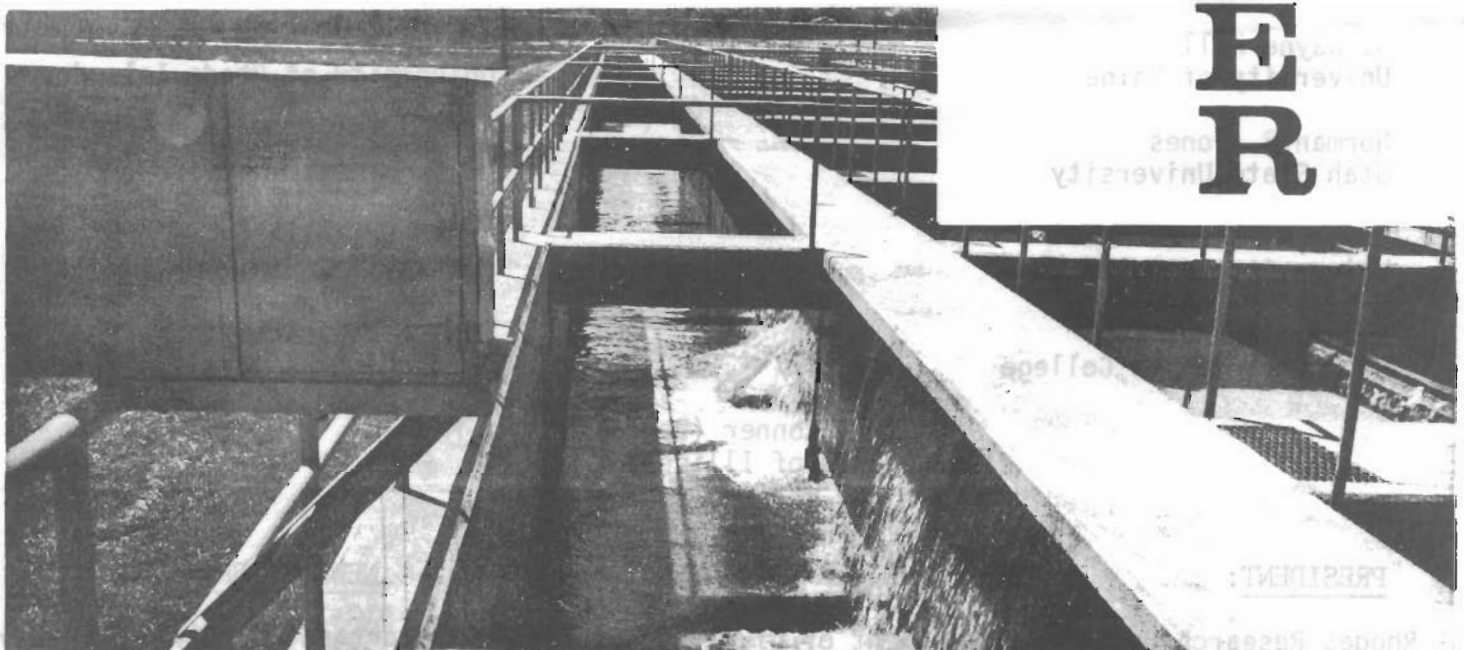


**American  
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JULY 1972

VOLUME 7, NUMBER 4

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65,000 acronyms such as AIRNOW and XSMOG have been battling smog in California ever since 1970. Over \$1.5-million has been raised from the sale of the personalized license plates, with most of it going toward air pollution cleanup. Although **at least 25** other states use personalized plates as an additional source of revenue, only California uses the money strictly for the environment.

\* \* \* \* \*

When he recently endorsed a huge pulpwood project which Brazil would undertake for Japanese paper producers, Joao Paulo Velloso, Brazil's Planning Minister, stated: "Brazil can become the importer of pollution. Why not? We have a lot left to pollute. They don't."

## AAPSE COMMITTEE ACTIVITY

### New Chairman For Undergraduate Environmental Education Committee

Dr. Robert O. Sylvester, University of Washington, has been appointed to replace Dr. James E. Foxworthy who recently resigned as chairman of the AAPSE Undergraduate Environmental Education Committee. Under Dr. Sylvester's leadership, the committee will continue to develop guidelines for educational activities in the environmental engineering areas at the undergraduate level.

