, 12(3), Feb. 15, 1968.

Posey, C.J. 1969. Erosion Prevention Experiments. Proc. 13th Cong. of the Int. Assn. for Hydraulic Research 2:211.

Joseph E. Sarsenski, M.S., Instructor

Area of Interest:

Combined system overflow; storm water pollution.

Current Research:

Regional variation of some statistical parameters of streamflow.

Recent Publication:

Grune, W.N. and J.E. Sarsenski. 1968. Water Shortage and Industrial Water Use and Reuse. Massachusetts Legislative Research Bureau.

Victor E. Scottron, D.Eng., Professor

Area of Interest:

River pollution, sanitary and heat turbulence and diffusion.

Current Research:

Influence of turbulence on pressure and velocity probes.

Recent Publications:

Edinger, J.E., V.E. Scottron, et.al. 1963. Future Requirements for Fresh Water in the United States. Johns Hopkins Press.

Scottron, V.E. and J.L. Power. 1965. Turbulent Flow over Rough Boundries in a Pressure Gradient. David Taylor Model Basin Rept. 2115.

Scottron, V.E. and D. Shafer. 1965. The Low-Turbulence Wind-Tunnel Facility of David Taylor Model Basin. David Taylor Model Basin Rept. 2116.

Scottron, V.E. 1967. Turbulent Boundary Layer Characteristics over a Rough Surface in an Adverse Pressure Gradient. Dep. Environ. Eng. Sci. Rept. Johns Hopkins Univ. (Also issued as Naval Ship Res. and Devel. Center Rept. 2659).

Scottron, V.E. and A.L. Prasuhn. 1969. Reduction of River Heat Pollution by Turbulence Stimulation. Univ. of Conn., Civil Eng. Rept. No. 69-22. (Reprint from 1968 ANERAC Proc.).

ECONOMICS

Robert N. Schoeplein, Ph.D., Asst. Prof.

Area of Interest:

Pricing of water for industrial and commercial use.

Current Research:

Cost of enforcing effluent standards.

EDUCATION

Arthur D. Roberts, D. Educ., Asst. Prof.

Area of Interest:

Interested in teacher education at both the elementary and secondary level, from any interdisciplinary vantage point, either in the sciences or the social sciences.

Current Research:

Develop methods and materials for teachers who will teach ecology at the elementary and secondary educational level.

ELECTRICAL ENGINEERING

Clarence W. Schultz, Ph.D., Professor

Area of Interest:

Electrical communication under sea water; desalination; marine geology.

Recent Publication:

Schultz, C.W. and H.Y. Chen. 1965. Salt-Ion Migration by the AC Lorentz Force. Proc. Inst. Elec. & Electron. Eng. 53(11):1753-1754.

GEOLOGY AND GEOGRAPHY

Janet M. Aitken, Ph.D., Professor

Area of Interest:

Structural controls of ground water movement through bedrock.

Larry Frankel, Ph.D., Professor

Area of Interest:

Estuarine sediment-water-organism relationships.

Current Research:

Study of estuarine sediment-water-organism relationships in the area of Avery Point and the Mystic River Estuary.

INSTITUTE OF URBAN RESEARCH

Morton J. Tenzer, M.A., Assoc. Director

Area of Interest:

Administration of water related programs.

Recent Publication:

Tenzer, M.J. 1968. The Marine Environment: A State and Local Perspective. New York Inst. of Public Admin.

INSTITUTE OF WATER RESOURCES

William C. Kennard, Ph.D., Professor and Director

Area of Interest:

Water pollution control; water research administration; plant physiology.

Current Research:

A study of the legal and administrative practices relating to lake pollution in the northeast.

Recent Publications:

Kennard, W.C. (Editor). 1966. Water Resources Research at the University of Connecticut. Inst. of Water Resour., Univ. of Conn. Rept. 1.

Kennard, W.C. 1967. Research to Improve and Protect our Water Resources. In: Milestones in Conn. Agr. and Home Eco.:6-7. Storrs Agr. Exp. Sta., Univ. of Conn.

Kennard, W.C. (Editor). 1967. Lectures on Law in Relation to Water Resources Use and Development. Inst. of Water Resour., Univ. of Conn. Rept. 2.

Kennard, W.C. (Editor). 1968. Lectures on Water Conservation. Inst. of Water Resour., Univ. of Conn. Rept. 7.

Kennard, W.C. and Jane S. Fisher. 1970. A Bibliography of Publications Relating to Water Resources in Connecticut, 1900-1970. Inst. of Water Resour., Univ. of Conn. Rept. 10.

LABORATORY MEDICINE - FARMINGTON

Richard C. Tilton, Ph.D., Asst. Prof.

Area of Interest:

Eutrophication; control of algae bacteria and viruses and water supplies by synthetic polymeric flocculants; aquatic sulfur bacteria.

Current Research:

Flocculation of green algae with synthetic polymeric flocculants.

Effect of trace metals on the flocculation of biocolloids.

Recent Publications:

Tilton, R.C. and G.E. Jones. 1967. Characterization and Ultra-structure of Marine Thiobacilli. Bacteriol. Proc. p. 46.

Tilton, R.C. 1968. Marine Thiobacilli. Revue Internationale de Medicale Oceanographique, Tome IX:237-253.

Swan, R. and R.C. Tilton. 1969. Characterization of Marine Thiobacilli. Bacteriol. Proc.

