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# AAPSE

## NEWSLETTER

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*A MESSAGE FROM THE PRESIDENT*

"Greetings" and a "Happy New Year" from the Officers and Board of Directors of AAPSE. Working together, we should be able to make significant contributions in the areas of education and research so that we can truly feel we have helped make this the DECADE OF THE ENVIRONMENT.

To direct AAPSE's 1970 contribution to this decade, we have a new Board of Directors:

J. H. Austin  
E. R. Baumann  
Dale Carlson  
R. I. Dick  
E. F. Gloyna  
R. C. Loehr  
D. J. O'Connor  
F. G. Pohland  
W. J. Weber, Jr.

The Board, at their annual meeting in Washington, D.C. on December 2-3, 1969, elected the following officers to serve in 1970:

E. R. Baumann	President
Ray C. Loehr	Vice President
Fred G. Pohland	Secretary-Treasurer

The Working Committee Structure is presently being formulated and each member will already have received information of this activity.

At the Dallas Board meeting in October, the Board directed the President to take any legislative action deemed essential without prior consultation with members of the Board provided a report was made immediately to them of any such action on my part. This has been done. On October 15, 1969 I joined with three other organizations (AWWA, ASCE, and Conference of State Sanitary Engineers) to emphasize the inadequacy of the program in the area of potable water supply in the Department of HEW under the Bureau of Water Hygiene. We met in Washington with Dr. Lee DuBridge, President Nixon's Science Adviser and briefly with Dr. Roger O. Egeberg and for a more extended period with members of his staff.

As a result of these meetings, we sent joint letters expressing our concern to both Dr. DuBridge and Dr. Egeberg (some of the concerns expressed are appended to this message). As a result, Dr. Egeberg subsequently indicated that it would be profitable to discuss the preliminary results of a Community Water Supply Survey with the co-signers of the November 6 letter and at that time to review any needed changes in the allocation of resources to solve the national problem of water hygiene. That discussion should take place in February, 1970.

Our concern about the Bureau of Water Hygiene program has been brought to the attention of Vice President Spiro T. Agnew in his position as a member of the President's Environment Quality Council, to Warren G. Magnuson and Norris Cotton, members of the Senate Appropriations Committee, and to others. I visited the offices of my Representative Neal Smith and of Iowa Representative Fred Schwengel, a member of the House Public Works Committee, to discuss the Bureau of the Water Hygiene Program. Apparently three alternatives are open to us in increasing federal attention to water supply needs:

1. Convincing Dr. Egeberg and HEW and the Bureau of the Budget of the seriousness of the problem so they will support increased budgets for meeting program needs more effectively, or
2. Writing special legislation giving new congressional directive and new dollar authorizations for an increased program in the area, or
3. Asking for a revocation of the agreement between HEW and Interior whereby program responsibilities for water supply were retained in HEW. Revocation of the agreement and program transfer to FWPCA "might?" be covered by authority and funds presently available there.

The four cooperating groups are following up on the first two alternatives and further reports will be made to you.

On November 14, 1969, a letter was directed to several members of the House and Senate Public Works committees including Senators Muskie, Randolph, Bayh, Montoya, Boggs, Cooper, Baker, and Representatives Cramer, Blatnik, Jones, Wright, Fallon, Harsha, and Grover concerning H.R. 4148. The AAPSE policy sent is appended to this Message. These congressmen are members of the Joint House-Senate committee to iron out differences in their respective bills. Encouraging replies have been received from Representatives Fallon, Cramer, Blatnik and from Senators Baker and Muskie.

As we enter the DECADE OF THE ENVIRONMENT, we will all need your continuous efforts to:

Define the problems

Bring them to the attention of the profession

Suggest solutions

Influence the efforts directed to solution of problems.

So, let the Board (and me) hear from you frequently this year.

*AAPSE POLICY STATEMENTS*

The following two statements were contained in letters sent to legislators and government officials by AAPSE President Baumann.

H.R. 4148 (WATER QUALITY IMPROVEMENT ACT OF 1969)

As President of the American Association of Professors in Sanitary Engineering, I want to convey to you our support of your legislative program in the area of water pollution control as exemplified in H. R. 4148. Our organization has members engaged in water pollution educational activities in some 65 institutions which have graduate programs in sanitary engineering. As a group, we recognize that the lack of adequately trained manpower -- manpower needed for the design, construction, and operation of water pollution control facilities -- is one of our nation's major obstacles in meeting our water pollution control objectives.

Our members recognize that the lack of trained operators is one of the most serious manpower problems facing us today. To date, too little attention and far too few funds have been devoted to eliminating this deficiency. The provision for "Training Grants and Contracts" in Sec. 21 of H.R. 4148 will contribute significantly to solving this deficiency in our current training programs. As you may well imagine, professors are not unanimous in their agreement as to the proper level of training (2-year vs 4-year technical institute programs vs Bachelor degree programs in engineering schools vs graduate programs), but we are convinced that more funds and efforts must be expended in the total area of manpower training. In view of this, I am writing to express support of the American Association of Professors in Sanitary Engineering for the increased attention to manpower training demonstrated in the provisions of H.R. 4148.

We would be most happy to assist in any way possible in furthering the support of this legislation.

PROGRAM PROBLEMS IN WATER HYGIENE

Frankly, we wished to express our fear that the Water Hygiene Program does not reflect adequately the Federal responsibility for protecting the public health. We offered the assistance of our organizations in improving this situation.

Our major concern is that many questions of importance to the public health are being essentially ignored or are being subjected to insufficient examination presumably for lack of funding support. Among the most significant questions are the following:

Are the Public Health Service Drinking Water Standards applicable to waters directly derived from treated sewage?

What are the long-term toxic and carcinogenic implications of repeated exposure through drinking water to organics of industrial origin?

What are the toxic implications for the long-term of trace metals occurring in drinking water?

How can water treatment plants reliably destroy viruses in sources of supply?

What are the public health implications of deterioration of distribution systems at a time when these are being subjected to increasing use?

What fail-safe means are available to protect drinking water from unreported, undiscerned chemical spills in the water source?

What are the public health implications of the planning, design, and management of water systems in the expanding metropolitan areas?

What are the public health implications of recreational use of impounded sources of drinking water supplies?

What new threats to shellfish sanitation are to be anticipated from expanding programs of mineral exploitations of the bed of estuaries and coastal waters?

The importance, even urgency, of the need for increased research in water hygiene has recently been described by the Federal Council of Science and Technology's Committee on Water Resources Research.

This expression of need for strengthening the HEW Water Hygiene Program does not represent dissatisfaction with the Federal program of water pollution control. Actually, we are pleased to see that the public, the States, the Congress, and the Administration are responding to this threat to the Nation's water resource in a determined and substantial fashion. However, the national program of water pollution control cannot guarantee that drinking water taken from the Nation's streams will be safe. The only acceptable protection is the properly planned, designed and operated water treatment and distribution system. No matter how efficient the municipal and industrial waste treatment plant may be, the burden of responsibility for protecting the public health rests on the water purification works. Unfortunately this fact, crystal clear as it appears to be, is not reflected in current legislative authority and HEW appropriation.

The vast difference in funding levels and scientific support between waste treatment, on the one hand, and water treatment on the other, represents an undesirable imbalance in the Federal effort. The imbalance is apparent in the following table:

<u>Environmental Phase</u>	<u>FY 1969 Approp. in Millions \$</u>	<u>FY 1969 Research Fund in Millions \$</u>
Water Pollution Control	303	44
Air Pollution	85	32
Radiological Health	16	6
Occupational Health	7.5	6
Solid Waste	15	5
Water Hygiene	2	1

Less than one percent of the total Federal expenditures for water quality management is devoted to protection of public health. Only two percent of the Federal research effort in water quality management is so directed.

