

A. A. P. S. E. NEWSLETTER

MESSAGE FROM THE PRESIDENT

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A.A.P.S.E. NEWSLETTER

MESSAGE FROM THE PRESIDENT

1971 will be another progressive year for AAPSE as it continues its leadership role in environmental engineering education and research. Let me share my enthusiasm and optimism concerning AAPSE activities in this year with you.

First let me review the aims of AAPSE and the positive actions that have been accomplished since it was formed. The detailed objectives as stated in the AAPSE Bylaws are many but the principal functions can be summarized:

- To provide leadership and guidance in environmental engineering education and research
- To be a voice from the educational area to agencies and organizations involved in policy decisions affecting environmental engineering education and research.

The nature of environmental engineering and research continually changes and there is a strong need to provide a forum for discussions of these changes. AAPSE activities can be such a forum.

AAPSE exists to serve its members and the profession. Examples of the service that have been provided include:

- The Register - This document is a summary of the graduate programs producing environmental engineering graduates in the United States. The Register has been of value to prospective students as well as to organizations interested in knowing the extent of these programs, the staff, and potential for meeting the manpower needs of the profession.
- The Second National Conference on Environmental and Sanitary Engineering Graduate Education - The Conference was co-sponsored with EEIB at Northwestern University in 1967. All aspects of graduate environmental engineering education were discussed by the over 150 educators who were present.
- Seminars - Two to three seminars on educational matters of interest to AAPSE members are held each year. The seminars provide a forum to discuss specific topics of value for graduate environmental engineering courses and programs.
- Workshops - These yearly two to three day meetings are designed to explore in depth many topics concerning teaching in environmental engineering programs. Laboratory methods and techniques, use of digital and analog computers in education and research, plant instrumentation, and design of water and wastewater facilities have been featured.
- Laboratory Manuals - A Unit Operations and Processes manual for water and wastewater treatment is under preparation. The manual will contain detailed instructions for laboratory experiments and should find extensive use in elementary and advanced environmental engineering courses.
- Newsletter - This quarterly document provides news concerning educational and research activities and policy. It also offers the opportunity

for comment and discussion on topics of interest.

-Visiting Lecturers - AAPSE has a program of arranging lecture tours for designated foreign visitors. The individuals present technical and general lectures on work abroad and are available for discussion on U. S. and foreign research activities. Visits are arranged at different Universities and Colleges each year.

-Policy Statements - When requested and on its own initiative, the AAPSE Board has presented statements concerning environmental engineering education and research to governmental agencies and representatives of the agencies. Appearances also have been made before Congressional committees.

Continuation of these services for AAPSE members and for the profession represents a challenge that has been accepted by the Board of Directors. The Board for 1971 consists of the following:

- | | |
|------------------------|------------------|
| J. H. Austin | W. O. Pipes |
| W. F. Echelberger, Jr. | F. G. Pohland |
| D. Jenkins | R. T. Skrinde |
| R. C. Loehr | W. J. Weber, Jr. |
| W. M. McLellon | |

At the annual meeting on December 14-15, 1970, the Board elected the following officers to serve in 1971:

- R. C. Loehr - President
- W. J. Weber - Vice President
- F. G. Pohland - Secretary-Treasurer

A productive meeting was held in December as the Board discussed policy and action items to accomplish AAPSE objectives. A number of specific items were initiated to better serve the members and the profession. These included:

-Established a Manpower Needs Committee to delineate the needs that do and will exist and to develop approaches to meet these needs. Dr. E. J. Middlebrooks is the chairman of this committee.

-Established an Operator Training and Continuing Education Committee to develop guidelines for educational activities in these areas. Dr. K. D. Kerri is the chairman of the committee.

-Established an Undergraduate Environmental Education Committee to develop guidelines for educational activities in the environmental generalist and environmental engineering areas at the undergraduate level. Dr. J. E. Foxworthy will chair this committee.

These committees were established in recognition of the fact that AAPSE's role extends beyond the graduate educational area which has received major emphasis in the past. Through these committees and other actions, the Board intends to have AAPSE demonstrate its concern and interest in all of environmental engineering education. Other activities that will be accomplished in 1971 include:

- continued emphasis on environmental engineering education and research policy
- development of a manual to assist in teaching the fundamentals of chemistry in environmental engineering
- development of a brochure describing the history, purpose, goals and activities of AAPSE
- continued support for increased activities of the Bureau of Water Hygiene and for increased basic research dealing with environmental engineering and science
- responsibility of each Board member for specific AAPSE committees to expedite the action of the committees

One of the national goals for the '70's is enhancement of environmental quality. AAPSE can play a significant role in helping achieve this goal. The Board has accepted this challenge and will do its best to serve AAPSE and the profession during this year. To achieve success, we need the enthusiastic commitment of AAPSE members. One of the encouraging aspects of my brief tenure as president has been the response of individual members when asked to serve on AAPSE committees. No individual refused to participate.

The working structure of AAPSE will be in your hands **shortly**. I encourage all AAPSE members to actively participate on the **committee** of their choice. Many committee chairmen are now **organizing the committees** for 1971 and would welcome your indication of interest and participation. Feel free to correspond directly with the committee chairmen or with me.

Remember also that AAPSE exists to serve you and the profession. The Board needs your comments and ideas concerning problems on which we should be working, and on actions we should be taking. Please let me or any of the Board hear from you at any time on matters you feel should concern AAPSE.

The Board and I look forward to a vigorous and active year in 1971 and to working for and with you in the above matters.



Raymond C. Loehr
AAPSE President - 1971

ENVIRONMENTAL PROGRAMS GET SIGNIFICANT BUDGET INCREASES

The Office of Management and Budget has made a special analysis of funding for Federal environmental programs which shows that the agencies concerned would get significant increases in fiscal 1972 over 1970 and 1971.

The special analysis is broken down into four major categories: pollution control and abatement activities, sewer and water programs, selected activities to protect and enhance the environment, and activities to understand, describe, and predict environmental conditions.

For pollution control and abatement, the President is seeking a 71 percent increase in budget authority over fiscal 1971, or to \$2,014,000,000. Eleven Federal agencies are involved directly, with some others to a lesser degree. Of the types of pollution, water pollution gets 80 percent of the total.

The Federal programs of grants and loans for the construction of sewer and water systems are to be increased by 17 percent in outlays although the budget authority and obligations for these purposes will decline as they are merged into special revenue-sharing programs. The total outlay is \$446,000,000.

Selected environmental enhancement activities are up 27 percent in budget authority, 36 percent in obligations, and 16 percent in outlays. These include grants to State and local governments for acquiring land for recreational purposes, for preserving open space and historic properties, and for fish and wildlife refuges. Aid also is provided for research and planning, construction and maintenance of recreational facilities and wildlife refuges, and for promoting highway beautification. Six agencies are involved with a total outlay of \$846,000,000.

A ten percent increase in budget authority, and 13 percent increase in outlays are proposed for understanding, describing, and predicting the environment. The total outlay is estimated at \$917,000,000. More than half of the funding for this category supports environmental observation and measurement to describe and predict weather and ocean conditions and disturbances such as earthquakes. [Conservation Report]

GOLD MEDAL OF THE FILTRATION SOCIETY AWARDED

Drs. E. Robert Baumann and Charles S. Oulman, Professor and Associate Professor of Civil Engineering, respectively, have been jointly awarded the Gold Medal of The Filtration Society (of England) for their paper entitled "Polyelectrolyte Coatings for Filter Media." The Gold Medal, awarded biennially, was presented at the Annual Dinner of the Filtration Society in London, England on October 20, 1970.

A.A.P.S.E. DISTINGUISHED FOREIGN LECTURER

Professor Kenneth J. Ives of University College, London has accepted our nomination as the AAPSE Distinguished Foreign Lecturer and plans to be in the U. S. from April 13 to May 1, 1971. He will visit seven universities during this time period.

Professor Ives is an expert in water treatment and has done a considerable amount of work in the area of water filtration. He has recently been involved in research in other areas of water treatment and reclamation, including orthokinetic flocculation, water reclamation, ion exchange, and floc blanket clarification.

Dr. Joseph F. Malina of the University of Texas is chairman of the Distinguished Foreign Lecturer Committee.

EXPERT HAS NO USE FOR WATER QUALITY STANDARDS

Arthur Busch, Professor of Environmental Engineering at Rice University, upset the equilibrium at the American Institute of Chemical Engineers' annual meeting in Chicago when he debunked long-established engineering beliefs. He said that setting standards for water quality and long-term studies to define pollution problems are a waste of time and money, and declared that the only standard needed was a definition of the minimum capacity of a stream to absorb pollution; a calculation that can be made "with a beaker of water on a hot day in the laboratory." The capacity of a stream, Busch said, is fixed, and only the minimum capacity is of interest because ecological damages are largely irreversible, with one day of zero dissolved oxygen or toxic conditions producing damage that lasts for some time. He advocates regulation of industries, not streams and estuaries, also fast tax writeoffs for clean water equipment purchased by industry, federally insured loans and laws mandating installation by the plant owner of flow meters and flow-proportioning automatic samplers on each discharge. [Water Newsletter]

SPEECE TO RECEIVE AWARD

Dr. Richard E. Speece, Professor of Environmental Health Engineering, The University of Texas at Austin, will receive the Award for Excellence in Teaching, sponsored by the American Association of Professors of Sanitary Engineering. The \$1000 award is given biennially to a younger professor in the field of environmental engineering in recognition of his outstanding contribution in teaching and research. The award will be presented at the Association's meeting to be held at Purdue University in May, 1971.