Berry, M. and R.C. Tilton. 1969. Effects of Thermal Addition on Sulfur Oxidizing Bacteria in the Connecticut River. Bacteriol. Proc.

Dixon, J.K., J.R. Murphy and R.C. Tilton. 1969. Flocculation of Green Algae with Synthetic Flocculants. Proc. Amer. Chem. Soc. (N.Y.).

MARINE SCIENCES INSTITUTE

Walter F. Bohlen, Ph.D., Asst. Prof.

Area of Interest:

Fluid mechanics; sediment transport; turbidity, siltation pollution.

Current Research:

Laboratory studies of turbulence in liquid-solid flows.

Field monitoring of turbidity levels in Thames River, Long Island Sound and eventually out onto the Continental Shelf.

Recent Publications:

Bohlen, W.F. 1969. Hot-Wire Anemometer Study of Turbulence in Open Channel Flows Transporting Neutrally Buoyant Particles. M.I.T. Exp. Sediment. Lab. Rept. 69-1 Sept. 1969, Cambridge, Mass. 117 pp.

John J. Dowling, Ph.D., Assoc. Prof.

Area of Interest:

Geophysical applications.

Current Research:

Fresh water contacts along continental shelf, Cape May to Cape Hatteras.

Recent Publications:

Dowling, J.J. 1969. Water Quality Variations in the Ogallala Aquifer of West Texas Detected by Surface Measurements. Trans. Amer. Geophys. Union. V 50.

Dowling, J.J. 1969. Distribution of Dissolved Solids in the Ogallala of West Texas. Proc. 3rd Ann. Arid Lands Symposium, 1969.

Dowling, J.J. 1970. Mapping Rechargeable Aquifer Thickness by Surface Measurements. Trans. Amer. Geophys. Union. V 51.

David F. Paskausky, Ph.D., Asst. Prof.

Area of Interest:

Physical oceanography; circulation dynamics (numerical modeling).

Current Research:

Winter circulation of Lake Ontario.

A test of synoptic cruise results by means of a prognostic numerical model.

Recent Publications:

Paskausky, D.F. and W.D. Nowlin, Jr. 1968. Measured and Pre-formed Phosphate in the Gulf of Mexico Region. Texas A & M Univ. Tech. Rept. 68-12T. 19 pp.

Nowlin, W.D. Jr., D.F. Paskausky and H.J. McLellan. 1969. Recent Dissolved-Oxygen Measurements in the Gulf of Mexico Deep Waters. J. Marine Res. 27(1):39-44.

MECHANICAL ENGINEERING

David A. Fisher, M.S., Professor

Area of Interest:

Desalination and removal of pollutants by distillation; properties of polluted water mixtures for use in design.

Current Research:

Experimentally determined thermodynamic properties of sea water and its concentrates.

Analytical model of a flash evaporator stage.

Recent Publications:

Fisher, D.A. and F.W. Gilbert. 1965. Recent Developments in Flash Distillation. Amer. Chem. Soc. 5(1):1-15.

Coogan, C.H. Jr., D.A. Fisher, F.W. Gilbert and H.L. Ornstein. 1968. Development of an Analytical Model of a Flash Stage - Part I. Office of Saline Water, USDI, Research Rept. 364. 69 pp.

Coogan, C.H. Jr., D.A. Fisher, P.S. Brewster and H.L. Ornstein. 1969. Development of an Analytical Model of a Flash Stage - Part II. Office of Saline Water, USDI, Research Rept. 503. 114 pp.

Gilbert, F.W., C.H. Coogan, Jr., and D.A. Fisher. 1970. Experimental Investigation of Flashing Sea Water in Open Rectangular Channel Flow. Paper No. 70-FE-39 presented May 1970 at National Fluids Engineering Mtg. of Amer. Soc. Mech. Eng. at Detroit, Mich.

Winthrop E. Hilding, Ph.D., Professor

Area of Interest:

Thermal pollution, salt water conversion; thermo-physical properties of sea water.

Current Research:

Study of turbulence effects in sea water flash evaporators.

Thermodynamic properties of sea water concentrates.

Recent Publications:

Hilding, W.E. 1966. Differential Equations for the Local Interfacial and Wall Shear Stresses for One-Dimensional Annular Two-Phase Flow. Third Int. Heat Transfer Conf. Prof. AIChE-ASME.4:167-177.

Hilding, W.E. 1967. A Study of Local Wall Shear Variation for High Velocity Vapors Condensing in Tubes. Semi-Int. Symposium, Tokyo, Japan, Sept. 1967. 11 pp.

Hilding, W.E. 1967. An Analytical and Experimental Study of the Two-Phase Flow of a High Velocity Vapor Condensing in a Tube. (with project staff), Part II of Final Report to NASA from the Univ. of Conn., Aug. 1967. 182 pp.

Hilding, W.E. and W.P. Goss. 1967. Two-Phase, Annular-Mist Flow. Report to NASA from the Univ. of Conn. Oct. 1967. 117 pp.

Hilding, W.E. and W.A. Olsen. 1967. An Analytical and Experimental Study of Three Phase Heat Transfer with Simultaneous Condensing and Freezing on Cold Horizontal and Vertical Plates. Report to NASA from the Univ. of Conn. Oct. 1967. 117 pp.

Clyde C. Richard, M.S., Instructor

Area of Interest:

Thermal pollution from large steam power stations.

Current Research:

Optimization of nuclear power plant design for various waste heat removal systems.