The imbalance is apparent also in the emphasis given to the number of individuals supported in training programs for professional careers in water supply engineering in our universities.

<u>Agency</u>	<u>Year</u>	
	<u>1963</u>	<u>1969</u>
FWPCA (in HEW until 1966)	67	501
HEW	10	29

The very low number of graduate students supported in graduate training for water supply engineering hardly accords with the fact that the investment in public water supply of the Nation is greater than \$50 billion and the gross income greater than \$3 billion annually. The total water hygiene research grant budget -- \$158,000 in FY 1970 -- is not sufficient to encourage university research in water hygiene problem areas, or to contribute effectively to the solution of problems of potable water supply. As a result, few young scientists and engineers have opportunity for work in water hygiene areas in their educational development.

The weakness of the HEW water supply research and educational support effort is equally true for other aspects of the Water Hygiene Program. It is particularly true for control of water quality in the distribution system, technical assistance for the States and municipalities, and setting of performance standards of water treatment equipment and devices.

In view of the unsolved important problems in water hygiene and the extremely low level of support currently given to your Water Hygiene Program, we urge you to reexamine your Department's programs and priorities with respect to this National need.

*AAPSE MEMBERSHIP UP 23% IN 1969*

Twenty-one professors joined AAPSE during 1969. This brings total membership to 111 including four affiliate members. Since the last issue of the Newsletter, the following professors have become members.

Donald B. Aulenbach  
Assoc. Prof. of Environmental  
Engineering  
Rensselaer Polytechnic Institute  
Troy, New York 12181

E. E. Lindsey  
Associate Dean  
School of Engineering  
University of Massachusetts  
Amherst, Massachusetts 01002

Nicholas L. Clesceri  
Assoc. Prof. of Environmental  
Engineering  
Rensselaer Polytechnic Institute  
Troy, New York 12181

John J. Gannon  
Prof. of Public Health Engineering  
School of Public Health  
University of Michigan  
Ann Arbor, Michigan 48107

Ernst M. Davis  
Asst. Prof. of Civil Engineering  
Engineering Laboratories Bldg. 305  
The University of Texas  
Austin, Texas 78712

Donald R. Rowe  
Associate Prof. of Environmental  
Engineering  
Western Kentucky University  
Bowling Green, Kentucky 42101

Benjamin Clay Dysart, III  
Asst. Prof. of Environmental  
Systems Engineering  
Clemson University  
Clemson, South Carolina 29631

Adnan Shindala  
Assoc. Prof. of Civil Engineering  
Box 3544  
Mississippi State University  
State College, Mississippi

J. Ganczarczyk  
Visiting Assoc. Prof.  
Dept. of Civil Engineering  
University of Toronto  
Toronto, Canada

Professor Ganczarczyk is an Affiliate Member and Professor Davis has changed from Affiliate to Full membership status.

All of these new members except Professors Lindsey and Shindala are included in the December 10, 1969 AAPSE Membership List which has been mailed to all members.

1970 WORKSHOP ON CONSULTING ENGINEERING

Which states will not allow consulting engineering firms to incorporate? Where and how can you get half a million dollars expansion capital? How does one get a perfectionistic engineer to quit chasing down details and come up with a finished design? How much should a consultant tell his client and when should he tell it to him? Is it possible to design a water treatment plant so that the mayor's brother-in-law will have a job for the rest of his life? How much do state standards restrict the originality of designers? How much should a professor charge for a day's consulting? Is it fair for professors to compete with practicing engineers?

These and a number of other interesting questions will be thrashed out during the 1970 Workshop. It is the intent of the Workshop to give AAPSE members an opportunity to learn more about the practice of consulting engineers. The speakers on the program include eminent engineers from a number of consulting firms such as:

Roy F. Weston, Inc.  
Engineering Science, Inc.  
Baxter & Woodman  
Donohue & Associates, Inc.  
Black & Veatch  
Reynolds, Smith & Hill  
Metcalf & Eddy  
Hydroscience, Inc.  
Greeley & Hansen  
Blucher & Naismith  
Ryckman, Edgerley, Tomlinson & Associates, and  
many others

The Workshop will be held on June 24, 25, 26, 1970 at Brown's Lake Resort, Burlington, Wisconsin. Facilities for golf, tennis, fishing, swimming and boating. So plan to bring the wife and kiddies and have a ball.

FOREIGN LECTURER TOURS FOR 1970

We are pleased to announce the AAPSE Foreign Lecturer Tour for 1970. Last year at the initiation of this lecturer series the committee found a greater response than could be accommodated by a single lecturer. The Visiting Lecturer Committee under the guidance of the Board of Directors has, this year, arranged for two foreign lecturers. The lecture program has been expanded in order to increase the available exposure of our professors and graduate students to active foreign researchers in the area of Environmental Engineering.



The committee has chosen the Ecology of Flowing Waters to be the subject area of this year's lecture tours. We have been most fortunate in enlisting the cooperation of Professor Karl Wuhrmann, internationally known ecologist, and Dr. Elie Eichenberger, who is less known in the United States, both of the EAWAG, ETH Zurich, Switzerland, to offer lectures in the topic area resulting from their research program in stream purification. Dr. Wuhrmann's research group in the Biology Department of EAWAG is famous for his outstanding work in the areas of fresh water ecology and biological waste treatment. His talks will be on "Aims, Possibilities and Limits of Experimentation in River Ecology." Dr. Eichenberger, working as a phycologist, is noted for relating the ecology of streams to the requirements of the design engineers. His talks will be on "Experimental Ecology of Flowing Waters." It is with a great deal of pride and pleasure that this committee offers for your consideration a lecture by one of these distinguished foreign scientists.

Dr. Eichenberger and Professor Wuhrmann will be available for presenting lectures from March 9 through March 21. A curricula vitae on Dr. Eichenberger is enclosed together with an outline of his lecture which will be delivered. We invite you to participate in this lecture series. The lecturers will choose from a list of interested programs those colleges or universities to be included in the tour. In selecting the programs to be included, first consideration will be given to programs in Sanitary or Environmental Engineering. Geographic location and previous participation in the lecturer series will be taken into consideration in selecting the programs to participate in this year's lecturer tours. It is the committee's intent that all interested programs regardless of their size should eventually be honored by a distinguished foreign lecturer. However, even with our expansion in the number of lecturers, we anticipate that a number of interested programs will not be able to participate in this year's series.

Based upon previous experience, we would estimate that the cost of participation will be approximately \$250. On selection for inclusion in the foreign lecturer tours, a participating program will be billed for the expenses and honorarium by AAPSE. Payments will be made to AAPSE somewhat in advance of the lecture tour. Some programs, depending on their institutional structure, may find it necessary to pay the honorarium to an individual rather than to an organization. In such a case the honorarium will be directed to the president of AAPSE.

If you are interested in participating in this lecture series, please so indicate to the chairman of the Visiting Lecturer Committee immediately. In your response, please indicate the availability of funds to cover the expense. We would hope to notify you of your inclusion in the program soon.