Dr. Speece was recipient of the Harrison Prescott Eddy Medal for noteworthy research in 1968 by the Water Pollution Control Federation and has presented research papers at several international conferences on water pollution research. He taught at The University of Illinois from 1961-1966 and at New Mexico State University from 1966-1970. He joined The University of Texas in September, 1970.

A.A.P.S.E. LABORATORY MANUAL

During January, 1971, every AAPSE member should have received a first draft or "working copy" of the proposed Unit Operations and Unit Processes Laboratory Manual. The first draft was obviously incomplete, and in many ways, was lacking in polish, style and content. However, the manual committee sought early distribution of the material collected to elicit comment and, perhaps, to stimulate the submission of additional or more refined experiments. Since many contributors were unable to meet the deadline for the first draft of the manual, a supplement has been prepared for distribution in February. Even with the supplement, it is evident that there are subject areas which lack suitable experiments.

The real work on the manual will begin after the committee has had a chance to examine and evaluate the material so far collected. The next meeting of the manual committee is scheduled in Lafayette, Indiana, at the time of the Purdue Industrial Waste Conference. The committee earnestly seeks your comments and, hopefully, contributions, prior to that time.

NEW EXECUTIVE SECRETARY APPOINTED

The Executive Board has arranged with Dr. Warren Viessman, Jr., Director, Water Resources Research Institute, The University of Nebraska, to be Executive Secretary of the Universities Council on Water Resources, effective January 1, 1971.

Association of Professional Engineers of Ontario has announced it will discipline members who fail to meet pollution laws in projects they design. Since Professional Engineers Act of Ontario gives APEO authority to fine, admonish or suspend members for professional misdemeanor, in extreme cases, violators of environmental standards laws could be disbarred from practice.

Having taken stand that disregard for safety of environment is professionally unethical, APEO faces problems of establishing workable technical standards and assuring their use among its 30,000 members. Formation of environmental council to check designs is likely to be rejected by members due to closeness with which some engineers guard their designs and processes. More probable is growth of private consulting firms staffed by engineers familiar with anti-pollution laws. These specialists would hire out to those needing assessment of projects for possible violation of environmental quality acts.

APEO also agreed to support members who suffer personal loss or harm because they adhere to requirements for pollution control. Decision to discipline its members came after proposal by Dr. R. C. Quittenton, president of St. Clair College of Applied Arts and Technology, Windsor, Ont., in October issue of APEO's journal.

APEO said it would support an engineer if his boss or government agency prevents him from meeting prescribed environmental standards in his work.

Experience in the area of pollution laws can be drawn from engineers employed by Ontario Water Resources Commission and the Air Pollution Branch of the Department of Energy and Resources Management who have been working on requirements of such laws. [Air/Water Pollution Report]

A.A.P.S.E. SEMINAR

An AAPSE Seminar will be held in conjunction with the annual Purdue Industrial Waste Conference as usual. The seminar will be held from 8:00 a.m. until 9:15 a.m. on Tuesday, May 4. The subject of the seminar will be "Engineers and Scientists--Their Future in Environmental Quality Control." This will be a panel discussion. All AAPSE members are urged to attend.

SUMMER INSTITUTE IN WATER POLLUTION CONTROL

The 16th Summer Institute in Water Pollution Control will be held at Manhattan College in 1971. Two one-week courses will be offered concurrently, May 24 to 28, and an additional three-day course will be introduced June 1, 2, and 3. Registration fee for the one-week courses is \$225.00, and \$150.00 for the three-day course.

This Institute, supported jointly by Manhattan College and the Federal Water Quality Administration, has available a limited number of stipends and travel allowance for candidates associated with universities and governmental regulatory agencies. For further information, contact Donald J. O'Connor, Environmental Engineering and Science Program, Manhattan College, Bronx, New York 10471.

CRWR ASSOCIATE DIRECTOR NAMED TO WASHINGTON POSITION

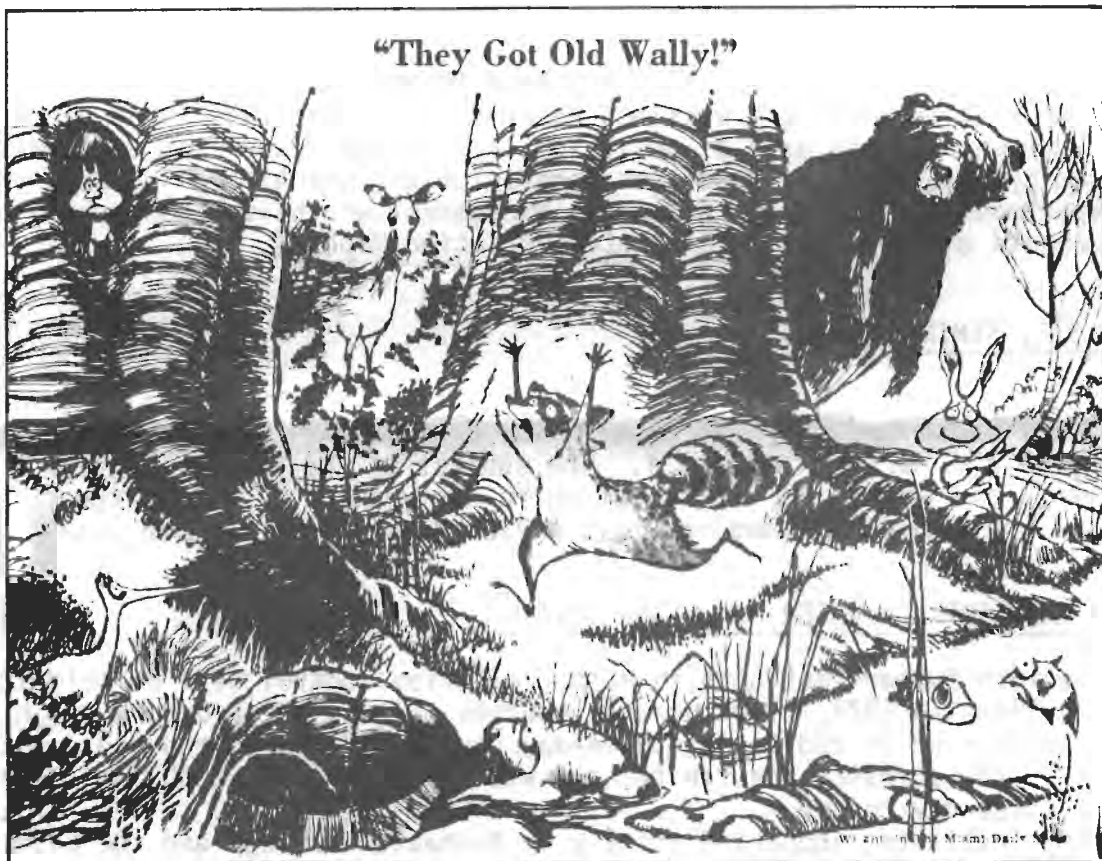
Dr. William S. Butcher, Associate Director of the Center for Research in Water Resources, has been appointed Technical Assistant to the President's Science Advisor on water resources research, beginning in January, 1971. The position is in the Office of Science and Technology, a subdivision of the Executive Office of the President.

As part of his duties in this new role, Dr. Butcher will chair the Committee on Water Resources Research, an interagency committee that steers government water resources research policy. [CRWR News]

CHRISTMAN APPOINTED SPECIAL ASSISTANT

"An environmentalist isn't necessarily a technologist," notes Dr. Russell F. Christman of the University of Washington, Seattle, where he has just been assigned to the newly created post of special assistant to the provost for environmental affairs. "The architect or social planner is as much an environmentalist as is a chemist or engineer."

Briefly, some of Christman's duties are: (1) to review the recommendations in the President's Advisory Committee Environmental Studies report for a structure for central coordination and information for the University's environmental activities, (2) to define the areas of environmental work in which the University ought to concentrate its further efforts, (3) to supervise the implementation of those recommendations of the PACES report which appear to be necessary, relatively simple, and to have wide support, and (4) to prepare a proposal or proposals for funding from both internal and outside funds.

WHITTEN TO OVERSEE FUNDING OF ENVIRONMENTAL PROGRAMS

The Chairman of the House Appropriations Committee, George H. Mahon (Tex.) has given his Agriculture Subcommittee jurisdiction over the funding of all Federal environmental programs. The action places Jamie L. Whitten (Miss.), who has exercised personal authority over farm programs for two decades, in control of appropriations for the Environmental Protection Agency and the Council on Environmental Quality.

In the past, Mr. Whitten has been known to be skeptical of the Agriculture Department's controls on pesticides believing them to be detrimental to farmers. He voted against the conservationist position on several key issues in the last Congress. He voted for funding of the supersonic transport plane, for increasing logging in national forests, and against spending \$1 billion extra to fight water pollution. [Conservation Report]

The Department of Natural Resources, mentioned by President Nixon in his State of the Union message of January 22, 1971, long a dream of some environmentalists and conservationists, would bring together elements of the Departments of the Interior, Agriculture and Commerce. The newly-established Environmental Protection Agency would be left untouched and remain as a separate entity. Reports have it that the Department of Natural Resources would be broken down into four components, probably organized as follows: 1. Land and recreation component--Bureau of Outdoor Recreation, National Park Service, Bureau of Sport Fisheries and Wildlife, Bureau of Land Management, Forest Service and Coastal Zone Management; 2. Water resources component--Planning functions of Corps of Engineers and Soil Conservation, Bureau of Reclamation, Office of Saline Water and Office of Water Resources Research; 3. Energy and mineral resources component--Geological Survey, Bureau of Mines, Oil Import Administration and Appeals Board, Power Marketing agencies, Rural Electrification Administration and Atomic Energy Commission; and 4. National Oceanic and Atmospheric Administration.