PHARMACEUTICS

Richard E. Lindstrom, Ph.D., Asst. Prof.

Area of Interest:

Nature of water and aqueous solutions; salt effects in aqueous solution of urea.

Current Research:

Structural aspects of amide-water systems.

Charles H. Nightingale, Ph.D., Asst. Prof.

Area of Interest:

Effect of toxic substances on fish.

Current Research:

Development of an appropriate kinetic model describing the absorption of toxic substances in fish.

Recent Publications:

Gibaldi, M. and C.H. Nightingale. 1968. Use of Overturn End Point for the Estimation of Absorption and Elimination Kinetics in Goldfish. J. Pharm. Sci. 57:226-230.

Gibaldi, M. and C.H. Nightingale. 1968. Bile Salt Potentiation of Pharmacologic Effects and Drug Uptake in Goldfish. J. Pharm. Sci. 57:1354-1357.

Nightingale, C.H., R.J. Wynn and M. Gibaldi. 1969. Physiologic Surface-Active Agents and Drug Absorption III. Effect of Bile Salts on Drug Absorption in Goldfish. J. Pharm. Sci. 58:1005-1007.

Donald M. Skauen, Ph.D., Professor

Area of Interest:

Radionuclide concentrations in estuaries and organisms; effects of chronic exposure of radionuclides on organisms.

Current Research:

The effects of pollution gradients on benthic microflora.

Recent Publications:

Skauen, D.M. and J.S. Rankin. 1965. The Effects of Tritium Oxide on Aquatic Organisms. Nucl. Sci. Abstr. 19:4.

Skauen, D.M., T.W. Hatfield and N. Marshall. 1967. Gross Beta Radioactivity in Fucus Hybrids (Rockweed) from the Niantic Estuary, Connecticut. 1961-64. Radiolog. Health Data and Repts.:481-483.

Marshall, M., D.M. Skauen and H.C. Lampe. Measurement of Primary Productivity of Intact Samples of Benthic Microflora. UNESCO Monographs on Measurement of Primary Productivity. (Accepted for Publication).

PHYSICS

Thomas I. Moran, Ph.D., Asst. Prof.

Area of Interest:

Atomic collisions with water molecules.

Current Research:

The velocity dependence of the total cross section for alkali-water scattering.

Recent Publications:

Della Valle, J.A., L.F. McGuire, E. Pollack and T.I. Moran. 1969.
The Velocity Dependence of the Total Cross Section for Alkali
Atoms on Water. Bull. Amer. Phys. Soc. Series II. 14:609.

Edward Pollack, Ph.D., Assoc. Prof.

Area of Interest:

Scattering of alkali atoms by water molecules.

Current Research:

The velocity dependence of the total cross section for alkali-
water scattering.

Recent Publications:

Della Valle, J.A., L.F. McGuire, E. Pollack and T.I. Moran. 1969.
The Velocity Dependence of the Total Cross Section for Alkali
Atoms on Water. Bull. Amer. Phys. Soc. Series II. 14:609.

PLANT SCIENCE

Gary F. Griffin, Ph.D., Asst. Prof.

Area of Interest:

Yield of nutrients to waterways; ground water pollution by
agricultural chemicals.

Current Research:

The quantity and movement of nitrates in soil water in two Connecticut
soils treated with high and low levels of inorganic nitrogen fertilizer.

Byron E. Janes, Ph.D., Professor

Area of Interest:

Flow of water through plants; soil-plant-water relationships;
agricultural climatology.

Current Research:

Interrelation of morphology and physiology of a plant and the resistance to flow of water within the plant.

Nature and magnitude of the resistance to flow of water in plants.

The dynamics and energetics of the soil-plant-atmosphere continuum.

Atmospheric influences on ecosystems and satellite sensing.

Recent Publications:

Janes, B.E. 1966. Adjustment Mechanisms of Plants Subjected to Varied Osmotic Pressures of Nutrient Solution. *Soil Sci.* 101(3): 180-188.

Janes, B.E. and J.J. Brumbach. 1966. Estimation of Water Available for Plant Growth in Connecticut in 1965. *Storrs Agr. Exp. Sta., Univ. of Conn. Bull.* 397.

Janes, B.E. 1967. Plant Response to Moisture Stress. *Proc. XVII. Int. Hort. Congress.* V II.

Janes, B.E. 1968. Effects of Extended Periods of Osmotic Stress on Water Relationships of Pepper. *Physiologia Plantarum* 21:334-345.

Janes, B.E. Effect of Carbon Dioxide, Osmotic Potential of Nutrient Solution, and Light Intensity on Transpiration and Resistance to Flow of Water in Pepper Plants. *Plant Physiol.* (In Press).

Robert A. Peters, Ph.D., Professor

Area of Interest:

Water conservation in crop plants.

Current Research:

Use of herbicides in forage crop management.

Recent Publications:

Peters, R.A. 1966. Crabgrass Control in Corn. *Proc. Northeastern Weed Control Conf.* 20:277-281.

Peters, R.A. and R.M. O'Leary. 1967. Weed Control in Corn During 1966. Proc. Northeastern Weed Control Conf. 21:225-230.

Peters, R.A. and W.L. Currey. 1969. Herbicide Usage in No-Tillage Crop Production. Proc. Northeastern Weed Control Conf. 22:167-172.

Peters, R.A. and W.L. Currey. 1970. Influence of Sod Species in No-Tillage Corn Production. Proc. Northeastern Weed Control Conf. 24:421-425.