*AAPSE DUES DUE*

The 1970 AAPSE dues are payable now. Please send your remittance to

Fred G. Pohland  
Secretary-Treasurer  
Dept. of Civil Engineering  
Georgia Institute of  
Technology  
Atlanta, Georgia 30332

*BOSTON CONFERENCE PAPERS SOUGHT*

Three sub-groups of the Federation's Program Committee are seeking submission of abstracts of papers for program consideration at the 43rd Annual Conference in Boston, Mass., October 4-9, 1970.

Research

The papers to be presented at the 1970 research sessions at the Federation's 43rd Annual Conference will be chosen from abstracts submitted to the research program subcommittee chairman by persons interested in presenting research information. This includes industrial wastes, plant operations, and all other basic or applied research wherever it is done.

The final date for receipt of abstracts is April 1, 1970. Since no final decision is made on the program until about May 1, authors will not be notified until after May 15, 1970, as to the acceptance or rejection of their abstracts.

The abstracts should be from 500 to 1,000 words in length and should be submitted to Dr. Wayne F. Echelberger, Jr., Department of Civil Engineering, University of Notre Dame, Notre Dame, Ind. 46556, in accordance with instruction and information forms available from Dr. Echelberger. To facilitate the flow of information one should obtain the proper forms and submit the abstract as early as possible, remembering that the final date for submission is April 1, 1970.

Industrial Wastes

Papers dealing with case history investigative, design, and operational aspects of industrial waste problems are being sought.

Abstracts dealing with these practical type subjects should be 300 to 600 words in length and submitted by January 31, 1970, to Dr. Howard Edde, National Council for Stream Improvement, Department of Environmental

Engineering, The John Hopkins University, Baltimore, Maryland 21218. Authors submitting abstracts will be notified of review results in April 1970.

### Plant Operation Research

Abstracts of potential papers for the Boston program session on plant operation research may be submitted to Bart T. Lynam, Metropolitan Sanitary District of Greater Chicago, 100 E. Erie St., Chicago, Ill. 60611. They should be 600 to 1,000 words long and should contain pertinent bibliographic material, graphs, sketches, and tables. In preparing the abstract, originality, water pollution control significance, and the status of the research should serve as guidelines.

### Plant Operation and Management

More active participation of plant operation and management personnel is planned for the Boston Conference. Program time for the Operator's Forum has been extended to a full day allowing for the presentation of four additional papers on plant maintenance and operation.

The monitoring group in charge of the Forum hopes to restrict papers to those that (a) give a complete story of an important phase of operation, (b) cover a period where a portion of the plant was performing poorly and where changes in procedure were initiated to improve the operation and efficiency, (c) discuss a modification or improvement in the plant and the beneficial results of the change, or (d) discuss problems in management, construction, or operating organization and the improvements that can or have been made.

Discussions on operation or plant modifications should include data on loadings and waste characteristics and efficiencies to show the effect or value of the work being discussed.

Those interested in taking part in the Forum are asked to write James M. Brown, New Rochelle Treatment Plant, Le Fevre Lane, New Rochelle, N.Y. 10601, or W. A. Hasfurther, 404 Riggs Ave., Severna Park, Md. 21146.

### *A MEMBER'S COMMENT ON AAPSE DUES*

I believe that we must continue to justify the high dues rates established by AAPSE. If the present dues structure is necessary for the survival of the organization, then I would support it. However, one of the objectives of AAPSE is, or should be, to encourage maximum participation of those interested in sanitary engineering education. I think this objective could be best achieved if dues were lowered. In addition, my feeling is that the initiation fee serves no important purpose, except perhaps as a barrier.

I would like to propose that the dues be lowered to \$15 annually for all members, regardless of academic rank.

(Let President Baumann know your feelings on this.)

*THERMAL POLLUTION CONFERENCE PROCEEDINGS*

Vanderbilt University Press announced the publication of a two-volume series on thermal pollution, Biological Aspects of Thermal Pollution, P. A. Krenkel and F. L. Parker, editors, and Engineering Aspects of Thermal Pollution, F. L. Parker and P. A. Krenkel, editors. The books are the proceedings of two national symposia on thermal pollution, sponsored by FWPCA and Vanderbilt, and held in June and August, 1968.

The books are available from Vanderbilt University Press, Nashville, Tennessee 37203, for \$7.95 per volume. A 10 percent academic discount is available.

These volumes contain the latest and most comprehensive compilation of information on this subject. Authors of papers in the set include J. Frances Allen, Donald Mount, Ruth Patrick, Roy Nakatani, Charles B. Wurtz, H. A. Hawks, Robert S. Burd, Andre Goubet, Donald Harleman, Peter Ackers, Charles Waselkow, George Lof, John Ward, Bruce Tichenor, and William Cawley, Peter A. Krenkel, and Frank L. Parker. Formal discussions of each paper and transcripts of the informal discussions from the floor are also included.

*MEETINGS OF INTEREST*

WATER RESOURCES PROGRAMMING INSTITUTE

A two-week short course entitled "Applied Mathematical Programming in Water Resources" will be presented at the University of Nebraska July 26 - August 7, 1970.

The objective is to provide in-depth training in the application of mathematical programming techniques to the analysis, design, operation, and planning of water resources systems. Approximately three full days will be devoted to each of the following topics: Linear Programming, Non-linear and Dynamic Programming, and Simulation. The course will be organized to present the basic theory underlying each of these approaches, and then fully develop the use of the approach with valid examples of applications to realistic water resources problems. Primary emphasis will be given to application.

Persons engaged in professional activities in Water Resources Planning, Design of Water Resources Systems, Water Resources Education, and the Operation of Water Resources Systems will find this program a benefit. Previous knowledge of mathematical programming techniques is not a prerequisite. Participants should have a bachelor's degree in engineering, science or equivalent.

The course will include a series of lectures with opportunities for discussion and individual work. The University Computer Center will be available to participants. Informal evening workshops will be arranged on the basis of need and interest.

\$320 per person plus room and board before July 15 and \$350 thereafter. Please note that in order to provide adequate opportunities for use of computer facilities and more efficient instruction, the attendance will be limited. Early enrollment is urged.

The staff will consist of Warren Hall, Pete Loucks, Jon Liebman, Frank Perkins, Ben Dysart, and Warren Viessman and Don Edwards of the University of Nebraska.

For additional information contact:

Dr. Warren Viessman, Jr. Director  
Nebraska Water Resources Research  
Institute  
University of Nebraska  
212 Agricultural Engineering  
Lincoln, Nebraska

Telephone: 402-472-3307

## 5th INTERNATIONAL WATER POLLUTION RESEARCH CONFERENCE

World leaders from 42 nations will gather in San Francisco July 26 - August 1, 1970 at the Fifth International Conference and Exhibition on Water Pollution Research, according to Conference President Prof. Erman A. Pearson who spoke at a planning session.

"This worldwide event," Prof. Pearson added "is the natural focus for the human concerns which were expressed on a statewide level at the recent Governor's Conference in Los Angeles, and on a nationwide level at the UNESCO Conference now being held here in San Francisco."

The U.C. Engineering professor noted that "this trio of events further justifies California's claim of being the 'environmental capital of the world' as we enter the decade of the 1970's."

He listed highlights of the 1970 world conference to include a week of California guided tours, a six-day session in San Francisco, a reconvened session in Hawaii and post-conference tours of the Islands. Also scheduled are a complete ladies program and an international award-winning film festival for specially-produced environmental films.

Official recognition already given to the Conference and Exhibition includes a California State Legislature Concurrent Resolution, a Resolution introduced in the U.S. Congress and cooperation extended by the World Health Organization of the United Nations.