PURDOM INSTALLED AS APHA PRESIDENT

P. Walton Purdom, Ph.D., was installed as President of the American Public Health Association at the Ninety-Eighth Annual Meeting in Houston.

Since 1964, Dr. Purdom has been a full professor in environmental engineering and science, as well as director of the Center for the Study of Environment, at Drexel Institute of Technology in Philadelphia. Prior to that he had been an associate professor of civil engineering and associate director of the center.

Before coming to Drexel, Dr. Purdom was associated with the US Army Engineer Department and the Tennessee Department of Public Health; he served as director of environmental sanitation in Knoxville and was a consultant to the Communicable Disease Center in Atlanta. In 1961, as director of environmental health at the Community Health Services of the Philadelphia Department of Health, Dr. Purdom received the Crumbine Award for the most outstanding environmental health program in the United States.

The APHA President is past chairman of the American Environmental Engineering Intersociety Board and a diplomate of the American Academy of Environmental Engineers. He is also a past president of the Pennsylvania Public Health Association, and was active in the National Commission on Community Health Services, the American Society of Civil Engineers, the Air Pollution Control Association, the American Industrial Hygiene Association, the Water Pollution Control Federation, the American Water Works Association, and many others.

Today Dr. Purdom is a member of the Pennsylvania Governor's Science Advisory Committee and Comprehensive Health Planning Advisory Council, and is first president of the Delaware Valley Citizen's Council for Clean Air.

ANNOUNCEMENT OF FACULTY VACANCY

Sacramento State College is seeking someone to fill the position of the Chairman of Ecological Studies Program. This position needs to be filled at the earliest possible date, but not later than the fall semester of 1971. For more details, contact Vice President for Academic Affairs, Sacramento State College, 6000 J Street, Sacramento, California 95819.

AGARDY APPOINTED VICE PRESIDENT

Dr. Franklin J. Agardy has been appointed vice president of the environmental systems division of URS Research Company, San Mateo, California.

POLLUTION GOOD FOR BUSINESS

Bottled water industry in the U. S. is one segment of economy that isn't complaining about water pollution, according to the Colorado River Association Newsletter. Fears about dirty water may boost annual sales to \$60 million by the end of the year. In 1968 the industry had a volume of \$50 million; but rising affluence, coupled with publicity about pollution, has opened up tremendous market potential in residential sales. Water bottlers have achieved this without saying that tap water is unsafe. They promote sales on purity of their product, particularly absence of chlorine. Tap water, they say, just tastes bad. Most of water in bottles is good old fashioned ground water plus or minus its natural minerals.

EMPLOYMENT OPPORTUNITIES BULLETIN

Rayne and Associates, Inc., 4548 Main Street, Suite 7, Buffalo, New York, 14226, operates an employment service for "engineers." At the present time they are seeking the services of sanitary engineers for over 30 positions, and their contacts for more sanitary engineering people continues to grow. All fees are paid by the employer. Members of AAPSE and others who seek to know more about this service should write to Mr. Wayne A. West at the Rayne and Associates address.

CORNELL AGRICULTURAL WASTE MANAGEMENT CONFERENCES

Cornell University has initiated a series of yearly conferences as part of its continuing emphasis on the environmental quality aspects of agricultural production. Past and future conferences are:

- 1969 - Animal Waste Management
- 1970 - The Relationship of Agriculture to Soil and Water Pollution
- 1971 - Agricultural Wastes - Principles and Guidelines for Practical Solutions

Copies of the 1969 and 1970 Proceedings are available.

Please send _____ copies of the Proceedings of the 1970 Agricultural Waste Management Conference. The cost is \$13.50 per copy.

Please send _____ copies of the Proceedings of the 1969 Agricultural Waste Management Conference. The cost is \$10.50 per copy.

(Make checks payable to Cornell University) Total amount enclosed \$ _____

Name _____

Mailing Address _____

Return this form to: Agricultural Waste Management Program
Riley-Robb Hall
Cornell University
Ithaca, New York 14850

The National Industrial Pollution Control Council (NIPCC) recommended to President Nixon and the Council on Environmental Quality on 2/10/71, five procedures for pollution control. The NIPCC is a Presidentially-created and Commerce Department funded and staffed advisory group which is composed of 64 presidents and board chairmen of the Nation's largest industries.

Their report stated that some Federal anti-pollution standards cannot be met with present technology, and others are impractical because of prohibitive costs. It stated that regulations requiring proof that a chemical or other pollutant is harmless before it can be discharged will tend to restrain innovation and limit competition. In order to overcome the difficulties facing them, the NIPCC recommended five procedures for pollution control. The report urged: (1) Massive industry-government collaboration be undertaken to assure prompt and effective achievement on international environmental accords; (2) No "permanent subsidies" be established for pollution control; (3) No system be established to sell rights to pollute the environment; (4) Pollution controls be based on evidence of reasonable likelihood of harm to man and his environment; and (5) An orderly approach be undertaken toward adoption of soundly based pollution control standards under strong federal leadership.

In addition to the report, a compilation of commitments made by 160 companies to control pollution was submitted, along with a "Casebook of Pollution Cleanup Actions," to provide specific examples of industry's abatement efforts. Sixteen subcouncil reports on major abatement efforts were also submitted to the President and to the CEQ. [Conservation Report]

ASEE GEORGE WESTINGHOUSE ENVIRONMENTAL STUDENT AWARDS

The American Society for Engineering Education has announced the availability of the George Westinghouse Environmental Student Awards for 1971.

To insure widest possible participation of engineering disciplines and interdisciplinary relationships, the projects should include one or more of the following topics: (1) pollutant control and abatement, (2) recycle or beneficial re-use of pollutants, (3) environmental distribution of pollutants (such as new, inventive instrumentation for detection and measurement), or (4) impact of pollutants on natural ecosystems.

Types of pollutants could include heated water, sulfur oxides, nitrous oxides, carbon combinations, particulate matter, radioactivity, municipal sewage, industrial waste, pesticides-insecticides, heavy metals, or other pollutants still in process of identification which the student may wish to include.

Investigation might be from the point of view of: (1) household and personal pollutants (like automobiles), (2) industrial pollutants (like utilities and industrial plants), (3) municipal pollutants (like sewage), and (4) recreation pollutants (like outboard motors).

Four prizes are awarded annually. First prize: \$1,000 and certificate. Three runners-up prizes: \$250 each and certificates. Two awards each to the areas of ASEE's Councils of Sections East and West. The first prize entry may be published in Engineering Education or other technical journals. All entries become the property of the Society.

Submit entry form and your project report no later than April 15, 1971 to W. Leighton Collins, Awards Program Administrator, American Society for Engineering Education, One DuPont Circle, Suite 400, Washington, D. C. 20036. Entry forms can be picked up from Deans of colleges throughout the U. S.

LYNN APPOINTED DIRECTOR

Walter R. Lynn has been appointed director of the School of Civil and Environmental Engineering at Cornell University, Ithaca, New York. Dr. Lynn has been director of the Cornell Center for Environment Quality Management since 1966, and will continue in that post.

UNIVERSITY OF NEBRASKA EVENTS

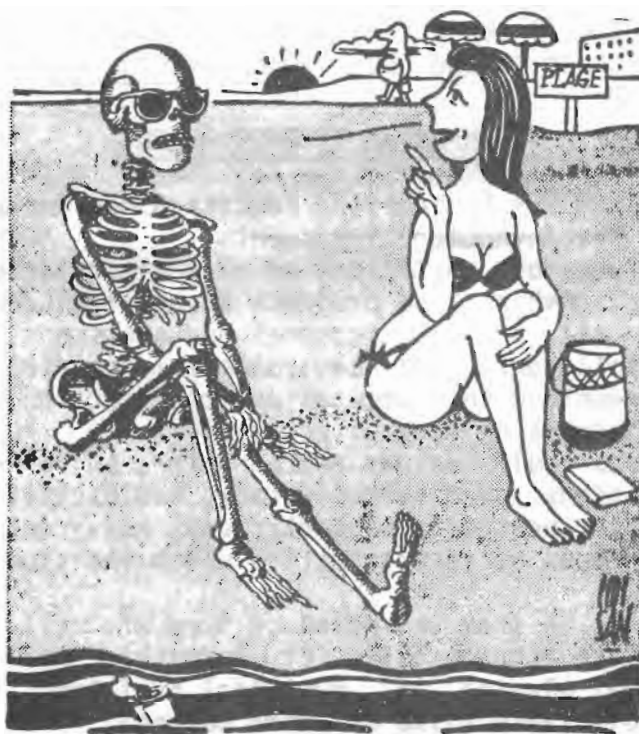
June 21 to July 2, 1971 - A summer short course, "River Systems - Planning and Environmental Aspects," will be sponsored by the University of Nebraska and the Omaha District Corps of Engineers. The program fee is \$300. For additional information, contact Professor R. R. Marlette, Department of Civil Engineering, University of Nebraska, Lincoln, Nebraska 68508.

July 18-23, 1971 - The first of two Summer Institutes. "Optimal Analysis of Water Resources Systems."