### Operator And Continuing Education Committee Meets In July

Under the leadership of its chairman, Dr. A. T. Wallace, University of Idaho, the Committee on Operator and Continuing Education has been attempting to establish a working relationship with AWWA in order to assist them in the preparation of needed training materials. Specifically, these consist of the following:

- a. A self-instructional training manual similar to the one prepared by Dr. K. Kerri for sewage treatment plant operators.
- b. A 2 x 2 colored slide set to be used by short school lecturers.

Most of the Committee will get together in July at the National Decision Maker's Workshop to discuss our charges and progress. Any input from the Association membership prior to that time would be welcome.

### Seminar Committee Presents Workshop At Purdue

"How Should A Design Course In Sanitary Engineering Be Taught" was the seminar topic presented at the 27th Annual Purdue Industrial Waste Conference. Dr. E. Corbin McGriff, seminar committee member, substituting for Dr. Adnan Shindala, seminar committee chairman, presided over the Purdue seminar. Dr. Richard I. Dick, University of Illinois, and Drs. Walter O'Brien and Carl Burkhead, University of Kansas, presented the design approach used at their respective schools.

Richard Dick indicated that at the University of Illinois the design course involved both water and wastewater treatment plant design in one four-hour semester course. The associated prerequisites are theory of water treatment and theory of wastewater treatment. This design course includes three to four hours of lecture per week out of an eight hour per week schedule. The distribution of student effort is divided among design life, flow prediction, costs, water treatment plants, waste treatment plants, optimization of design, hydraulic profiles, pumping stations design, and discussion of design and equipment literature.

Drs. O'Brien and Burkhead outlined the approach to design used at the University of Kansas. Essentially, this approach consists of a

series of courses beginning at the sophomore level and continuing through the graduate level. The graduate level courses are divided into Biological Waste Treatment Systems, three Hours, and Physical and Chemical Treatment Process I and II, three hours each. The design effort is divided among general process description, application, operating data, theory, design concepts related to basic processes, and summary of key concepts.

Dr. W. McLellon of Florida Technological Institute commented on how his design course will involve an actual land use plan near Disney World to develop a water and wastewater treatment plan.

The large attendance at the Purdue seminar, which indicated the importance of the subject, coupled with the information presented made the seminar a success. Sincere appreciation is extended to Drs. Richard Dick, Carl Burkhead, and Walter O'Brien from the members of the seminar committee for a job well done.

- E. Corbin McGriff

#### REGISTER COMMITTEE PLANS FORTHCOMING REVISION

The last edition of the EEIB/AAPSE "Register of Graduate Programs in the Field of Sanitary Engineering Education" was published in 1969. Over the past three years, many developments have taken place in environmental and sanitary engineering graduate education. The emphasis of numerous programs has changed as well as the faculty and curriculum.

The register Committee is charged with preparing an updated and more effective "Register" for the use of environmental engineering educators, prospective graduate students and faculty, governmental agencies that support environmental research and education, as well as agencies, consulting firms, and industries that desire to become more familiar with such programs and the backgrounds of their graduates.

To date, the members of the Register Committee (Ray Abernathy, Ben Dysart (chm.), Jon Liebman, Dan Okun, and Fred Pohland) have reviewed the current (1969) "Register" and have made suggestions regarding changes in format, additional information to be included, material which should be deleted, etc. The overall objective is to produce a more accurate and useful reference for the entire environmental engineering profession.

Any interested individual, AAPSE member or non-member, who has any suggestions for improvement of the "Register" is invited to submit his recommendations or comments to the chairman or any other member of the Register Committee. Is there any type of information that would make the "Register" more useful to you or more effective? Within the next month, a revised format will probably be submitted to the AAPSE Board and the membership for comments.

RAY KIPP NAMED DEAN AT MARQUETTE

Raymond J. Kipp, Marquette professor of civil engineering, has been named dean of the University's college of engineering. Announcement of the appointment, effective April 1, was made by the Very Rev. John P. Raynor, S.J., Marquette President. Kipp, who has been serving as acting dean since March, 1971, was recommended for the position by the Office of Academic Affairs following a year-long, nationwide search by a faculty-student-alumni committee.