World arrangements are directed by the International Association's President, Dr. G. J. Stander of Pretoria, South Africa, while local arrangements are directed by Mr. John Parkhurst, General Manager of the Los Angeles County Sanitation Districts who is serving as Chairman of the California Host Committee.

Watch for the announcement on the AAPSE Seminar at this meeting.

## WATER POLLUTION CONTROL IN COLD CLIMATES

An international symposium on Water Pollution Control in Cold Climates has been announced. It is to be held July 22-24, 1970, at the University of Alaska (Fairbanks); College, Alaska. The meeting is the week prior to the San Francisco Conference (Fifth International Conference of the International Association on Water Pollution Research).

The symposium has been granted funds from the Federal Water Pollution Control Administration and the oil industry operating in Alaska. In view of the recent petroleum developments in the North, combined with

other industrialization, this should be a timely meeting. This three day symposium will be devoted to papers on waste treatment and receiving stream studies in the cold climates. Papers will be presented from most of the circumpolar countries on these subjects.

For further information and registration forms contact:

Dr. R. Sage Murphy, Director  
Institute of Water Resources  
University of Alaska  
College, Alaska 99701

#### 9th VANDERBILT ENVIRONMENTAL CONFERENCE

The Ninth Annual Environmental and Water Resources Engineering Conference, sponsored by Vanderbilt University, the Tennessee Department of Public Health, and the Tennessee Stream Pollution Control Division, will be held June 4 and 5, 1970, at the new Sheraton Motor Inn in Nashville, Tennessee.

The technical content of the Conference will emphasize the inter-relationships among water resources engineering, water quality control, water supply, and municipal and industrial waste treatment. There will also be a concurrent session on air pollution control activities on June 4.

For further information, interested persons should write to Dr. Edward L. Thackston, Associate Professor of Environmental and Water Resources Engineering, Vanderbilt University, Box 133 - Station B, Nashville, Tennessee 37203.

#### 1st INTERNATIONAL SYMPOSIUM ON CHEMICAL REACTION ENGINEERING

The First International Symposium on Chemical Reaction Engineering will be held June 8, 9, 10, 1970 in Washington, D.C. This symposium is sponsored by the American Chemical Society, the American Institute of Chemical Engineers, and the European Federation of Chemical Engineers. The Symposium will be organized along the lines of the earlier and well-known European Symposia on Chemical Reaction Engineering, and the purpose and scope of the present symposium will be similar. At the present time, it is planned to have ten sessions of a half day each. Each session will begin with a review paper of about one hour's length, and will be followed by four or five research papers of about one-half hour each. Publication of the research papers would be left to the discretion of the authors, though the review papers and one page abstracts of the research papers will be published in book form.

One of the sessions currently being planned is entitled "Biochemical Reactions". Prof. Humphrey of the University of Pennsylvania has agreed to present the review paper for this session.

The title "Biochemical Reactions" should be construed in a fairly flexible way. That is, papers presented might deal with topics ranging from enzyme reactions in vivo or in vitro to fermentation kinetics to the interactions of populations in mixed culture situations to dynamics of waste treatment systems. However, all papers should adhere to some unifying theme, and it is fairly obvious that this should be emphasis on the reaction or set of reactions that occur in the biological process considered.

You are invited to submit a topic for possible presentation at the session in Biochemical Reactions. A title and an abstract will be sufficient for review purposes. These must be submitted by February 15, 1970, but if you plan to submit a topic, notice of intent would be appreciated as soon as possible. Inasmuch as we have only a half day symposium, it will be possible to accept only four or at the most five research papers; acceptance will be primarily on the basis of appropriateness to the theme of the symposium.

I hope that you will submit a topic for consideration, even though time is short. Please reply to:

A. G. Fredrickson, Professor  
Chemical Engineering Department  
University of Minnesota  
Minneapolis, Minnesota 55455

#### A.S.C.E. NATIONAL SPECIALTY CONFERENCE ON DISINFECTION

The National Specialty Conference on Disinfection, will be held at the University of Massachusetts, Amherst, Massachusetts from 8-10, July, 1970. This Conference is sponsored jointly by the American Society of Civil Engineers, Sanitary Engineering Division, Department of Civil Engineering and the Water Resources Research Center, University of Massachusetts at Amherst.

The topics to be covered in this Symposium are: Mode of Biocidal Action by Disinfectants and Other Agents, Kinetics of Disinfection, Water Disinfection, Indicators of Disinfection Efficacy, Effect of Wastewater Disinfection on Natural Streams, New Approaches and Concepts (bromine, chlorine dioxide, etc., analytical techniques), Disinfection of Spacecraft, Research Needs.

Dr. Tsuan H. Feng, and Dr. Lawrence N. Kuzminski, are General Chairman and Program Chairman, respectively, of this Conference. For further information, write to either at the Department of Civil Engineering, University of Massachusetts at Amherst, Amherst, Massachusetts 01002.



*ENVIRONMENTAL HEALTH MANPOWER SUPPLY AND REQUIREMENTS*

*1968 THROUGH 1980*

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
Consumer Protection and Environmental Health Service

The attached table represents "best professional judgement" based on information currently available. It includes those personnel (under "Supply") who may or may not have educational qualifications appropriate to the classifications given. The estimates are based on the assumption that those who do not have requisite educational qualifications (at points of time indicated) would be replaced, through attrition, by those who do have such qualifications. As an example, the vast majority of manpower now filling positions in water purification plants at the technician level do not have the educational preparation given in Footnote 4; on the other, it is assumed that replacements for these personnel would have the educational preparation given in the Footnote.

Obviously, then, the deficits are larger than indicated. This is particularly important in terms of the educational programs that will be required to produce the numbers needed.



*MESSAGE FROM THE ROYAL SOCIETY OF HEALTH*

The Royal Society of Health was founded in 1876 to promote the health of the people. The strength of the Society, which is today and international organization lies not only in the magnitude of its membership but in the bringing together of men and women throughout the world, from all professions and occupations concerned with health, so as to create a body of general as well as specialized knowledge. The Society is the largest organization of its kind in the world with a membership exceeding 34,000 of which over 10,000 are overseas, half of them in North America. These include sanitary engineers, air pollution inspectors, refrigeration, heating, civil, public health, water and municipal engineers and architects engaged in Federal and State service, in industry and in private practice

Ten Subject Groups have been formed within the membership of the Society to bring together those members who have in common a specialized interest within the field of health, through the medium of meetings for the presentation of papers, discussions and other activities. Whilst the papers read are of a high technical standard, Group membership, unlike that of mono-professional bodies, is more varied and the subject matter tends toward public health. As a member of the Royal Society of Health in America you could actively participate in the work of the Groups by submitting papers to be read on your behalf. In addition you would receive, free of charge, copies of all papers, numbering some 100 a year, presented at Group meetings. Groups of interest to you include the Building Group, which is concerned with all aspects of engineering, and the Health Research Group. Members may join any three Groups.

The Group News is sent to all members and gives details of the activities of the various Groups, information of interest to the Groups and lists the papers from the various meetings of the Society not published in the Journal.

The Society's Health Congress held in England, every Spring, is one of the two largest health conventions in the world. Papers are presented by experts on a variety of subjects including Municipal Engineering, Architecture and Housing.

The International Health Conference is held in Europe in the Fall. The 1966 Conference at The Hague included a paper on air pollution control. In 1968 the Conference was held in Copenhagen and the next will take place in Edinburgh from 21st-25th September, 1970.