July 25-30, 1971 - The second Institute, "Simulation of Water Resources Systems." For additional information, contact Dr. Warren Viessman, Jr., Director Nebraska Water Resources Research Institute, University of Nebraska, 212 Agricultural Engineering, Lincoln, Nebraska 68503

POSITION WANTED

Ph.D. in Sanitary Chemistry from Harvard in June, 1971. B.S. in Civil Engineering and M.S. in Sanitary Engineering. Fifteen months experience with large New York consulting firm. Available summer, 1971. Contact Irvine Wei, 204-A Holden Green, Cambridge, Massachusetts 02138. Telephone: 617-495-3307.



"Ah, you've been in for a swim!"

INTERNATIONAL CONFERENCE ON WATER POLLUTION RESEARCH

The 6th International Conference on Water Pollution Research will be held in Jerusalem from June 18-24, 1972. Completed papers on various topics are invited. Detailed instructions concerning the preparation of papers can be obtained from Peter A. Krenkel, Chairman and Professor, Department of Environmental and Water Resources Engineering, Vanderbilt University, P. O. Box 1670, Station B, Nashville, Tennessee 37203. Information about the conference can be obtained from The Israel Host Committee, Jerusalem P. O. B. 6272, Israel.

Professional Training for Water Quality Control*

By

Robert G. Snider
Chief, Training Grants Branch
Division of Manpower and Training
Office of Operations
Federal Water Quality Administration

This is in a sense a report to my constituency. Most of you, and your absent colleagues who are Program Directors of Professional Training Grants supported by the Federal Water Quality Administration, have supplied the information whereby we have been able to analyse what has actually happened in the program since its inception in the fall of 1962, what some of our professional manpower needs are, and where we seem to be going.

WHAT HAS HAPPENED SO FAR

FWQA and predecessor organizations, during the last eight fiscal years, have supported 1828 graduate students, of whom 448 were "in the pipeline," that is, still being supported by FWQA training grants on 30 June 1970. Of the others, 1152 have received graduate degrees in fields involved in water quality control. Of the remainder, 178 are going on for further education and 50 are employed but did not receive the graduate degree they started after.

We have supported in this period almost 24,000 months of graduate student education (nearly 2000 "student years,") with an average of 13 months per student and about 14 months per degree. The 20 to 25 percent of total students supported who are still "in the pipeline" indicates the extent of recent program growth.

As you know, AAPSE has reported on the number of M.S. degrees awarded in water quality management engineering in the academic years 1966-67 and 1967-68. FWQA supported 43.1 percent and 48.3 percent respectively of these. There are 10 AAPSE members' universities where we do not support water quality management engineering. However, we have water quality management engineering programs at 11 institutions not listed in either of the last two AAPSE Registers and other programs at 10 other institutions. Furthermore, we have non-engineering water quality programs at about a dozen of the AAPSE listed institutions.

We are now supporting 43.1 percent of the graduate students majoring in 86 water quality programs at 72 universities. Three fourths of these programs we support are in environmental engineering. It is likely that FWQA is by far the largest single source of support of water quality management professional education.

*Address delivered to the Annual Meeting of the American Association of Professors in Sanitary Engineering (AAPSE), Boston, Massachusetts, October 6, 1970.

We have provided about \$18.5 million in the last eight years to establish, maintain and develop Professional Training Grant programs to support students and to provide support of some faculty, acquisition of equipment, facilities modification, and appropriate related expenditures.

The survey of job destinations of graduate students supported by FWQA and predecessor professional training grants has been completed. Of the 1380 who have completed their studies supported by our Professional Training Grants, 23.2 percent work at some level of government, 16.8 percent are consulting engineers, 15.6 percent teach at some level and most are involved in research, and 10.9 percent work in industry. At present 10.8 percent are performing military duties, and 12.9 percent are undertaking further education but not supported by FWQA training grants although over one third of these hold FWQA Research Fellowships. The whereabouts of 7.2 percent are currently unknown (two thirds of these dropped out of the program prior to completion of a degree) and 36 or 2.6 percent have definitely left the water quality field. When the 36 are added to 43 others whose positions in local, State and Federal agencies and in industry are in air pollution or solid waste activities, and 11 who teach in secondary schools, it may be said that 6.5 percent of those not currently supported by us have left the water quality field. 47, or 3.4 percent of those who have completed their training, have been employed by FWQA or its predecessors. Table I entitled "Job Destination of FWQA Supported Professional Trainees FY '63 - FY '70," provides more detail.

The FWQA Professional Training Grants program is an effort with national rather than state or even regional implications. Almost three fifths of the programs draw more than half of their students from outside the State. About one-third of the programs draw more than one-half of their students from outside the region. Over 85 percent of the programs ship over half of their graduates out of the State. Virtually half of the programs ship more than half of their graduates even beyond the region.

In the light of these facts, based on eight years of experience, we must weigh programs and proposals against national needs and quality of product in national competition.

Charts A thru D describe the nature of the geographic sources and destinations of our stipended graduates. In our interpretation, the value represented by the left hand quartile is considered high in the first three charts, but in the fourth chart the right hand quartile is the highest.

As our program matures we and you achieve greater efficiency, at least from our point of view. You must remember that our prime responsibility and concern is to help get practitioners in water quality management into the field, in government, industry, consulting engineering, and teaching and research. Initial program years involve relatively high start-up costs. A large proportion of our programs (over 70 percent) are five years old or more. Since our policy is to gradually reduce Federal support to non-student-support expenditures during the first five years, and to provide funds primarily to student support for successive years, we tend toward maximum efficiency in professional manpower production as programs age. Chart E indicates the more rapid rate of increase in FWQA supported trainee production over the years, than the rate of increase in program costs.

A factor in our evaluation of individual programs is the variation in length of time required to achieve a degree. All FWQA supported trainees (and Research Fellows

also) are required to devote essentially full time to the pursuit of their degrees, but there are, however, substantial differences between disciplines and even between programs. The overall range is from slightly more than seven months for an M.S. to as much as over 24 months to achieve the same degree. These extremes actually occur within the field of Environmental Engineering, although the average value in this field is 12.4 months. In Biological Sciences the average time to a degree is 17.6 months, in Physical Sciences it is 14.1 months, in Social Sciences it is 16.1 months, and in the Interdisciplinary Field it is 13.6 months. Thus, we and you have some interesting data to use as part of the program evaluation process.

Another standard against which to measure individual programs is the ratio of students who have graduated to all students who have been supported. The range is from all to none. The average is .57 and the median .59. The average for Environmental Engineering is .62, for Biological Sciences .44, and the other disciplines slightly higher. Factors such as newness or recent rapid expansion of a program produces distortion, but if a mature program is graduating less than half its supported students there is a situation which warrants investigation. The practice of quality control has become a fundamental element in FWQA's professional training effort.

As a part of this practice we draw upon the "peer" groups in the professional water quality analysis and management fields to provide extramural input into the evaluation of both proposed and existing programs. This is a highly qualified and selected group of consultants. Staff decisions based on existing consultant recommendations have determined the identity of the group, now numbering 26. During the past six years 38 individuals have participated in this review responsibility, but only six have served the entire time. Thus, there is an effort to introduce new ideas and people into the review process, to avoid cronyism and other aspects of favoritism which might militate against the objective of abstract excellence in the selection of programs to support.

In an attempt to obtain a face-to-face familiarity with not only the programs we have supported for up to eight years, but also those making new applications for Professional Training Grants, we have made 95 site visits at universities during the past 22 months. This has been accomplished in 12 actual working months by me and my associate, Robert F. Ruhl, together with teams of two or three consultants. These advisers have been drawn from a group of 23 carefully selected university based experts in various aspects of water quality management. As of now we have visited all but one of our programs at least three years old and 17 new programs applying for grants. Within this fiscal year we plan to complete the first cycle of all existing programs, and to introduce site visits every three years as a routine practice. Programs where problems exist will be visited more frequently as is necessary, and all new applicants will be visited prior to award of a grant. An interesting sidelight of these visits is that in calendar 1969, when 51 programs were visited, we found deficiencies in one third of the programs, from FWQA's point of view sufficient to warrant formal written comment to the program director. In virtually all cases this comment was received in good grace and resulted in substantial improvements in the program. However, three programs have been terminated by FWQA because of inadequate performance.

WHERE DO WE SEEM TO BE GOING

Ideally we should have well designed projections of professional manpower requirements in various disciplines and sub-disciplines for each of the prospective employer categories

over let us say the next 10 years. Actually, we have nothing like this. However, on the basis of past performance we can make some general projections of demand at least for water quality management engineers. Figure 1 illustrates the basis for the projection. There is a positive correlation of .83 between the least squares regression curve describing the trend from 1957 to 1968 of masters degrees in water quality management engineering awarded annually as reported by AAPSE, and the total cost of waste treatment plant construction as reported annually by FWQA.

If this is a valid correlation we should expect a substantial increase in demand for professionals as the national waste treatment plant construction bill jumps from about \$2 billion in 1970 to \$10 billion in 1972.

Present indications are that the student public and the universities are responding to this situation. Our recent telegraph poll of all our active programs indicates an increase of 23.7 percent this year as compared to last year in the number of students majoring in the fields of the programs we support. Those minoring have increased by 28.2 percent. Registrations this year total 1910 majors and 1544 minors. Our full year traineeships support 43.1 percent of the majors. Last year we supported 49 percent. This is a higher proportion than we like to see. From our point of view we feel we may be carrying too large a share of the cost. From your point of view, and that of your students, you are getting a pretty large share of your eggs in one basket. We do, however, through our program support, benefit well over three and one half times as many students as we support directly by traineeships, 365 percent to be exact.