Robert J. Schramm, Jr., Ph.D., Assoc. Prof.

Area of Interest:

Eutrophication as a result of a step-up in soil nutrient levels.

Current Research:

Field tests to determine eutrophication as a result of a step-up in soil nutrient levels, especially nitrogen.

R. William Wengel, Ph.D., Assoc. Prof.

Area of Interest:

Soil water movement; soil water pollution; oxygen in soil and soil water; animal waste disposal on soils.

Current Research:

Oxygen status of soil air and soil water as influenced by oxygen transfer through the soil profile.

Walter R. Whitworth, Ph.D., Assoc. Prof.

Area of Interest:

Ichthyology; limnology; fisheries biology; toxicology.

Current Research:

General limnological and fisheries survey of the Thames River system.

Study of diseases of fishes of the Thames River system.

Recent Publications:

- Whitworth, W.R. 1968. Effects of Diurnal Fluctuations of Dissolved Oxygen on the Growth of Brook Trout. J. Fish. Res. Brd., Canada 25(3):579-584.
- Whitworth, W.R., P.L. Berrien and W.T. Keller. 1968. Freshwater Fishes of Connecticut. Conn. Geol. & Nat. Hist. Survey. Bull. 101.
- Whitworth, W.R. and T.H. Lane. 1969. Effects of Toxicants on Community Metabolism in Pools (Fish, Plankton). Limnol. & Oceanogr. 14(1):53-58.
- Whitworth, W.R. and D.H. Bennett. 1969. A Limnological Study of the Lower Farmington River with Special Reference to the Ability of the River to Support American Shad. Inst. of Water Resour., Univ. of Conn. Rept. 9.
- D. Dorfman and W.R. Whitworth. 1969. Effects of Fluctuations of Lead, Temperature and Dissolved Oxygen on the Growth of Brook Trout. J. Fish. Res. Brd., Canada 26:2493-2501.

POLITICAL SCIENCE

Frederick C. Turner, Ph.D., Assoc. Prof.

Area of Interest:

Politics and water resources, particularly in Latin America.

Current Research:

The political aspects of drought in the northeast of Brazil under the military regimes of 1964-1970.

POULTRY SCIENCE

William A. Aho, M.S., Professor

Area of Interest:

Poultry manure disposal; dead bird disposal.

Current Research:

Maxi-mixing poultry manure.

Fertilize forests with poultry manure.

Recent Publication:

Aho, W.A. 1968. 12-Year Performance of a Heated Septic Tank.
Connecticut Poultry Notes, Feb. 1968. Bull. 68-5.

SOCIOLOGY

Seymour Warkov, Ph.D., Professor

Area of Interest:

Social structure and water resources.

Current Research:

An organizational study comparing the Farmington River Watershed
Association and the Willimantic River Task Force.

U.S. DEPARTMENT OF COMMERCE - Environmental Science Services Administration

Joseph J. Brumbach, M.S., State Climatologist

Area of Interest:

Heat and water budget of Southern New England based on topographic
methods.

Derivation and mapping of the kinds of physical parameters necessary
in water resources research.

Current Research:

Relationships among temperature, precipitation and topography in
Southern New England.

Atmospheric influences on ecosystems and satellite sensing.

Recent Publications:

Brumbach, J.J. 1965. The Climate of Connecticut. Conn. Geol. & Nat.
Hist. Survey. Bull. 99.

Janes, B.E. and J.J. Brumbach. 1965. The 1964 Agricultural Drought
in Connecticut. Storrs Agr. Exp. Sta., Univ. of Conn. Bull. 390.

Janes, B.E. and J.J. Brumbach. 1966. Estimation of Water Available
for Plant Growth in Connecticut. Storrs Agr. Exp. Sta., Univ. of Conn.
Bull. 397.

Table 3

Faculty Interested in but Not Currently Conducting Water Resources Research

AGRICULTURAL ENGINEERING

John B. Greiner, M.S., Assoc. Prof.

Area of Interest:

Home and farm water supply and waste disposal.

ANIMAL DISEASES

Carroll N. Burke, Ph.D., Asst. Prof.

Area of Interest:

The virologic and/or electron microscopic aspects of water resources problems.

ANIMAL INDUSTRIES

Lynn R. Glazier, M.S., Assoc. Prof.

Area of Interest:

River and stream pollution.

BIOLOGICAL SCIENCES GROUP

Robert E. Dubos, M.S., Educ. Asst. III

Area of Interest:

Effects of polluted water on amphibians, reptiles and mammals.

James. A. Slater, Ph.D., Professor

Area of Interest:

Aquatic entomology and natural history.

CHEMISTRY

Julian F. Johnson, Ph.D., Assoc. Prof.

Area of Interest:

Problems of trace analysis of organic compounds in water.

John T. Stock, Ph.D., Professor

Area of Interest:

The determination of solutes of all kinds at low concentrations.

James D. Stuart, Ph.D., Asst. Prof.

Area of Interest:

Analysis of aromatic hydrocarbons in solution by electro-chemical or optical instrumental analysis.

John Tanaka, Ph.D., Assoc. Prof.

Area of Interest:

Adsorption and interaction of materials on solid or mineral surfaces.

CONTINUING EDUCATION SERVICES

John J. Farling, M.A., Specialist II

Area of Interest:

Planning and administration of conferences, seminars and short courses on water and other environmental problems.