A native of Ossian, Iowa, Kipp, 49, holds a B.S. degree in civil engineering from Marquette and a master's degree and doctorate in civil engineering from the University of Wisconsin-Madison. Following two years of service as an assistant city engineer for the city of Los Angeles, he joined the Marquette faculty. Kipp was named chairman of the University's civil engineering department in 1965.

An active member of AAPSE, Ray also serves as a consultant to many private firms and public agencies including the Metropolitan Sanitary District of Chicago and the Southeast Wisconsin Regional Planning Commission.

JOE SHERRARD JOINS OKLAHOMA STATE STAFF

Dr. Joe Sherrard, a recent graduate of the University of California at Davis and presently Zurn Post-Doctoral Fellow at Cornell University is joining the faculty at Oklahoma State University. He will be an Assistant Professor in the Environmental Engineering program.

DONALD CARR VISITING PROFESSOR AT CLEMSON

Dr. A. Donald Carr is a Visiting Professor in the Environmental Systems Engineering Department at Clemson University during 1972. Dr. Carr is Head of the Department of Chemical Engineering at the University of Cape Town, South Africa, where he was Dean of Engineering from 1968-70. He received his degrees in Chemical Engineering at the University of Cape Town and has industrial experience in Britain. In 1964-65, Dr. Carr was Visiting Professor in the Chemical Engineering Department at the University of Michigan. His teaching and research interests are in the areas of heat and mass transfer and fluid dynamics. He will present two papers at the AIChE/ASME heat transfer meeting this August in Denver, one on liquid-metal heat transfer and the other on turbulence in heated air flows.

ACADEMIC POSITION AVAILABLE

The Department of Civil Engineering at the University of Saskatchewan is currently receiving applications for a prospective faculty member to be appointed July 1, 1973, as an assistant or associate professor. Applicants should be at Ph.D. level, have a background in systems or chemistry associated with environment engineering, and have a desire to teach undergraduate as well as graduate classes. Write Dr. A. H. Douglas, Head and Professor of Civil Engineering, University of Saskatchewan, Saskatoon, Canada.

OPERATOR TRAINING WORKSHOP AT WPCF ATLANTA MEETING

The Water Pollution Control Federation is sponsoring an operator training workshop in Atlanta, Georgia on October 7-8, 1972. A portion of this program will be devoted to operator training activities in universities. If you would like to submit an abstract of your activities, please do so as soon as possible. All abstracts should be sent directly to:

Mr. John A. Voegtle, P. E.  
 Manager, Education and Training  
 Water Pollution Control Federation  
 3900 Wisconsin Avenue, N.W.  
 Washington, D. C. 20016

N. W. F./A.P.I. CONSERVATION GRANTS AWARDED

Nearly \$60,000 in conservation grant funds have been awarded for the 1972-73 academic year to 22 doctoral and post-doctoral students by the National Wildlife Federation and the American Petroleum Institute. The recipients, representing 21 institutions throughout the U. S. and Canada, were selected from more than 200 applicants. The awards ranged from \$600 to \$4,000, and the N. W. F. share was \$49,630. The grand total, \$59,430, was supplemented by matching grant funds from the American Petroleum Institute totaling \$9,800. Over \$300,000 has now been channeled to doctoral candidates since the N. W. F. began the program.

The proposed projects to be funded include 4 directed by AAPSE members. These are as follows:

1. Mr. Robert L. Anderson, Montana State University, Department of Civil Engineering & Engineering Mechanics, "Mathematical Modeling of Natural Resource Systems," Adviser: Dr. Robert L. Sanks (renewal of 1971-72 fellowship).
2. Mr. Victor J. Bierman, Jr., University of Notre Dame, Civil Engineering Department, "Dynamic Ecological Model of an Eutrophic Lake System," Advisers: Dr. Mark W. Tenney and Dr. Wayne F. Echelberger, Jr.
3. Mr. Ralph J. Churchill, University of California-Berkeley, Civil Engineering Department, "Effects of Coagulating Chemicals on the Removal of Oil from Wastewaters," Adviser: Dr. Warren J. Kaufman (A. P. I. matching fellowship).
4. Mr. David W. York, Clemson University, Environmental Systems Engineering Department, "Evaluation of Benefits Derivable from Multipurpose Management of Water and Related Land Resources Systems," Adviser: Dr. B. C. Dysart, III.