Other data of significance to us in program management became apparent from the poll. Environmental Engineering majors in 63 programs have increased this year by 30 percent, minors by 36.3 percent. In 15 Biological Sciences Programs the increase has been only 11 percent and 3.4 percent respectively. In general, in other disciplines the increase has been relatively small. One encouraging piece of information which I trust you will welcome is that the probable failure of the program directors collectively to fill about 90 traineeships will mean sufficient "savings" this year to match our present planned over-commitment of about \$440,000 beyond what we expect to get when funds are finally appropriated for this year. This in turn means that in all probability we can support the 932 traineeships we plan to provide with this fiscal year's money for next year's students. But it also means that the probability of supporting any new programs is not high.

THE FUTURE

You, as well as we, are naturally interested and concerned about the Environmental Protection Administration and what it will mean to us. As you know, the reorganization plan went into effect at midnight last Friday. EPA is to arise on 3 December, sixty calendar days later. We trust that this program will be an integral part of EPA. However, we have had virtually no information as yet. Nevertheless, I find it difficult to believe that a program which has grown so substantially in both quantity and quality, meeting a vital and expanding need, will not be continued to help the new broader based agency attain its mission.

I hope that in the months of reorganization ahead I can continue to turn to AAPSE institutionally, and to each of you individually for advice, counsel and assistance.

Table I

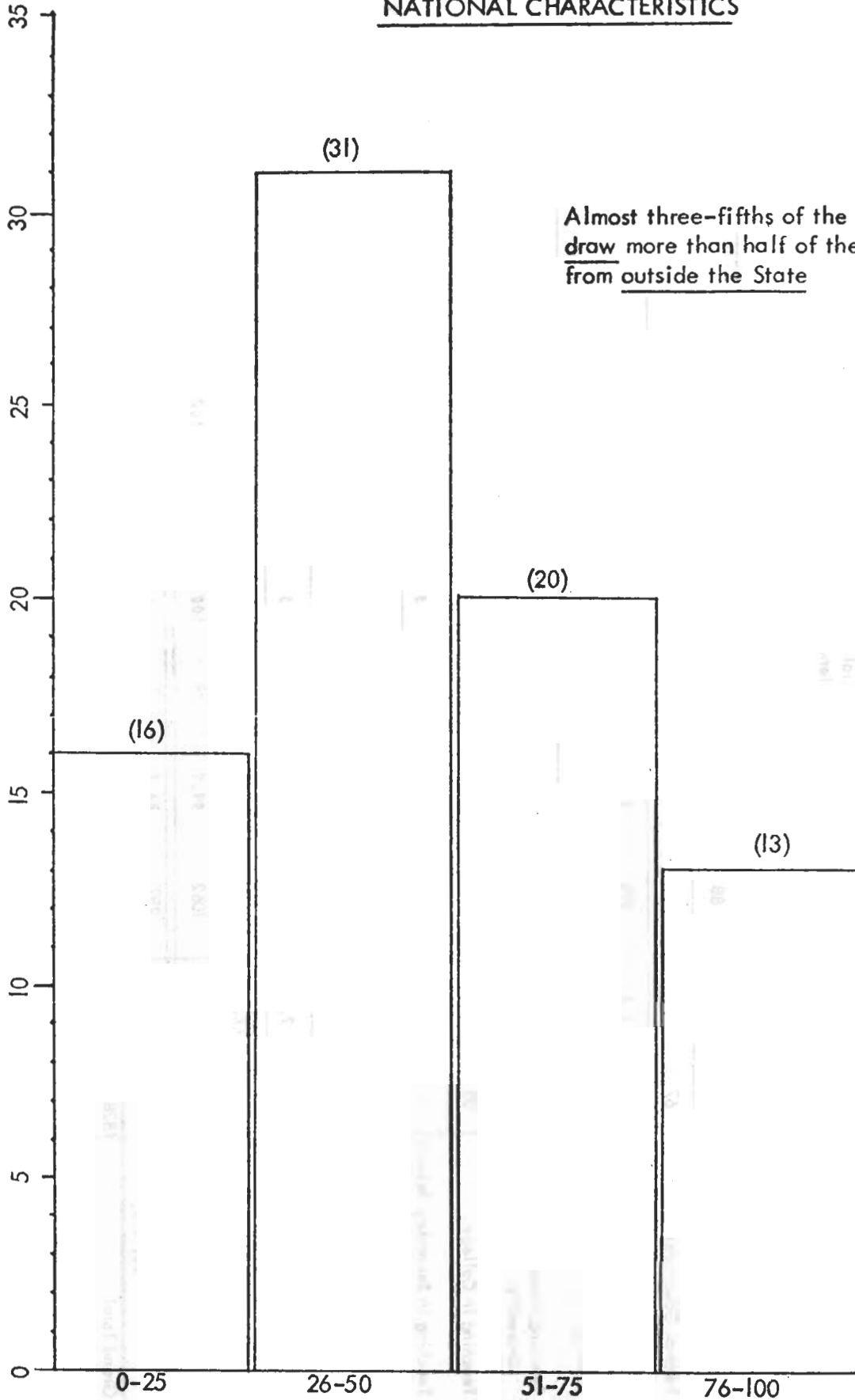
JOB DESTINATION* OF FWQA SUPPORTED PROFESSIONAL TRAINEES FY '63 - FY '70

OCCUPATION	Total		60		13		Environmental		13		Biological		3		1		4	
	No.	Percent	Engineering Programs No.	Percent	Engineering Programs No.	Percent	Engineering Programs No.	Percent	Biological Science Programs No.	Percent	Biological Science Programs No.	Percent	Physical Science Programs No.	Percent	Social Science Programs No.	Percent	Interdisciplinary Programs No.	Percent
Local Government	42	3	37	3.5	1	1	1	1									4	4
State Government	112	8.1	88	8.3	8	4	8	4	3	8	3	8	3	8	1	20	12	13
Federal Government	167	12.1	133	12.5	20	11	20	11	3	8	3	8					11	11
Consulting Engineering	232	16.8	220	20.7	2	1	2	1	2	5	2	5					8	8
Industry	150	10.9	129	12.1	8	5	8	5	5	13	5	13					8	8
Teaching/Research University	166	12	103	9.7	38	21	38	21	8	20	8	20			2	40	15	16
Teaching in College	38	2.8	14	1.3	24	13	24	13										
Teaching in Secondary Schools	11	.8	4	.4	5	3	5	3									2	2
Military Service	149	10.8	121	11.4	11	6	11	6	3	8	3	8			1	20	13	14
Left Field of Water Quality	36	2.6	30	2.8	5	3	5	3									1	1
Unknown	99	7.2	62	5.8	23	13	23	13	2	5	2	5					12	13
Further Education	178	12.9	121	11.4	33	19	33	19	13	33	13	33			1	20	10	10
Total	1380	100.0	1062	99.9	178	100	178	100	39	100	39	100			5	100	96	100
Pipeline (supported as of June 30, 1970)	448	100	297	66.2	73	16.2	73	16.2	21	5	21	5			6	1.3	51	11.3
Grand Total	1828	100	1359	74	251	14	251	14	60	3	60	3			11	1	147	8

*All known permanent positions are water quality oriented with the exceptions of "Left Field of Water Quality" and possibly 3 Local Government, 7 State, 23 Federal, 11 Secondary School Teaching, and 10 Industry positions which may not be so oriented. Total 90 or 6.5 percent maximum, 2.6 percent minimum left the field, primarily to go into air pollution or solid waste jobs.

CHART A
FWPCA'S PROFESSIONAL TRAINING GRANT PROGRAMS
NATIONAL CHARACTERISTICS

NUMBER OF FWPCA SUPPORTED PROGRAMS WHOSE STUDENTS (INCLUDING FWPCA STIPENDEES) ARE DRAWN FROM THE STATE IN WHICH THE INSTITUTION IS LOCATED