HEALTH SERVICE

Harley H. Emmons, M.S., Univ. Educ. Asst. I

Area of Interest:

Pollution control.

HISTORY

Hugh M. Hamill, Jr., Ph.D., Professor

Area of Interest:

Ecological problems, including drainage, in the Valley of Mexico City.

MATHEMATICS

Vincent Giambalvo, Ph.D., Asst. Prof.

Area of Interest:

Conservation and depollution.

Eugene P. Shelly, Ph.D., Assoc. Prof.

Area of Interest:

Mathematics as related to water resources.

Murray Wachman, Ph.D., Assoc. Prof.

Area of Interest:

Mathematics as related to water resources.

METALLURGY

Norbert D. Greene, Ph.D., Professor

Area of Interest:

Metallic corrosion in water (fresh and sea water); influence of environmental variables on the corrosivity of waters.

PHARMACEUTICS

James Swarbrick, Ph.D., Professor

Area of Interest:

Water evaporation from liquid and solid surfaces (retardation of).

PHYSICS

Paul G. Klemens, Ph.D., Professor

Area of Interest:

Thermal conductivity of ice; elastic wave propagation in ice and on ice surface.

PLANT SCIENCE

A.J. Robert Guttay, Ph.D., Professor

Area of Interest:

Soil water.

STATISTICS

H. Fairfield Smith, M.S., Professor

Area of Interest:

Interested in assisting in design and analysis of surveys and experiments.

Table 4

Summary of Water Resources Research Interests

Administration of water related programs. (William C. Kennard and Morton J. Tenzer)

Adsorption and interaction of materials on solid mineral surfaces. (John Tanaka)

Agricultural climatology. (Byron E. Janes)

Agricultural waste pollution. (Ralph P. Prince)

Algal Ecology. (Eugene W. Hansmann)

Analysis of aromatic hydrocarbons in solution by electrochemical or optical instrumental analysis. (James D. Stuart)

Animal waste disposal on soils. (R. William Wengel)

Aquatic chemistry and analyses. (Theodore Helfgott)

Aquatic entomology and natural history. (James A. Slater)

Aquatic sulfur bacteria. (Richard C. Tilton)

Atomic collisions with water molecules. (Thomas I. Moran)

Biological and chemical contamination of water. (Roberta Koontz)

Chemical contamination of water. (Harold V. Koontz)

Circulation dynamics (numerical modeling). (David F. Paskausky)

Combined system overflow. (Joseph E. Sarsenski)

Conservation and depollution. (Vincent Giambalvo)

Dead bird disposal. (William A. Aho)

Derivation and mapping of the kinds of physical parameters necessary in water resources research. (Joseph J. Brumbach)

Desalination. (Clarence W. Schultz)

Desalination and removal of pollutants by distillation. (David A. Fisher)

Determination of solutes of all kinds at low temperatures. (John T. Stock)

Earth dams. (Kent A. Healy)

Ecological problems, including drainage, in Valley of Mexico City.
(Hugh M. Hamill, Jr.)

Ecology and life history of shallow-water-marine invertebrates.
(David R. Franz)

Economic implications of alternative definitions of water rights and forms
of public regulation. (Robert L. Leonard)

Economic incentives for waste water control and treatment. (Robert L. Leonard)

Effect of toxic substances on fish. (Charles H. Nightingale)

Effects of chronic exposure of radionuclides on organisms. (Donald M. Skauen)

Effects of polluted water on amphibians, reptiles and mammals. (Robert E. Dubos)

Effects of trace metals on the kinetics of flocculation of algae and bacteria.
(J. Kenneth Dixon)

Elastic wave propagation in ice and on ice surface. (Paul G. Klemens)

Electrical communication under sea water. (Clarence W. Schultz)

Electrodialysis. (Theodore Helfgott)

Erosion prevention. (Chesley J. Posey)

Estuarine sediment-water-organism relationships. (Larry Frankel)

Eutrophication as a result of a step-up in soil nutrient levels.
(Robert J. Schramm, Jr.)

Eutrophication. (Richard C. Tilton)

Farm waste disposal. (William C. Wheeler)

Fisheries biology. (Walter R. Whitworth)

Flood control. (Chesley J. Posey)

Flow of water through plants. (Byron E. Janes)

Fluid mechanics. (Walter F. Bohlen)

Formation of colloidal dispersions in water by chain growth processes.
(Robert M. Fitch)

Geophysical applications. (John J. Dowling)

Ground water drainage and recharge. (Kent A. Healy)

Ground water flow. (Kent A. Healy)

Ground water pollution by agricultural chemicals. (Gary F. Griffin)

Growth and floristic composition of ombrotrophic sphagnum bogs.
(Antoni W.H. Damman)

Heat and water budget of Southern New England based on topographic methods.
(Joseph J. Brumbach)

Home and farm water supply and waste disposal. (John B. Greiner)

Hydraulics. (N. Narayana Pillai)

Hydrology. (Paul Bock and N. Narayana Pillai)

Ichthyology. (Walter R. Whitworth)

Identification of organic constituents in water supplies. (Ralph P. Collins)

Influence of environmental variables in the corrosivity of waters.
(Norbert D. Greene)

Interest in assisting in design and analysis of surveys and experiments.
(H. Fairfield Smith)

Interest in teacher education at both the elementary and secondary level,
from any interdisciplinary vantage point, either in the sciences or the
social sciences. (Arthur D. Roberts)

Limnology. (Walter R. Whitworth)

Marine (estuarine) microbiology. (John D. Buck)