Reports of the proceedings at the Health Congress and the International Health Conference are published in the Society's Journal which also contains leading articles on topical matters of health interest, notices of new publications in the health and related fields, reviews of the latest books, films and filmstrips, personal notes and news, overseas news and correspondence. The Journal is supplied to you free of charge.

The Society has a Panel of Technical Consultants who are pleased to assist members wherever possible by advising them on health and hygiene problems. Assistance is also given to overseas members visiting Great Britain to plan tours of public health interest and to arrange exchanges of information with British health workers.

The most cordial relations exist between the Society and the American Public Health Association. This goodwill has been further cemented in recent years when during the Annual Meeting of the American Public Health Association, the Society holds a Session and also a Social Hour for its members and their guests.

Membership puts you in touch with creative thinking in the health field through personal contact, Group membership and the printed word. The membership of the Society is divided into the following categories: Fellows (F.R.S.H.) include Members of at least five years standing holding a qualification approved by the Council. Members (M.R.S.H.) are also required to possess certain specified qualifications. This is the highest grade to which any person may be directly elected. Licentiate Members (L.M.R.S.H.) are elected from persons not possessing a Membership qualification, but who hold sufficiently senior positions relating to health. Associate Members (A.M.R.S.H.) must hold qualifications specified by the Council, whilst Affiliates (Affl.R.S.H.) are elected from persons who are not qualified for Membership or Associate Membership or do not hold senior positions. A distinctive Certificate of Election is conferred.

As the Society is an educational body and a non-profit organization, you may be in a position to claim that your dues are tax deductible.

#### *NEW GRADUATE PROGRAM*

#### Engineering Control of Electronic Product Radiation

The Department of Environmental Engineering, University of Florida, Gainesville, has announced the expansion of its radiological health training program into the area of electronic product radiation. In effect, the Radiation Control for Health and Safety Act of 1968 passed by the 90th Congress redefined "radiation" as any ionizing or non-ionizing electromagnetic or particulate radiation or any sonic, infrasonic or ultrasonic wave which is emitted as the result of the operation of an electronic circuit. Specifically, microwave devices and lasers are the two items which are currently receiving the most consideration.

Within the department, a new course, ELECTRONIC PRODUCT RADIATION, has been added to the existing radiological health sequence. It covers the evaluation of hazards, the application of standards and the engineering of controls for these types of devices. Microwave devices, microwave survey instruments, lasers and laser accessories are now available for research and teaching.

The program will draw support from a number of segments of the University and from local industries. Microwave engineering courses and assistance in research are available in the Department of Electrical Engineering. A graduate course in laser technology is taught by Electrical Engineering, and a cross-college graduate level course pertaining to the engineering applications of gas lasers has recently been introduced. The activities at nearby industrial facilities, at the John F. Kennedy Space Center and of the Florida State Board of Health will provide practical inputs to the program.

A limited number of traineeships will be available to qualified students during the 1970-71 academic year. Persons interested in pursuing graduate study in the area of radiological health should apply at an early date. Further information may be obtained from the Department of Environmental Engineering, University of Florida, Gainesville, Florida 32601.

#### *SOLID WASTE ACTIVITIES*

The following recent publications may be of interest:

##### Grant Programs - Under the Solid Waste Disposal Act

U. S. Department of Health, Education, and Welfare  
Public Health Service  
Environmental Control Administration  
Bureau of Solid Waste Management  
Rockville, Maryland

##### Summaries of Solid Wastes Program - Contracts - July 1, 1965-June 30, 1968

Bureau of Solid Waste Management  
222 East Central Parkway  
Cincinnati, Ohio 45202

##### Summaries - Solid Wastes Demonstration Grant Projects - 1968

Chief, Solid Wastes Program  
Environmental Control Administration  
222 E. Central Parkway  
Cincinnati, Ohio 45202

##### Summaries of Solid Wastes Research and Training Grants - 1968

Environmental Control Administration  
222 East Central Parkway  
Cincinnati, Ohio 45202

*GIL DUNSTAN*

Gilbert Hall Dunstan, 66, a member of the research and teaching faculty at Washington State University since 1952, died October 24 at Long Beach, Calif., from complications of a several month illness. He had retired June 30, 1968, as professor of sanitary engineering and head of the sanitary engineering section of the Research Division. A veteran of more than 40 years in sanitary engineering, Mr. Dunstan had degrees in three fields - civil engineering, electrical engineering and hydraulics. He had taught at four universities, Tulane, Southern California, Alabama and at WSU since 1952. During his several years at WSU, the well known bachelor had given continued financial assistance to several WSU students during the course of their academic studies.

*Individual Distinguished Achievement Award at Washington State University*

The purpose of this award is to recognize and honor an outstanding technical contribution in the field of pollution control. This year's special recognition is given to a man who has been active in the Pacific Northwest during the last 20 years, and his service and contribution to this field has reached throughout the nation. He is recognized for his many achievements through the years, not just for one activity.

Because of his capacity at Washington State University he has been involved with the training of students and the direction of research. His concern and achievement in training of both water and waste-water plant operators has been outstanding.

It is an honor that we recognize Gilbert Hall Dunstan as our selection for the 1968 Individual Distinguished Achievement Award.

Mark Radmaker, a junior at Washington State University has been selected to receive the first Gilber Hall Dunstan Scholarship award. Mark is an outstanding Civil Engineering student who hails from Seattle, Washington. His overall grade point average is 3.91.

The award is made possible through an endowment fund created at WSU in honor of Gil who devoted many years to Sanitary and Environmental Engineering as well as our own organization as president, secretary-treasurer and later as "Newsletter" editor (until last year).

*PLACEMENT SERVICE*

The AAPSE Newsletter will carry a listing of students seeking employment. The following information will be included:

Name, Institution, Degree and Date Available.

Send material to the Newsletter editor.

### *McGAUHEY RETIRES*

Professor P. H. McGahey, whose long and distinguished academic and professional career has earned him nationwide regard, assumed emeritus status this summer. He plans to continue his research and his professional and literary activities, however.

The Director of the Sanitary Engineering Research Laboratory and the Chairman of the Department of Civil Engineering at the University of California, Berkeley, "Mack" McGahey came to the university in 1951. Before that he headed the Department of Civil Engineering at Virginia Polytechnic Institute, where he taught for more than a score of years.

His broad scope of research interests includes solid wastes management, water reclamation, soil systems for wastewater treatment, economic evaluation of water, and environmental health. He has won a number of awards, including the Harrison Prescott Eddy Award of the Water Pollution Control Federation in 1960 for his research on detergents.

A consultant on water and solids wastes problems to a variety of industries and governmental agencies, Professor McGahey has performed professional service in India, Israel, Chile, and Kuwait. Currently, he is Chairman of the Board of Consultants to the Lake Tahoe Area Council.

In literary output, his talents range from more than 100 technical papers and reports and an engineering text to poetry. One example of the latter is his illustrated collection, "Rimrock Ranch and Other Verse".

Water in the News October 1969.

### *ACTIVITIES IN THE FIELD*

John F. Andrews (Clemson University) is on sabbatical leave at the Water Pollution Research Laboratory, Elder Way, Stevenage, Herts, England. He will return to Clemson July 1, 1970.

Dr. Jack E. McKee, Caltech, elected Chairman of the Board of Environmental Engineering Intersociety Board for 1969-70; Herbert E. Hudson, Jr., Hazen and Sawyer, vice-chairman; Edward L. Stockton, National Sanitation Foundation, secretary-treasurer; Frank Butrico, executive secretary (re-elected). Board members: Arthur D. Caster, Cincinnati; Dr. George J. Kupchik, New York City Department of Sanitation; Dr. George P. Hanna, University of Nebraska; Henry J. Ongerth, California Department of Public Health; Matthew D.R. Riddell, Greeley and Hansen; Dr. George E. Symons, Water & Wastes Engineering; Harold R. Shipman, World Bank.