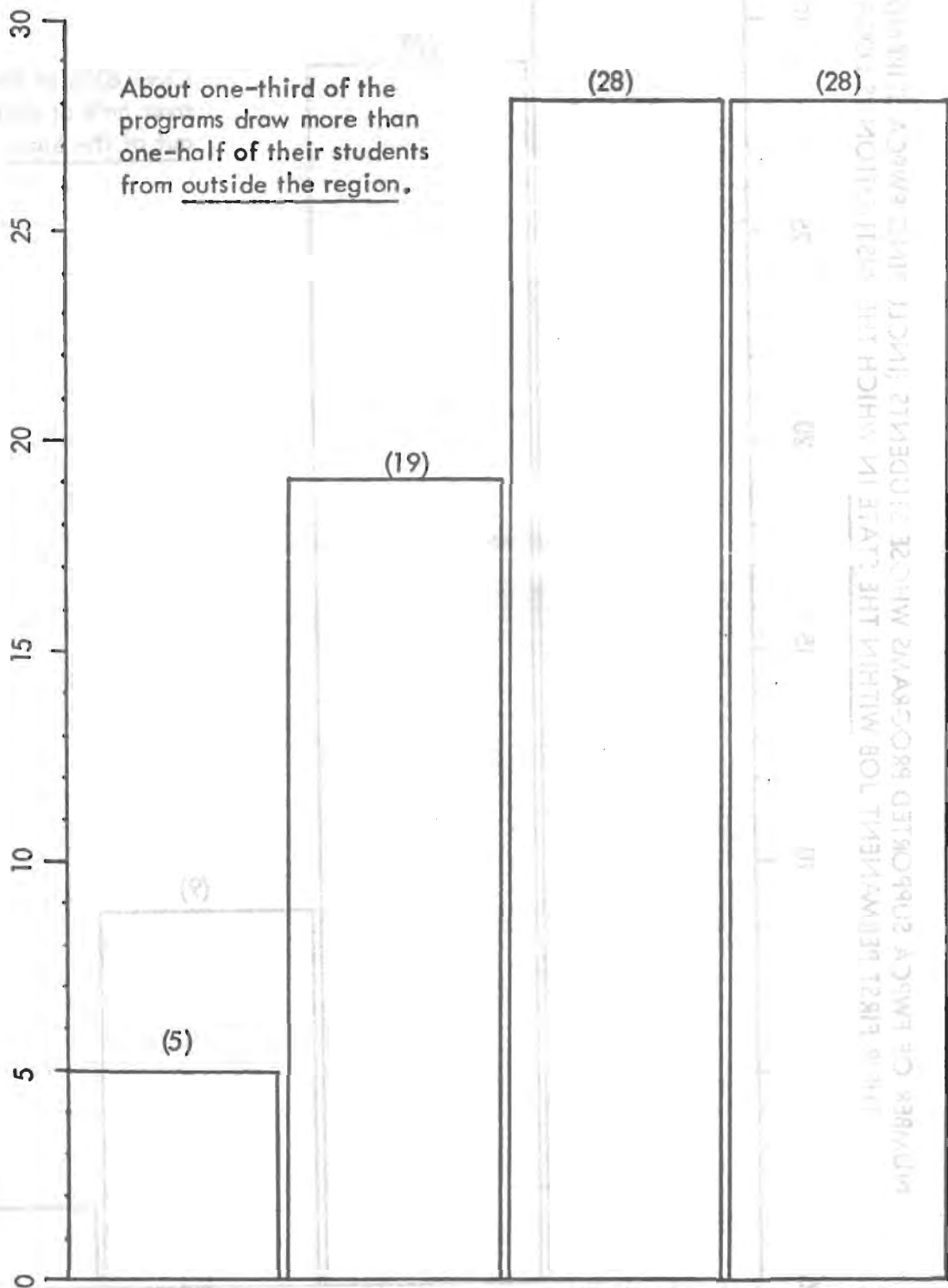


Almost three-fifths of the programs draw more than half of their students from outside the State

PERCENTAGE OF STUDENTS FROM THE STATE ARRAYED BY QUARTILES

CHART B FWPCA'S PROFESSIONAL TRAINING GRANT PROGRAMS NATIONAL CHARACTERISTICS

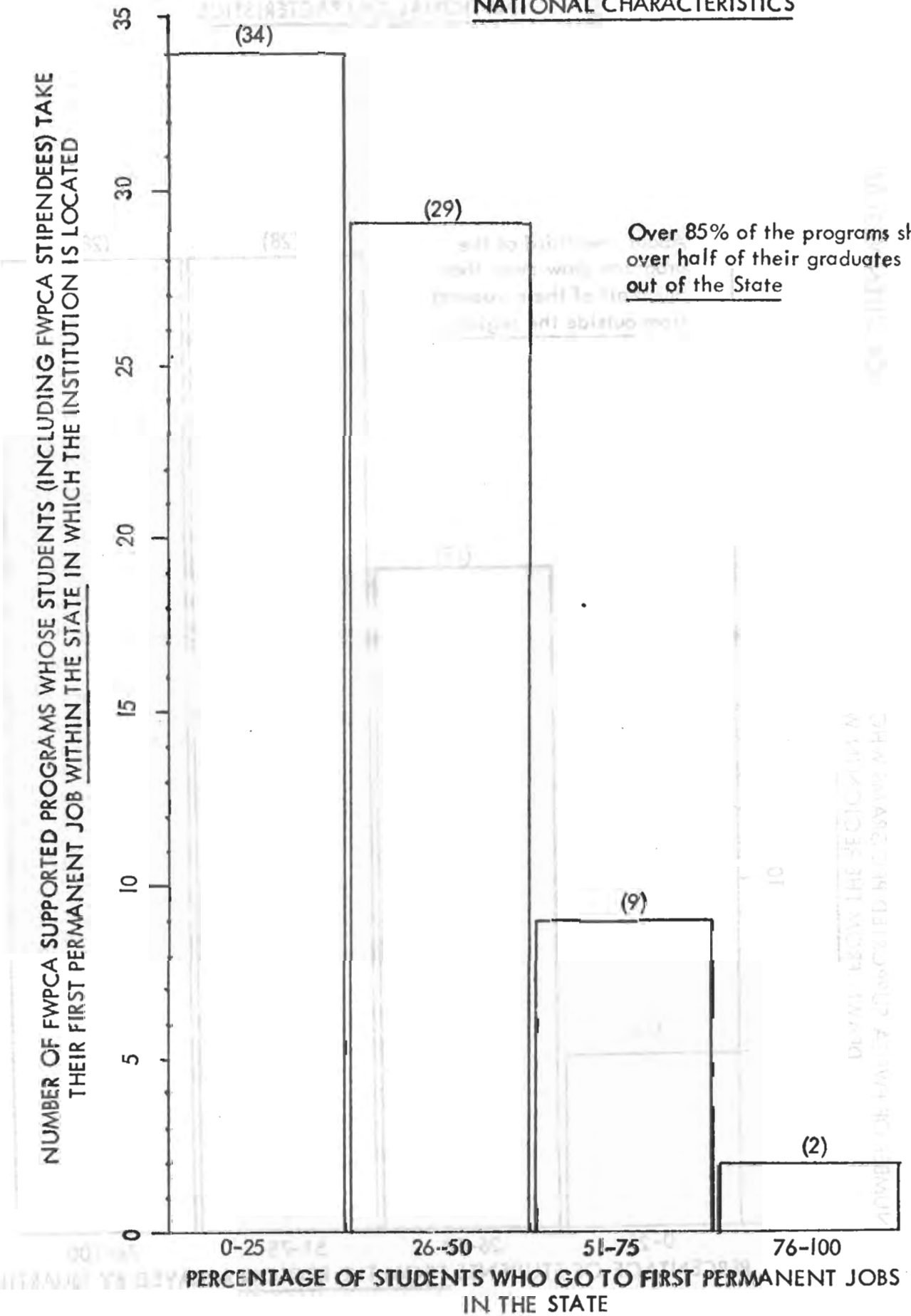
NUMBER OF FWPCA SUPPORTED PROGRAMS WHOSE STUDENTS (INCLUDING FWPCA STIPENDEES) ARE DRAWN FROM THE REGION IN WHICH THE INSTITUTION IS LOCATED



About one-third of the programs draw more than one-half of their students from outside the region.