Marine geology. (Clarence W. Schultz)

Mathematics as related to water resources. (Eugene P. Shelly and Murray
Wachman)

Metallic corrosion in water (fresh and sea water). (Norbert D. Greene)

Microbial aspects of thermal pollution. (John D. Buck)

Microbiology of septage. (Benjamin Cosenza)

Municipal regulation and control of liquid waste disposal. (Arthur W. Dewey)

Nature of water and aqueous solutions. (Richard E. Lindstrom)

Nutrient losses by leaching. (Antoni W.H. Damman)

Open channel flow. (Chesley J. Posey)

Oxygen in soil and soil water. (R. William Wengel)

Physical oceanography. (David F. Paskausky)

Plankton, nutrition, heterotrophy. (Francis R. Trainor)

Planning and administration of conferences, seminars and short courses on water and other environmental problems. (John J. Farling)

Plant physiology. (William C. Kennard)

Politics and water resources, particularly in Latin America. (Frederick C. Turner)

Pollution control. (Harley H. Emmons)

Pollution related turbulent flow phenomena; coastal and estuarine hydrodynamics. (Jia D. Lin)

Poultry manure disposal. (William A. Aho)

Pricing of water for industrial and commercial use. (Robert N. Schoeplein)

Problems of trace analysis of organic compounds in water. (Julian F. Johnson)

Properties of polluted water mixtures for use in design work. (David A. Fisher)

Purification processes. (Herbert E. Klei)

Radionuclide concentrations in estuaries and organisms. (Donald M. Skauen)

Reproductive biology and morphological variability of planktonic diatoms. (Mary E. Shultz)

River and stream pollution. (Lynn R. Glazier)

River pollution, sanitary and heat turbulence and diffusion.
(Victor E. Scotttron)

Salt effects in aqueous solutions of urea. (Richard E. Lindstrom)

Salt water conversion. (Winthrop E. Hilding)

Scattering of alkali atoms by water molecules. (Edward Pollack)

Sediment transport. (Walter F. Bohlen)

Sewage pollution. (Robert W. Blocker)

Sewer benefit assessments. (Arthur W. Dewey)

Siltation pollution. (Walter F. Bohlen)

Social structure and water resources. (Seymour Warkov)

Soil-plant-water relationships. (Byron E. Janes)

Soil water. (A.J. Robert Guttay)

Soil water movement. (R. William Wengel)

Soil water pollution. (R. William Wengel)

State policy for septic disposal. (Arthur W. Dewey)

Storm water pollution. (Joseph E. Sarsenski)

Structural controls of ground water movement through bedrock (Janet M. Aitken)

Thermal conductivity of ice. (Paul G. Klemens)

Thermal pollution. (Winthrop E. Hilding)

Thermal pollution from large steam power stations. (Clyde C. Richard)

Thermodynamics and structure of water solutions. (William L. Masterton)

Thermo-physical properties of sea water. (Winthrop E. Hilding)

Toxicology. (Walter R. Whitworth)

Turbidity. (Walter F. Bohlen)

Urban and rural water resources problems. (Rein Laak)

Virologic and/or electron microscopic aspects of water resources problems.
(Carroll N. Burke)

Waste water and treatment. (Theodore Helfgott, John J. Kolega and William C. Wheeler)

Water conservation in crop plants. (Robert A. Peters)

Water evaporation from liquid and solid surfaces (retardation of).
(James Swarbrick)

Water pollution, control, treatment. (William C. Kennard, Rein Laak,
N. Narayana Pillai and Donald W. Sundstrom)

Water quality. (Ralph P. Collins and William C. Wheeler)

Water quality control with synthetic polymeric flocculants. (J. Kenneth
Dixon)

Water quality - private supplies. (Benjamin Cosenza)

Water solubilities on non-electrolytes (including pesticides).
(William L. Masterton)

Water renovation. (Theodore Helfgott)

Yield of nutrients to waterways. (Gary F. Griffin)

Table 5

Summary of Current Water Resources Research

- Air oxidation of organic compounds in aqueous systems. (Donald W. Sundstrom)
- Analytical model of a flash stage. (David A. Fisher)
- Atmospheric influences on ecosystems and satellite sensing. (Joseph J. Brumbach and Byron E. Janes)
- Automatic control of an activated sludge reactor. (Herbert E. Klei)
- Characterization of taste and odor in water. (Ralph P. Collins)
- Chemical analysis and process classification of constituents of effluents. (Theodore Helfgott)
- Climatology. (Joseph J. Brumbach, Byron E. Janes and William C. Kennard)
- Cost of enforcing effluent standards. (Robert N. Schoepflein)
- Deep well pumping affecting consolidation of varied clays in Hartford Area. (Kent A. Healy)
- Describe septage and to make recommendations for its handling. (Arthur A. Dewey)
- Determine effective critical depth for over-bank flow type cross sections. (Chesley J. Posey)
- Develop methods and materials for teachers who will teach ecology at the elementary and secondary educational level. (Arthur D. Roberts)
- Development of an appropriate kinetic model describing the absorption of toxic substances in fish. (Charles H. Nightingale)
- Development of instrumental techniques for the analysis of trace organic constituents in water. (Ralph P. Collins)
- Development of prefabricated underdrains. (Kent A. Healy)

Dynamics and energetics of the soil-plant-atmosphere continuum. (Byron E. Janes)

Ecology and development of the estuarine gastropod, Acteocina canaliculata (Say). (David R. Franz)