Environmental Health Newsletter November 15, 1969

*POSITIONS OPEN*

FLORIDA TECHNOLOGICAL UNIVERSITY

Wanted! Doctoral level environmental engineer (air, water or solid wastes) interested in affiliating with Florida Technological University.

Benefits! Many tough, Florida environmental problems waiting, a new campus with its usual headaches, an engineering program with priority emphasis on environmental engineering, eager students, pleasant living, and fine recreation.

Contact:

Dr. W. M. McLellon  
Professor and Acting Chairman  
Department of Civil Engineering  
and Environmental Sciences  
Florida Technological University  
P.O. Box 25000  
Orlando, Florida 32816

MOHAMMEDIA V UNIVERSITY, RABAT, MOROCCO

Contact:

Mr. Francis B. Elder  
Sanitary Engineer  
Public Health Division  
Office of Institutional Development  
Bureau for Africa  
Washington, D.C. 20523

UNIVERSITY OF NEBRASKA

Contact:

Dr. George P. Hanna, Jr., Chairman  
Department of Civil Engineering  
University of Nebraska  
Lincoln, Nebraska 68508

MISSISSIPPI STATE UNIVERSITY

Contact:

Howard K. Williford, P.E.  
Associate Head  
Department of Civil Engineering  
Mississippi State University  
State College, Mississippi 39762



AVAILABILITY OF FACULTY MEMBERS

ERNST M. DAVIS

Ernst's background is in aquatic biology and his Ph.D is in sanitary engineering (from Oklahoma University). For the past three years he has been a Research Associate Engineer in Environmental Health Engineering at the University of Texas and he is currently an Assistant Professor there. His research interests are in reservoir, stream and estuarine productivity kinetics, and algal systems. His address is:

Department of Civil Engineering  
Engineering Laboratories Bldg. 305  
University of Texas at Austin  
Austin, Texas 78712  
(512) 471-5602

E. JOE MIDDLEBROOKS

Joe was an Associate Professor at Mississippi State before going to the University of California for post-doctoral work in 1967. He is currently Assistant Director of the Sanitary Engineering Research Laboratory at the University of California. His major interest is in the area of biological kinetics and recent work has been with algal systems. His address is:

1312 Brewster Drive  
El Cerrito, California 94530  
(415) 237-0466

ALBERT B. PINCINCE

Ph.D. in sanitary engineering, 28, family. 21 months teaching experience to sanitary engineers and other officers entering armed forces. Experience with consulting engineers. His address is:

229 Birkhead Dr.  
Ft. Sam Houston, Texas 78234

ROGER A. MINEAR

Ph.D. in Water Chemistry at University of Washington. Teaching experience at Oregon State. Research in field of organic isolation, separation and identification. His address is:

Dept. of Civil Engineering  
University of Washington  
Seattle, Washington 98105

MARTIN PAUL WANIELISTA

Desires position in teaching and consulting. Masters of Engineering in Sanitary Engineering from Manhattan College, Ph.D. Candidate at Cornell. Twenty-eight years old, married. Twenty-one months teaching experience in a Masters Degree Program in Health Care Administration, teaching Operations Research and Statistics. Three months Sanitary Engineering consulting experience at Hydrosience, Inc., Leonia, N.J. EIT, numerous professional societies, four publications, available August 1970. His address is:

145 Starns Drive  
San Antonio, Texas 78218

H. NAIMIE

Doctorate in Chemistry from Germany. Teaching and research at Technical University in Karlsruhe, Germany. His address is:

11850 Edgewater Drive  
Lakewood, Ohio 44107

NOTES OF INTEREST

CORPS OF ENGINEERS' INSTITUTE FOR WATER RESOURCES

Another new venture for the Corps is the recently established Institute for Water Resources. Its purpose is to aid the Corps in broadening the base of its water resources planning. At a Center for Advanced Planning and a Center for Economic Studies, the Institute will conduct interdisciplinary studies, research, and training aimed at developing new concepts for water resources planning, with particular emphasis on social, economic, and environmental aspects. The Director of the Institute is Col. R. H. Groves, Deputy Director of Civil Works.

From Willing Water

L. W. V. BROCHURE

The League of Women Voters of the United States has recently issued a fine brochure, "So You'd Like to do Something About Water Pollution." Beginning with a succinct, hard-hitting statement on the need for greater public concern, the booklet continues, "It (water) is useless. . . when it is polluted. . . . Something must be done; we simply do not have an unlimited supply of clean water. Something can be done. It can be done by you."

The brochure then goes on to describe what can be done by individuals and local citizens' committees. It's available from the League of Women Voters of the United States, 1200-17th St. N.W., Washington, D. C., 20036, at 20 cents per copy.

From Willing Water

ENVIRONMENTAL EDUCATION PROGRAM

An environmental education program and an agency to assess the effects of technology on the environment are called for in a bill introduced by Sen. Charles Goodell (R.-N.Y.). Although not labeled an Administration bill, the measure is cosponsored by Senate Minority Leader Hugh Scott (R.-Pa.) and GOP Senators Edward Brooke of Massachusetts, Sen. Mark Hatfield and Sen. Robert Parkwood of Oregon, Sen. Charles Percy of Illinois, Sen. Jacob Javits of New York, and Sen. William Saxbe of Ohio. Sen. Howard Cannon (D.-Nev.) is the one Democrat. Regional ecological-environmental educational centers would be established to collect and disseminate information to the general public. The bill recommends a three-year \$37 million funding level for the centers. A National Advisory Commission on Technology and the Environment would be established with an initial funding of \$1 million per year.

From C & EN, Dec. 22, 1969

## POLLUTION CONTROL AGENCY BEING REALIGNED

The Department of the Interior's Federal Water Pollution Control Administration is being realigned to make it more effective in its mission of helping to clean up the Nation's polluted waterways, David D. Dominick, FWPCA Commissioner, announced today.

"We are going to make this agency more immediately responsive to the enormous water pollution problems in this country," Dominick said. "If we are to succeed we must use the most modern concepts of manpower assignment and career development. We intend to provide strong leadership in meeting the challenge of enhancing and protecting the Nation's rivers, lakes and coastal waters. We are gearing up now to meet the challenge of the nineteen-seventies. This agency will be the cutting edge in dealing with one of our most pressing environmental problems."

To meet these goals, Dominick said he has taken or is planning the following personnel and assignment changes to strengthen the immediate Office of the Commissioner:

Creation of a new post of Associate Commissioner. Named to this position has been Bryan F. LaPlante, formerly deputy staff director of the U. S. Senate Republican Policy Committee. LaPlante will aid the Commissioner in top-level policy development and coordination of Departmental and Congressional affairs. LaPlante brings to the agency extensive management experience gained during 17 years service with the Atomic Energy Commission.

Establishment of new position of Executive Assistant to the Commissioner. Frank Covington, formerly director of FWPCA's Division of Manpower and Training, has been appointed to this post. Covington will coordinate regional office and agency communications and assignments.

Creation of new position of Scientific and Technical Advisor to the Commissioner. Assigned to this post will be John T. Barnhill, presently Assistant Commissioner for Program Planning and Evaluation. Barnhill, a veteran of more than 30 years in the water pollution control field, will be responsible for analysis of scientific problems involving multiple agency functions.