PERCENTAGE OF STUDENTS FROM THE REGION ARRAYED BY QUARTILES

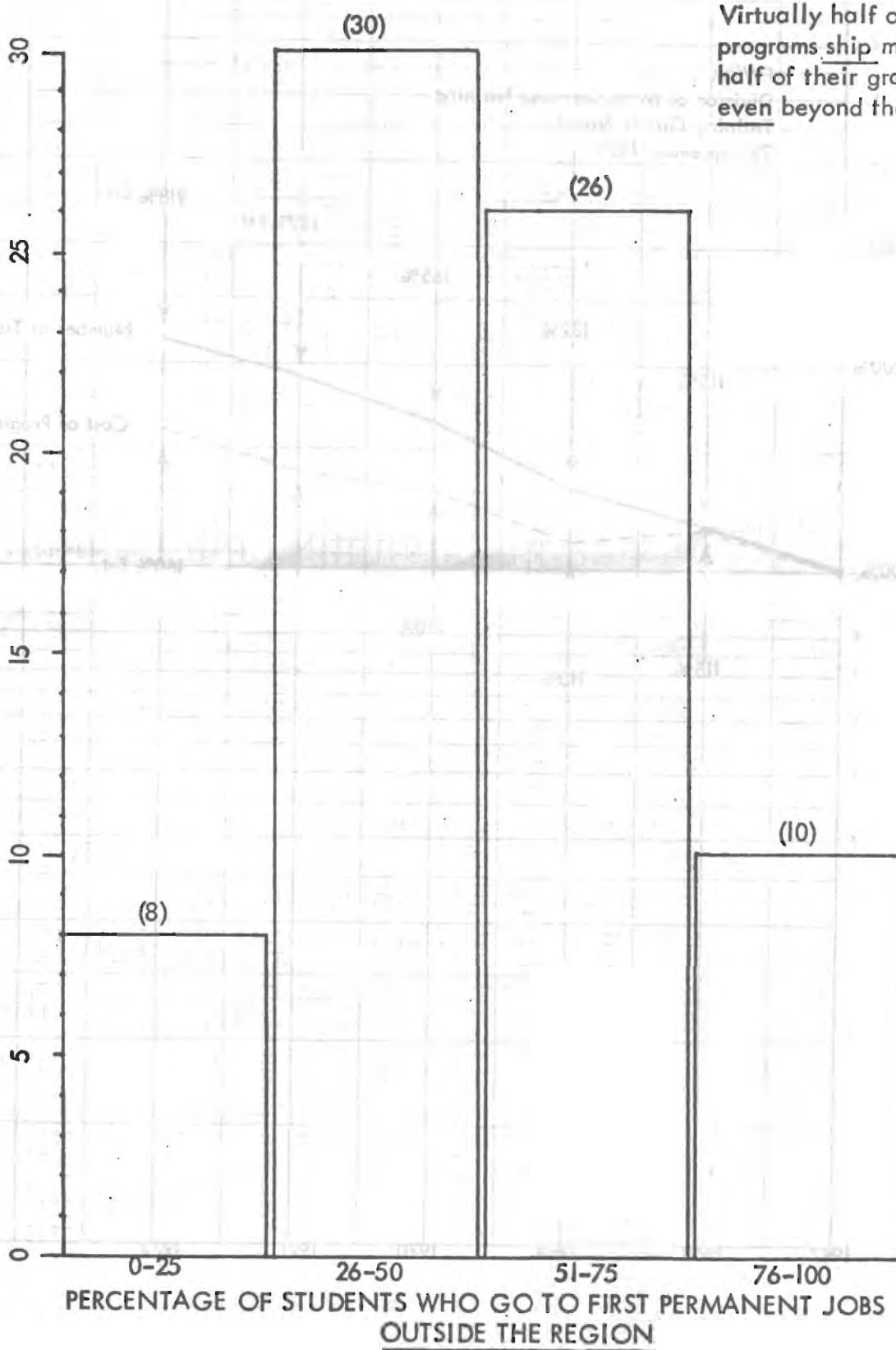
CHART C
FWPCA'S PROFESSIONAL TRAINING GRANT PROGRAMS
NATIONAL CHARACTERISTICS



Over 85% of the programs ship over half of their graduates out of the State

CHART D
FWPCA'S PROFESSIONAL TRAINING GRANTS PROGRAMS
NATIONAL CHARACTERISTICS

NUMBER OF FWPCA SUPPORTED PROGRAMS WHOSE STUDENTS (INCLUDING FWPCA STIPENDEES) TAKE THEIR FIRST PERMANENT JOB WITHIN THE REGION IN WHICH THE INSTITUTION IS LOCATED



Virtually half of the programs ship more than half of their graduates even beyond the region

CHART E

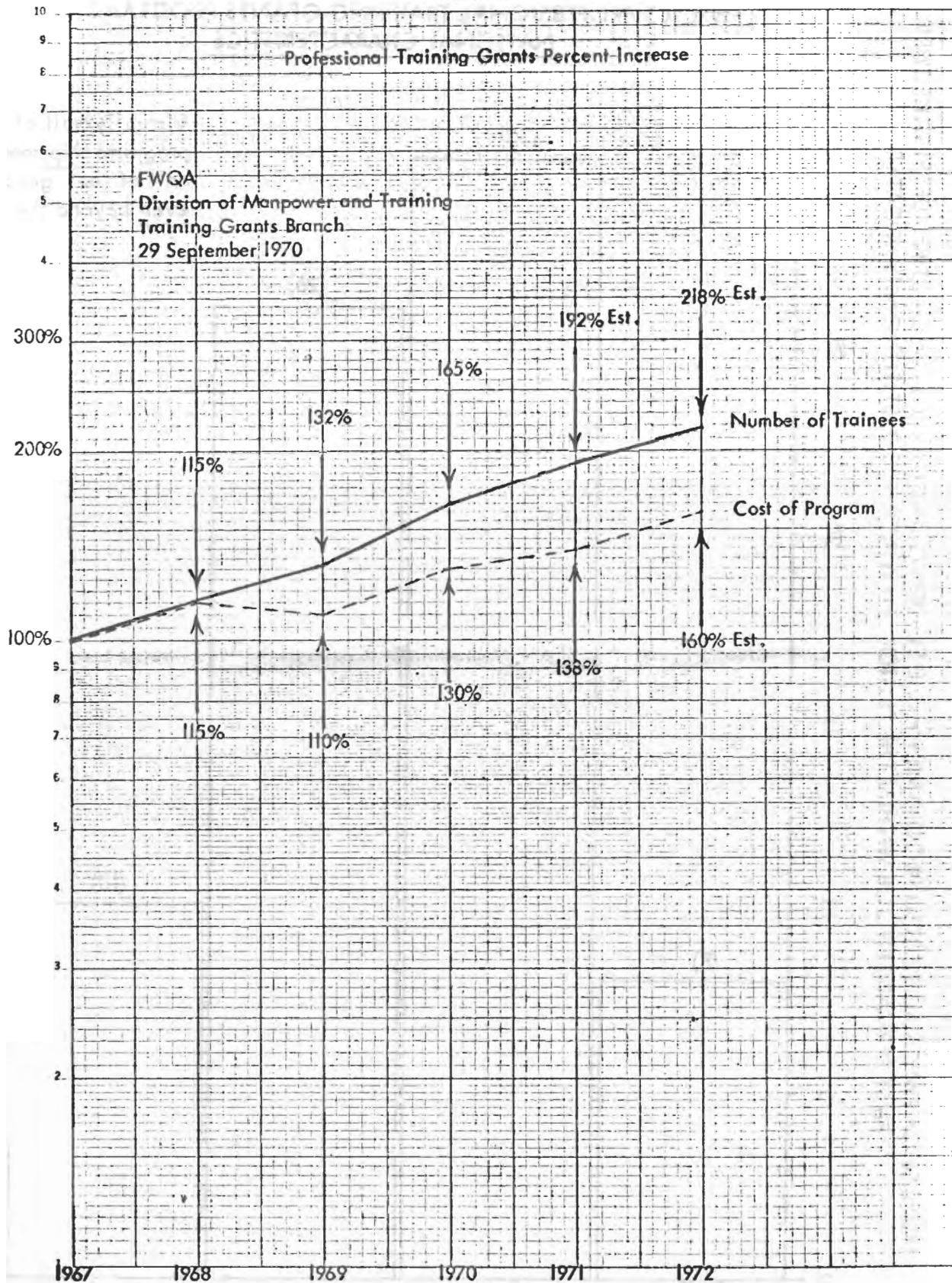
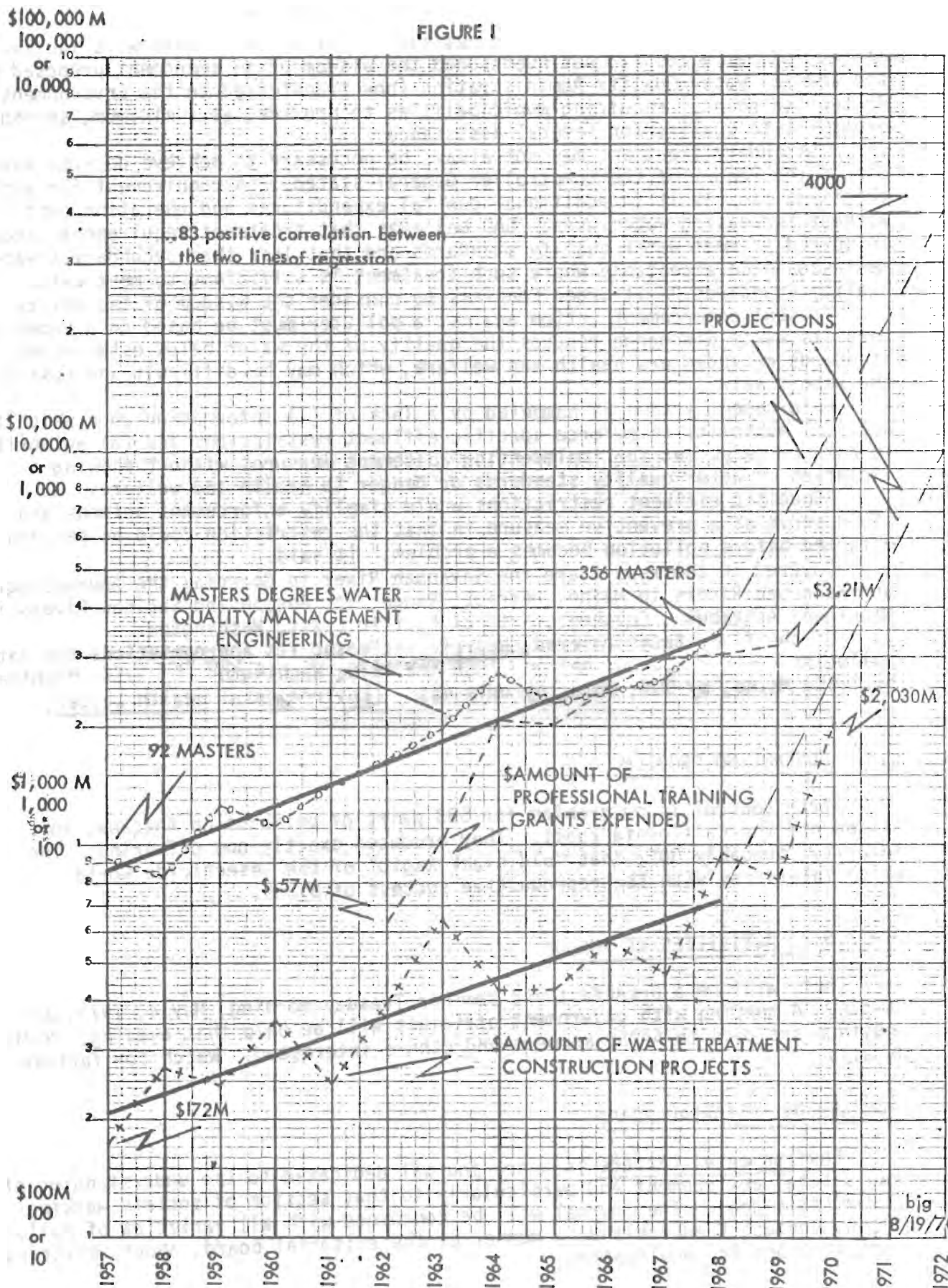


FIGURE I



GAO QUESTIONS WISDOM OF SECONDARY TREATMENT REQUIREMENT

The General Accounting Office has made a survey of 14 waterways in five states and, as a result, has questioned the wisdom of an amendment proposed by the Federal Water Quality Administration (now transferred to the Environmental Protection Agency) requiring municipalities to provide, as a minimum, secondary treatment to qualify for Federal assistance.