Economical aerator for individual household waste treatment. (N. Narayana Pillai)

Effect of trace metals on the flocculation of biocolloids. (Richard C. Tilton)

Effects of pollution gradients on benthic microflora. (Donald M. Skauen)

Effects of thermal effluents on microbiology and chemistry of the Connecticut River. (John D. Buck)

Estimate peak runoff rates from small rural watersheds. (Paul Bock)

Estimate volume of septage generated in Connecticut; identify and evaluate alternative methods of financing disposal facilities. (Robert L. Leonard)

Eutrophication of an unpolluted stream. (Eugene W. Hansmann)

Examination of the extent to which the Greenwich and Stamford treatment plants pollute the respective harbors. (Robert W. Blocker)

Experimental studies of air and water interfacial interaction. (Jia D. Lin)

Experimentally determine properties of sea water and its concentrates. (David A. Fisher)

Fertilize forests with poultry manure. (William A. Aho)

Field monitoring of turbidity levels in Thames River, Long Island Sound and eventually out onto the Continental Shelf. (Walter F. Bohlen)

Field tests to determine eutrophication as a result of a step-up in soil nutrient levels, especially nitrogen. (Robert J. Schramm, Jr.)

Flocculation of green algae with synthetic polymeric flocculants. (Richard C. Tilton)

Fresh water contacts along Continental Shelf, Cape May to Cape Hatteras. (John J. Dowling)

General limnological and fisheries survey of the Thames River System. (Walter R. Whitworth)

Heterotrophy in blue-green algae. (Francis R. Trainor)

Heterotrophy in diatoms. (Francis R. Trainor)

Hydrologic analyses using atmospheric vapor data. (Paul Bock)

Increase in water efficiency by crops by reduction of evapotranspiration.
(Robert A. Peters)

Individual waste disposal systems. (William C. Wheeler)

Influence of turbulence on pressure and velocity probes. (Victor E. Scotttron)

Internal erosion on earth slopes. (Kent A. Healy)

Interrelation of morphology and physiology of a plant and the resistance to
flow of water within the plant. (Byron E. Janes)

Investigation of seasonal changes in chemical and organismal (bacteria,
certain algae) content in Lake Wangumbaug, Coventry. (Robertz Koontz
and Harold V. Koontz)

Ion-molecule interactions in aqueous salt solutions. (William L. Masterton)

Laboratory studies of turbulence in liquid-solid flows. (Walter F. Bohlen)

Maxi-mixing poultry manure. (William A. Aho)

Measurement and analysis of natural-type roughness surfaces affecting fluid
flow. (Chesley J. Posey)

Mechanism of particle formation in polymer colloids. (Robert M. Fitch)

Membrane polarization by bacteria. (Herbert E. Klei)

Microbiology of septage. (Benjamin Cosenza)

Nature and magnitude of the resistance to flow of water in plants.
(Byron E. Janes)

New London sewer outfall - estuary study. (Rein Laak)

Optimal control of activated sludge reactors. (Donald W. Sundstrom)

Optimization of nuclear power plant design for various waste heat removal
systems. (Clyde C. Richard)

Organizational study comparing the Farmington River Watershed Association
and the Willimantic River Task Force. (Seymour Warkov)

Oxygen status of soil air and soil water as influenced by oxygen transfer through the soil profile. (R. William Wengel)

Package plant for individual household waste treatment. (N. Narayana Pillai)

Political aspects of drought in the northeast of Brazil under the military regimes of 1964-1970. (Frederick C. Turner)

Pollution strengths of undiluted waste from households. (Rein Laak)

Quality and movement of nitrates in soil water in two Connecticut soils treated with high and low levels of inorganic nitrogen fertilizer. (Gary F. Griffin)

Regeneration of spent activated carbon. (Herbert E. Klei)

Regional differences in composition, growth and nutrition of sphagnum bogs in eastern North America. (Antoni W.H. Damman)

Regional variation of some statistical parameters of streamflow. (Joseph E. Sarsenski)

Relationship among temperature, precipitation and topography in southern New England. (Joseph J. Brumbach)

Removal of organic compounds from activated carbon by regeneration with air. (Donald W. Sundstrom)

Similarities of artificial substrate biomass to natural autotrophic biomass found in polluted and non-polluted streams. (Eugene W. Hansmann)

Similarities of artificial substrate communities to natural benthic communities found in polluted and non-polluted streams. (Eugene W. Hansmann)

Solubility of pesticides in water and aqueous salt solutions. (William L. Masterton)

Spatial growth of eddies in shear flows. (Jia D. Lin)

Structural aspects of amide-water systems. (Richard E. Lindstrom)

Study of estuarine sediment-water-organism relationships in the area of Avery Point and the Mystic River Estuary. (Larry Frankel)

Study of flotation mechanics in algae. (Francis R. Trainor)

Study of the legal and administrative practices relating to lake pollution in the northeast. (William C. Kennard)

Study of turbulence effects in sea water flash evaporators. (Winthrop E. Hilding)

Survey of atmospheric vapor flux investigations. (Paul Bock)

Survey of diseases of fishes of the Thames River System. (Walter R. Whitworth)

Tests of synoptic cruise results by means of a prognostic numerical model.
(David F. Paskausky)

Thermodynamic properties of sea water concentrates. (Winthrop E. Hilding)

Treatment processes - wastes pumped from septic tanks. (John J. Kolega)