Development of a new role for the Office of Assistant Commissioner for Program Planning and Evaluation. Dr. Allan Hirsch, presently Assistant Commissioner for Operations, will be transferred to head this office which will be designated the Office of Assistant Commissioner for Environmental and Program Planning. Hirsch will be responsible for FWPCA participation in environmental planning and programs to fully integrate water pollution control with all other aspects of environmental management and protection.

The following changes will also be made in FWPCA's Headquarters.

Transfer of Water Quality Standards Division. This function has been moved from the Office of Operations to the Office of Enforcement. The emphasis has now shifted from the initial stage of approving standards to the task of seeing that they are complied with. The Office of Enforcement will be redesignated the Office of Enforcement and Standards Compliance.

Creation of new Office of Oil and Hazardous Materials. This office, which will be under FWPCA's Assistant Commissioner for Operations, will be responsible for strengthening the agency's capability to respond to the mounting problem of oil spills and other pollution accidents. This office will be headed by Kenneth Biglane, now director of FWPCA's Division of Technical Support. In the past, Biglane has had experience either as an observer or expert counselor in dealing with the oil spills from the freighters Torrey Canyon and the Ocean Eagle and from the off-shore well at Santa Barbara, California.

New Appointment for Assistant Commissioner for Operations. The Civil Service Commission has been asked to provide a list of the best available candidates to fill this position which is being vacated by Hirsch. Commissioner Dominick will nominate Eugene T. Jensen, now FWPCA's Middle Atlantic regional director, for consideration by the Civil Service Commission in its search for outstanding candidates for this post.

#### SONG TO AN UNSUNG HERO

The ultimate tribute to any inventor is the incorporation of his surname into the language without a capital letter. For some reason, the British have been especially generous with this form of accolade; the Earl of Sandwich, Lord Cardigan, Lord Chesterfield and the Earl of Davenport are regularly honored in everyday speech—and so are such commoners as Macintosh, Macadam, Gladstone and Bowler. But what of Thomas Crapper, the father of the modern toilet? While American slang has acknowledged Crapper with both a noun and a verb, it is still a dubious sort of fame—and the man whose Valveless Water-Waste Preventer perfected the efficient disposal of the unmentionable is still a prophet without honor in his own country.

In "Flushed With Pride," (Macdonald and Co., Ltd.) the latest manifestation of the British affection for water-closet wit, novelist Wallace Reyburn finally gives Crapper his due. Although the book has the ring of a classic hoax, Reyburn presents ample evidence that his man not only lived but made a lasting contribution to mankind's comfort.

Thomas Crapper lived and died in Victorian times, but in terms of sanitary conditions the age was still dark. To flush their toilets, the Victorians simply pulled a chain that lifted a valve that released water from a cistern into a flush pipe. In other words, they just pulled the plug. Since the plumbers who made the valves could rarely insure a

snug fit, the water in most toilets flowed ceaselessly. This flow, multiplied by thousands, threatened to dry up reservoirs and spread drought and pestilence over the land.

In the 1870s the British Board of Trade sent out a call for a more efficient system — and Crapper, a Chelsea sanitary engineer, came up with the best answer. His ingenious solution, which can still be observed beneath the lid of many toilet tanks, depends upon a float, a metal arm and a siphonic action to empty the reservoir. Crapper's Valveless Water-Waste Preventer passed its most critical public test in a demonstration at the Health Exhibition of 1884, achieving a super-flush that completely cleared away ten large apples, a flat sponge, three wads of paper and four paper sheets stuck to the bowl with grease.

As his biographer cannot resist observing, Crapper's success "was no mere flush in the pan." He went on to develop Crapper's Seat Action Automatic Flush (tipping the seat activated the flush mechanism), a cantilevered toilet for prisons that kept all the piping hidden (convicts tended to bash guards with weapons fashioned from toilet pipes) and a revolutionary drainage system that did wonders for clearing the Victorian air (it was no accident that fainting damsels of the day were said to suffer from "the vapors").

Such breakthroughs earned Crapper a three-story headquarters on King's Road and a royal commission to install the facilities in Edward VII's new country home in Sandringham. Visitors to Sandringham can still observe a subtle example of the class distinctions of the period by noting that the toilet-chain handles in the servants' quarters are plain oval rings, while those adorning the royal lavatories are either "Crown Derby" or "Cream and Gold Fluted China" models.

Reyburn's portrait is embellished with cloacal trivia, such as Winston Churchill's preference in toilets and an account of the invention of the "perforated toilet roll" (not a Crapper coup). Crapper himself lived to a ripe 73 and never lost interest in his vocation. His grandniece recalls visiting Crapper's factory in his last years and watching the old boy happily yank at the chain of an "Aquarius" or "Cascade" model to test some new modification.

Although the Crapper building has given way to a mod boutique, and most of the inventor's proudest fixtures have long since crumbled, at least one testimony to his memory remains. It can be found in the cloisters of Westminster Abbey, among the tombstones of England's most celebrated sons — the inscription "Thos. Crapper, Sanitary Engineer Chelsea." The inscription adorns a manhole cover.

From Harry F. Waters

## ENVIRONMENTAL QUALITY EDUCATION ACT

Sen. Gaylord Nelson (Wisc.) has introduced S.3151, establishing the "Environmental Quality Education Act" which authorizes the U.S. Commissioner of Education to establish educational programs and to encourage and support the development of new and improved curricula to enhance environmental quality and maintain ecological balance. Pilot projects and grants for training programs on environmental quality and ecology are authorized. An advisory Committee on Environmental Education would be created to oversee the Commission's programs. Community education in environmental quality and ecology also would be subsidized. Sen. Nelson, who is heading a national teach-in on the environment scheduled for April 22, 1970 said: "We are a highly urban nation. Our environmental crisis should largely be viewed from that context and many of the past assumptions about conservation education may no longer be valid." In introducing the bill, Sen. Nelson pointed to the vacuum existing in conservation education and said: "There is a dire need to improve the understanding by Americans of the ominous deterioration of the Nation's environment and the increasing threat of irreversible ecological catastrophe."

From Conservation Report,  
National Wildlife Federation

## SEN. NELSON PROPOSES ENVIRONMENTAL AGENDA FOR THE 1970's

Sen. Gaylord Nelson (Wisc.) 1/19/70 introduced S.J.RES.169, proposing an amendment to the U.S. Constitution through ratification by the legislatures of three-fourths of the States within seven years which would declare that: "Every person has the inalienable right to a decent environment. The United States and every State shall guarantee this right."

Sen. Nelson used the introduction of this resolution as an occasion to set out his proposed environmental agenda for the 1970's. He first told the Senate colleagues that the 1960's were highlighted by both achievements and setbacks. He spoke of an attitude that science and technology is the "New Testament" and the gross national product as the "Holy Grail."

Sen. Nelson said we were not emerging from the 1960's triumphantly. He pointed to a list of difficulties. "It has been a decade when the darkening cloud of pollution seriously began degrading the thin envelope of air surrounding the globe; when pesticides and unrestricted waste disposal threatened the productivity of all the oceans of the world; when virtually every lake, river, and watershed in America began to show the distressing symptoms of being overloaded with polluting materials," he said. "These pivotal events have begun to warn the Nation of a disturbing new paradox: The mindless pursuit of quantity is destroying--not enhancing--the opportunity to achieve quality in our lives. In the words of the American balladeer, Pete Seeger, we have found ourselves 'standing knee deep in garbage, throwing rockets at the moon.'