AAPSE WORKSHOP AT TORONTO AUGUST 8-10

The AAPSE Workshop on "Interdisciplinary Education Programmes for Environmental Engineers" will be held at Toronto on August 8-10, 1972. (Please note the one day postponement from previous announcements due to a Civic Holiday in Toronto). A fine program has been arranged under the direction of Workshop Chairman, Gary W. Heinke, Department of Civil Engineering, University of Toronto, Toronto 181, Canada. Please write to him if you need more detailed information.

The meetings will be held on the Campus at the University of Toronto. The Institute of Environmental Sciences and Engineering, University of Toronto is co-sponsoring the Workshop. Accomodation will be arranged at the new Hyatt House Hotel or at University Residences. Both are located a few steps from the University and from the main shopping area.

The Conference program is as follows:

**Tuesday, August 8**

**8:00 Registration - McLennon Physical Laboratories**

**8:45 Welcome Address - G. de B. Robinson**

**THEME:** Undergraduate education in environmental engineering. An examination of the educational requirements and offerings, past, present and future.

**Session I**

**Chairman:** Ben B. Ewing  
Need and training for generalists and future specialists.

**9:00 The viewpoint of a municipal employer**  
A. O'Donohue

**9:30 The viewpoint of a government employer**  
A. Breidenbach

**10:00 An Undergraduate degree programme in Environmental Engineering.**

**10:15 The case for it: L. Grady**  
**The case against it: W. J. Kaufman**

**11:15 Discussion**

**12:00 Lunch**

**Session II**

**Chairman:** D. H. Waller  
Past, present and future trends in environmental content within undergraduate curricula.



- 1:30 In United States To be announced  
 In Canada K. L. Murphy  
 In Europe G. Ganczarczyk,  
 B. Faddoul-Ashkar
- 2:30 Essential differences in academic programmes for ecology and  
 environmental engineering.  
 W. O. Pipes
- 3:00 Discussion
- 3:30 Coffee
- 3:45 Panel Presentation and Discussion: Experiences at several  
 to universities in undergraduate environmental programmes.  
 5:00 V. W. Bacon, G. Francis, R. W. Shade
- 6:00 Evening Reception: Music Room, Hart House

Wednesday, August 9

THEME: Interdisciplinary Teaching

Session III

Chairman: T. C. Hutchinson

- 9:00 Experiences in teaching "Man and His Environment" type under-  
 graduate classes.  
 W. M. McLellon, P. C. Singer, P. A. Vesilind
- 10:00 Discussion
- 10:30 Coffee
- 10:45 Experiences in teaching graduate interdisciplinary courses.  
 J. Swan, W. W. Shuster
- 11:30 Discussion
- 12:00 Lunch

Tuesday Afternoon

THEME: Interaction

Session IV

Chairman: John Dales

- 1:30 The role of engineers towards environmental quality - the  
 viewpoint of a non-engineer.  
 K. Hare

- 2:00 Environmental Programmes without Environmental Engineers.  
H. R. Bungay, III
- 2:30 Disucssion
- 3:00 Coffee
- 3:15 Environmental Programmes at Community Colleges in the U.S.  
A. L. Pratt
- 3:45 Environmental Programmes at Community Colleges in Canada.  
R. Ketchum
- 4:15 to 5:00 Discussion

Thursday, August 10

Session V

Chairman: W. M. McLellon

- 9:00 Environmental Control Workshops for decision makers.  
J. H. Austin, G. Ziener
- 9:30 Discussion
- 10:00 Coffee
- 10:15 Structures for new units for environmental studies in universities:  
Panel Presentation  
B. Ewing, P. H. Jones, R. O. Sylvester, M. Slivitzky
- 11:15 Discussion
- 12:00 Lunch

Session VI

Chairman: Wayne Echelberger

- 1:30 U.S. Government support programmes for environmental studies  
at universities.  
B. J. Lucko
- 1:50 Canadian Government support programmes for environmental studies  
at universities.  
H. F. Fletcher
- 2:10 Discussion
- 2:30 Does AAPSE as an organization have a role to play in helping to  
establish interdisciplinary programmes at universities?  
Panel
- 3:30 Conference Conclusion and Summary

## AAPSE V.P. DISCUSSES EPA TRAINING GRANT CUTBACK

(Editor's Note: The following text is a summary of the remarks of Richard Dick, AAPSE Vice-President, at a recent meeting of the Federal Water Quality Association in Washington, D. C.)