Use of herbicides in forage management. (Robert A. Peters)

Utilization of organic matter by algae. (Francis R. Trainor)

Variability in diatom morphology and water pollution. (Mary E. Schultz and Francis R. Trainor)

Velocity dependence of the total cross section for alkali-water scattering.
(Thomas I. Moran and Edward Pollack)

Waste disposal in rural areas. (William C. Wheeler)

Water quality control with synthetic polymeric flocculants. (J. Kenneth Dixon)

Winter circulation of Lake Ontario. (David F. Paskausky)

Table 6

Summary of Water Resources Research Proposed or Desired

- Backwashable seepage beds - household waste disposal. (Rein Laak)
- Baseline data on concentration of T_2O in certain Connecticut estuaries.
(Donald M. Skauen)
- Characteristics of warm water discharge (Millstone Point nuclear power plants). (John D. Buck)
- Continuation of studies using alkyl betaines as models at a/w interface.
(James Swarbrick)
- Corrosion in marine environment. (Norbert D. Greene)
- Desalination and pollution. (David A. Fisher)
- Determine the contribution of nitrogen pollution in streams as a result of a step-up in use of fertilizer. (Robert J. Schramm, Jr.)
- Effect of solid waste disposal upon soil water and air. (A.J. Robert Guttay)
- Effect of water reservoirs on vegetation of surrounding land, to determine the impact on vegetation as well as providing suggestions on landscape planning, shoreline management, etc. (Antoni W.H. Damman)
- Effective critical depth for overbank flow type cross-sections.
(Chesley J. Posey)
- Effects of lead concentrations and other industrial by-products on the primary trophic level of an aquatic ecosystem. (Eugene W. Hansmann)
- Effects of salt concentration from surface runoff on the primary trophic level of a stream ecosystem. (Eugene W. Hansmann)
- Effects of salt in highway drainage. (Victor E. Scottron)
- Efficient pricing of urban waste water renovation. (Robert L. Leonard)
- Electrochemical analysis of aromatic hydrocarbons in solution. (James D. Stuart)

Energy transfer dynamics of polluted and nonpolluted streams. (Eugene W. Hansmann)

Expand evaluation of bedrock fracture systems in eastern Connecticut. (Janet M. Aitken)

Field and laboratory oriented studies on benthic diversity of marine invertebrate animals in relation to thermal (and other) pollution and the effects of thermal (and other) pollution on the reproductive biology of benthic invertebrates. (David R. Franz)

Hydrodynamics and biological characterization of Mumford Cove, Groton, Connecticut, prior to construction of enlarged sewage treatment facility; an attempt to predict present condition of receiving waters and flushing rate. (John D. Buck)

Industrial waste pricing. (Rein Laak)

Interested in all phases of water related research - legal, socio-economic, biology, earth sciences, physical sciences, engineering, etc. (William C. Kennard)

Interested in initiating research exploring community factors that facilitate (or impede) the implementation of programs designed to reduce air, water and noise pollution in the State of Connecticut. (Seymour Warkov)

Investigation of pesticides in water. (Ralph P. Collins)

Long range capacity of Long Island Sound to absorb thermal waste from large power producing installations. (Winthrop E. Hilding)

Mechanism of particle formation in aqueous colloids by chain growth followed by precipitation from originally homogeneous solutions. (Robert M. Fitch)

Pesticide analysis on the primary trophic level of stream ecosystems. (Eugene W. Hansmann)

Pollution aspects of storm water runoff. (Joseph E. Sarsenski)

Process and analytic classification of water, waste water and industrial waters. (Theodore Helfgott)

Productivity analysis of communities on artificial substrates. (Eugene W. Hansmann)

Propagation of Rayleigh waves on surfaces with embedded obstacles. (Paul G. Klemens)

Propose, if possible, to do bottom mud sampling in the area of each outfall and at various locations within the Greenwich and Stamford harbors.
(Robert W. Blocker)

Quality of storm water runoff. (Victor E. Scottron)

Quantity and movement of nitrates in soil water in two Connecticut soils treated with high and low levels of inorganic nitrogen fertilizer.
(R. William Wengel)

Recreation water pollution. (Rein Laak)

Research proposed on utilizing and evaluating the aeration and recirculation in the case of dairy wastes. (N. Narayana Pillai)

Research station for waste water disposal schemes for unsewered areas.
(Rein Laak)

Reservoir management and protection. (Rein Laak)

Scattering water molecules from large biological molecules (amino acids).
(Thomas I. Moran)

Significance of microorganisms in private water supplies. (Benjamin Cosenza)

Stability criteria for rock sausages. (Chesley J. Posey)

Storm water contamination due to new highway construction. (Victor E. Scottron)

Study of crystal defects in ice from the temperature dependence of the thermal conductivity at low temperatures. (Paul G. Klemens)

Study of the effectiveness of present municipality practices for carrying out state mandates on water management. (Arthur W. Dewey)

Study of the feasibility of enlarged governmental units for handling wastes.
(Arthur W. Dewey)

Study of water quality in the vicinity of land fills using electrical methods.
(John J. Dowling)

Systems analysis of water, pollutants and gas movement in the soil matrix and into the groundwater within a defined watershed area. (R. William Wengel)

Thermal pollution and its effect on composition and productivity of rooted aquatic and shoreline vegetation. (Antoni W.H. Damman)

Work on the properties of mass transport across discharge area of a nuclear power station. (Walter F. Bohlen)