Cumulatively, 'progress--American style' adds up each year to 200 million tons of smoke and fumes, 7 million junked cars, 20 million tons of paper, 48 billion cans, and 28 billion bottles. It also means bulldozers gnawing away at the landscape to make room for more unplanned expansion, more leisure time but less open space in which to spend it, and so much reckless progress that we face even now a hostile environment."

In his speech, Sen. Nelson listed the environmental agenda he suggests for the 1970's:

1. Amending the U.S. Constitution to recognize and protect the inalienable right of every person to a decent environment.
2. Immediate action to rid America of environmental pollution from the internal combustion engine, hard pesticides, detergent pollution, aircraft pollution, and nonreturnable containers.
3. Establishing and protecting the right of every citizen to plan his family, leading to stabilization of the population level.
4. Involving citizens in environmental decision-making.
5. Halt on pollution of the seas, declaring a moratorium on further Outer Continental Shelf development until the ground rules are established.
6. Establishment of an environmental education program.
7. Development of a program utilizing funds that could be made available on completion of the Interstate Highway System to provide new transportation alternatives, including mass transit, in congested urban areas.
8. Delineation and implementation of a national policy on land use, establishing rational planning, management, and controls.
9. Establishment of a national minerals and resources policy, including replacement of the Mining Law of 1872.
10. Establish a national air and water quality policy and commitment which will restore and enhance the quality of these resources.
11. Creation of a nonpartisan national environmental political action organization, with State and local organizations providing the foundation, to provide a public day-to-day involvement in achieving environmental solutions.

From Conservation Report,  
National Wildlife Federation



## DISSERTATION TITLES

Titles of recent dissertations will be published regularly in the Newsletter; all researchers are encouraged to participate in this listing. Information on titles, author, faculty advisor, and date of completion should be submitted for publication to W. J. Weber, Jr., Professor of Civil and Water Resources Engineering, Department of Civil Engineering, The University of Michigan, Ann Arbor Michigan, 48104. An abstract for inclusion in a separate mailing of Theses Abstracts should also be submitted for each thesis. In the case of Ph.D. theses, the abstract should be the same as that included in the thesis. For an M.S. thesis, the abstract should be approximately fifty words in length, and should indicate the scope and principal findings of the thesis research. Further information regarding any of the dissertations listed below may be obtained by writing to the appropriate faculty advisor(s).

### Ph.D. Theses

#### Clemson University

Title- "The Kinetics and Characteristics of Fixed Film Biological Reactors"  
Author- Kornegay, B. H.  
Advisor- Andrews, J. F.

#### Colorado State University

Title- "Wind Waves and the Reaeration Coefficient in Open Channel Flow"  
Author- Eloubaidy, A. F.  
Advisor- Plate, E. J.

#### Georgia Institute of Technology

Title- "Development and Application of a Rational Water Quality Planning Model"  
Author- Dysart, B. C., III  
Advisor- Kindsvater, C. E.

Title- "A Study of the Mechanism by which Bioaerosols are Generated when Liquids Containing Microorganisms are Aerated"  
Author- Smith, B. M.  
Advisor- King, R.

#### University of North Carolina

Title- "Thermoluminescence and Associated Physical Phenomena of Irradiated Ionic Crystals"  
Author- Buckman, W. G.  
Advisor- Underwood, N.

### Ph.D. Theses (Cont'd)

- Title- "Experimental Evaluation of the Kynch Theory"  
Author- Cole, R. F.  
Advisor- Lamb, J. C., III
- Title- "The Effect of pH on Algal Flotation"  
Author- Henderson, O., Jr.  
Advisor- Lamb, J. C., III
- Title- "Metabolism of Urea and Related Amides by Chlorella ellipsoidea"  
Author- Little, L. W.  
Advisor- Mah, R. A.
- Title- "The Influence of Stirring in the Thickening of Biological Sludge"  
Author- Vesilind, P. A.  
Advisor- Lamb, J. C., III
- Title- "Energy Loss of Alpha Particles Protons and Electrons in Matter"  
Author- Walsh, P. J.  
Advisor- Underwood, N.
- Title- "Exposure of the Dragonfly Nymph Tetragoneuria Sp. to DDT in Aqueous Solution: Accumulation and Respiratory Response"  
Author- Wilkes, F. G.  
Advisor- Weiss, C. M.
- Title- "Influence of Suspended Particle Size on the Transport Aspect of Water Filtration"  
Author- Yao, K. M.  
Advisor- O'Melia, C. R.

### M.S. Theses

#### Clemson University

- Title- "Model for Age Distribution of Microorganisms in Continuous Culture"  
Author- Cline, D. M.  
Advisor- Bungay, H. R., III
- Title- "A Review of the Mechanisms and Methods of Oxygen Transfer in Waste Treatment Systems"  
Author- Grieves, C. G.  
Advisor- Andrews, J. F.

### M.S. Theses (Cont'd)

Title- "A Study of the Eutrophic Character of Lake Greenwood,  
Nutrient Inputs and Feasible Controls"  
Author- Tropea, L. C., Jr.  
Advisor- Abernathy, A. R.

#### Colorado State University

Title- "Cattle Feedlot Waste Characteristics"  
Author- Jex, E. M.  
Advisor- Ward, J. C.

Title- "Cattle Feedlot Water Quality Hydrology"  
Author- Norton, T. E.  
Advisor- Ward, J. C.

#### Georgia Institute of Technology

Title- "A Theoretical and Experimental Approach to an Anaerobic-  
Aerobic Waste-Water Treatment Facility"  
Author- Albury, W. W., Jr.  
Advisor- Gates, W. E.

Title- "The Effect of Turbulence on Bacterial Substrate  
Utilization"  
Author- Marlar, J. T.  
Advisor- Gates, W. E.

Title- "The Effect of Induced Turbulence on the Growth of Algae"  
Author- Olinger, L. W.  
Advisor- Westfield, J. D.

#### University of North Carolina

Title- "Oxygenation of Iron (II) in a Continuous Flow Reactor"  
Author- Wang, J. W.  
Advisor- O'Melia, C.

Title- "Predicted Impact of Phosphate Mining on Pamlico River  
and Sound"  
Author- McElroy, K. E.  
Advisor- Sherwani, J. K.

Title- "Water Resources Planning in the Tar-Pamlico River Basin"  
Author- Buchholz, W.  
Advisor- Sherwani, J. K.

Title- "A Review of the Methods for the Valuation of Benefits  
from Low-Flow Augmentation in Water Quality Control"  
Author- Denit, J. D.  
Advisor- Sherwani, J. K.

M.S. Theses (Cont'd)

- Title- "A Study of the Stochastic Prediction of Low Flow Time Series"  
Author- Fogel, M. E.  
Advisor- Sherwani, J. K.
- Title- "Applications of the Provisions of the Water Resources Planning Act of 1965 to the State of North Carolina"  
Author- Harris, J. P.  
Advisor- Hufschmidt, M.
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Advisor- Lamb, J. C.
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Advisor- Chanlett, E. T.
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Advisor- Lamb, J. C.
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Author- Neave, J. W.  
Advisor- Okun, D. A.
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Author- Ahern, D. B.  
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Author- Brittain, R. C., Jr.  
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Advisor- Barnes, G. E.
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Author- Stillman, J. E.  
Advisor- Mah, R. A.
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Author- Sussman, C. H. (Mrs.)  
Advisor- Mah, R. A.
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Author- Tesh, R. F.  
Advisor- Johnson, J. D.
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Author- Little, A. E.  
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Author- Korba, A.  
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