"Secondary treatment may not always be necessary to achieve desired water uses," the report of the Comptroller General stated. "A requirement for such treatment can result in additional capital expenditures and operating costs without increasing water uses. GAO believes that treatment requirements should be geared to meet water quality standards and that less than secondary treatment should be acceptable where such treatment is sufficient to meet water quality standards." It urged Congress to consider the wisdom of the policy.

Present enforcement action against a polluter must be based on a showing that its waste discharge reduces the quality of the water below established standards or endangers health and welfare, which may be difficult and costly the report said.

Enforcement action is hampered by a lack of (1) information upon which to act, (2) authority to enforce specific effluent restrictions and (3) authority to enforce dates set for implementing abatement measures without showing a violation of water quality standards or danger to health and welfare.

"Specific effluent restrictions would simplify enforcement actions and could serve as a preventive measure in that the restriction could be set and enforced before pollution becomes a problem," it said.

Covered in the report are the Savannah River in Georgia; the Androscoggin and Kennebec Rivers in Maine; Detroit, Rouge, St. Joseph and Saginaw Rivers in Michigan; Ashtabula, Cuyahoga, Area of Pacific Coast, Washington.

Of the five states covered, Georgia increased its appropriations for water pollution control by 408% between 1966 and 1970; Washington, by 395%; Michigan, by 104%; Maine, by 90%; Ohio, by only 45%. [Environmental Health Letter]

BIRTH CONTROL NO PROBLEM

Birth control is no problem for 533 pairs of pelicans on Anacapa, an island off the California coast. They produced exactly one offspring. The culprit: probably DDT, that "old black magic" of the insecticide world which interferes with the reproductive success of birds.

A.A.P.S.E. ACTIVITIES AT PURDUE

There will be a breakfast and seminar Tuesday morning, May 4, 1971, at Purdue. A meeting with government officials will be held that evening. Both meetings are open to AAPSE members and others interested. Watch for further details.

POHLAND ON EDITORIAL BOARD

Environmental Letters is a new journal dedicated to the understanding of man's total environment and particularly to that section of society working toward this goal. The journal will be concerned with all varieties of pollution. Contact Fred Pohland, a member of the editorial board, about remitting contributions for publication.



A.A.P.S.E. COMMITTEES

You will find a list of the AAPSE committees, committee chairmen, and board contact members following this paragraph. If you would like to participate in any of these committees, please fill out the form following the committee listing and send it in.

ARRANGEMENTS COMMITTEE

F. G. Pohland, Board Contact Member

A committee concerned with arrangements for 1971 Meetings of the Membership: (1) Purdue Conference, (b) WPCF - San Francisco, and (c) December Board.

AUDIT COMMITTEE

E. L. Thackston, Chairman

F. G. Pohland, Board Contact Member

The duties of this committee are to audit 1970 financial records and report at the 1971 Purdue Meeting.

AWARDS COMMITTEE

Peter A. Krenkel, Chairman

Rolf Skrinde, Board Contact Member

A committee appointed to review and establish selection criteria and to solicit nominations and select the recipient of the AAPSE biennial award for Outstanding Contributions to Teaching Sanitary Engineering Theory and Practice.

EDUCATION ("blue-ribbon") COMMITTEE

D. J. O'Connor, Chairman

R. C. Loehr, Board Contact Member

A special committee formulated to suggest a policy that AAPSE should follow over the next few years concerning environmental engineering education. Items for consideration will include:

- an undergraduate degree in environmental engineering
- better ways to meet manpower needs of the future
- guidelines for input to the "environmental generalist" area
- guidelines for continuing education activities
- integration and training of professionals of other disciplines in environmental engineering

ELIGIBILITY COMMITTEE

Billy H. Kornegay, Chairman

F. G. Pohland, Board Contact Member

A committee appointed to review and apply eligibility requirements for the selection of AAPSE members.



MANPOWER NEEDS COMMITTEE

Eddie J. Middlebrooks, Chairman
Wesley O. Pipes, Board Contact Member

A new committee appointed to delineate manpower needs of the profession and develop suggestions to meet these needs including such activities as:

- to provide a profile of practicing environmental engineers
- to determine the needs for environmental engineers in education, private practice, government and private research organizations

MEMBERSHIP COMMITTEE

Billy H. Kornegay, Chairman
F. G. Pohland, Board Contact Member

A committee appointed to promote membership in AAPSE and to maintain current listings of potential AAPSE members.

NEWSLETTER COMMITTEE

Benjamin C. Dysart, III, Chairman
John Austin, Board Contact Member

A committee responsible for publication and distribution of the AAPSE Newsletter and soliciting and preparation of special news releases concerning AAPSE activities.

NOMINATING COMMITTEE

D. J. O'Connor, Chairman
R. C. Loehr, Board Contact Member

A committee appointed to present an annual slate of candidates eligible for election by the membership to the Board of Directors.

OPERATION COMMITTEE

Raymond Kipp, Chairman
F. G. Pohland, Board Contact Member

A committee developed to coordinate the activities of the following three committees:

- Publications Committee - Joe Malina, Chairman
- Audit Committee - Ed Thackston, Chairman
- Arrangements Committee - (chairman to be named)

The committee will be composed of the chairman and the chairmen of the three component committees which will continue to function as before.



Kenneth D. Kerri, Chairman
Waldron McLellon, Board Contact Member

A new committee appointed to develop guidelines for educational activities in environmental engineering continuing education and operator training including such activities as to:

- suggest types of institutions, i.e., professional or non-professional, private or public, that should be involved
- suggest typical curricula and level of courses
- comment on the personnel who should be involved in training, i.e., course instructors
- suggest how AAPSE may best function in this education arena, i.e., what activities should it undertake, actual courses, seminars, workshops, conferences

PUBLICATION COMMITTEE

J. F. Malina, Chairman
F. G. Pohland, Board Contact Member

This committee will provide a central depository for AAPSE publications, investigate standard format and covers for Register revision, Workshop syllabus, etc.

REGISTER COMMITTEE (Education Resources Committee)

Russel F. Christman, Chairman
Rolf Skrinde, Board Contact Member

A committee appointed to advise the Board of Directors on needed action concerning the AAPSE Register, to handle requests and inquiries regarding inclusion in the Register, to advise on possibilities of a supplemental section of the Register for any changes or new programs, and to suggest appropriate timing for a new edition of the Register.

RESEARCH COMMITTEE

R. C. Loehr, Chairman
W. J. Weber, Jr., Vice-Chairman

This committee will delineate research objectives for AAPSE.

SEMINAR COMMITTEE

George P. Hanna, Chairman
Wesley O. Pipes, Board Contact Member

A committee appointed to arrange programs for seminars at meetings attended by AAPSE members.



UNDERGRADUATE ENVIRONMENTAL EDUCATION COMMITTEE

James E. Foxworthy, Chairman
David Jenkins, Board Contact Member

A committee appointed to develop guidelines for educational activities in the environmental generalist and engineering areas at the undergraduate level including such activities as to suggest:

- the role of engineering in the training of environmental generalists
- methods to increase the environmental engineering content of undergraduate engineering programs
- institutional arrangements to train environmental engineers at the undergraduate level
- typical curricula and level of courses for both of these areas
- how AAPSE may best function in these educational areas

USANC COMMITTEE

D. J. O'Connor, Chairman
R. C. Loehr, Board Contact Member

A committee appointed to represent AAPSE interests on the U.S.A. National Committee of the International Association of Water Pollution Research.

VISITING LECTURER COMMITTEE

Joe Malina, Chairman
Wayne Echelberger, Jr., Board Contact Member

A committee responsible for consideration and selection of one or two AAPSE visiting lecturers each year, solicitation of participation by interested institutions, and arrangement of associated travel and itinerary.

WORKSHOP COMMITTEE

J. Scherfig, Chairman
W. F. Echelberger, Board Contact Member

A committee appointed to arrange workshops on timely topics of interest to the AAPSE membership and environmental engineering education.

AD HOC PUBLIC INFORMATION COMMITTEE

E. R. Baumann, Chairman
R. C. Loehr, Board Contact Member

A special committee appointed to explore the possibilities of preparing a bulletin or brochure describing AAPSE, its goals, accomplishments to date, and future aspirations. To implement this effort, John Austin, David Jenkins, and Fred Pohland were requested to provide the chairman pertinent material and information with Echelberger and Jenkins also requested to pursue possible styles of publication. A report from the committee is to be provided for the Board meeting at Purdue in May, 1971.

AD HOC LABORATORY MANUAL COMMITTEE

J. T. O'Connor, Chairman
W. M. McLellan, Board Contact Member

A committee appointed to prepare a laboratory Unit Operations and Processes manual for water and wastewater treatment.

D. Jenkins, Chairman and Board Contact Member

This committee will develop a manual to assist in teaching the fundamentals of chemistry in environmental engineering.

I would be interested in being a member of the following AAPSE Committee:

Signed _____

Return to: R. C. Loehr
207 Riley-Robb
Cornell University
Ithaca, New York 14850

Please change my address to the following: (Include complete name, address, and zip code)

Please return to the Editor
of the AAPSE Newsletter....



*"Extinction? That means the inability
to adjust to man's blunders!"*