Currently, about 1200 students in the United States are studying in the water quality control area with the aid of financial support from the 99 training grants funded by the Environmental Protection Agency. In view of your principal interest in water, I will confine my remarks to the water quality training area although similar EPA training programs exist in areas such as air, solid wastes, and radiological health.

If past experience holds true, about 35 to 40 percent of these trainees will find employment with local, state and federal governmental agencies. Twenty-five to thirty percent will go into the consulting field, 15 to 20 percent will go to industry, and a similar fraction will go into teaching and research.

The loyalty of these graduates to the water quality control field is very high as is their employability. Previous surveys have indicated that the total of the fraction of graduates who left the water quality field and the fraction unemployed is less than half of the national unemployment rate.

### Nature of Training Grants

In the early years of training grants, sizable fractions of support went to the development of training facilities and faculty. This professional training capability is now well developed, and over 80 percent of federal training expenditures in this field now go directly for student support.

For those unfamiliar with the mechanics of the training grant program, it should be explained that the grants are made directly to universities which, in turn, distribute the funds to qualified trainees they select. The basic stipend level currently is \$2400 per year, and a few advanced graduate students are supported at higher levels up to \$2800 per year. In addition, a \$500 dependents allowance is provided and trainees receive waiver of tuition and fees. Most students are in the training program for a period of one year and receive a M.S. degree at the end of that time. Nationally, the average period of trainee support is 13 months.

In 1971 the total federal training support per trainee averaged \$4340. This is almost exactly one-half of the expenditure per trainee in the early years of the program. The two-fold reduction in the cost per trainee reflects reduced expenditures for faculty and facilities.

These training programs, of course, train students in addition to those supported by the EPA training grants, but the grants are by far the greatest single source of students. Currently, slightly over 50 percent of the students training in the water quality area at universities

receiving EPA support are EPA trainees. The other students do not derive direct aid from the EPA but benefit indirectly because the EPA training activity makes the programs in which they participate more substantial.

### Manpower Needs

Graduates from the training programs are filling a definite need. The large future anticipated manpower needs in the area of water quality control have been documented (for example, in "Manpower and Training Needs in Water Pollution Control," Document 49, 90th Congress, August 2, 1967), and I would like to comment only briefly on this matter.

The American Association of Professors in Sanitary Engineering currently is carrying out a study on manpower needs for the future with the help of support from the Consulting Engineers Council and the Environmental Protection Agency. This work has been done by Professor E. J. Middlebrooks at Utah State who kindly has provided me with some of his preliminary results. He has contacted over 8,000 consulting firms in the United States to inquire about their manpower needs in the water quality area. From the responses, he selected 268 firms with a total 1970 waste treatment construction volume of \$4.6 billion. This constitutes virtually all of the 1970 construction in this area. These firms indicated that they had 7600 professional employees. Professor Middlebrooks asked them how many professionals they would need in 1972 if the current level of federal expenditures stayed the same. The answer was 8700 - an increase of 1100. The same question for 1976 indicated a required level of 11,900 professional employees. He also inquired as to their anticipated professional employment needs should the level of federal construction grant expenditures double. The response was 11,200 for 1972 and 16,700 for 1976. The latter figure is more than twice the 1971 level of employment of these firms. Professor Middlebrooks is conducting similar inquiries with industry and is obtaining similar results. A coordinated survey of state government needs is being conducted by EPA.

With the future holding tasks such as presented by the zero discharge provisions of S 2770 and HR 11896 it would seem that ample challenges remain for qualified trained people in the water quality area. Because of the prominence of the EPA training activities in the overall water quality control training effort, our ability to provide the manpower to meet these challenges is highly dependent on the future of federal training support.

### Federal Curtailment of Training Activities

In view of the increased manpower needs and the apparent success of training programs in the past, it's difficult to understand the Environmental Protection Agency's curtailment of support. Yet the proposed FY 1973 training budget has been reduced by \$3 million.

One argument to support the proposed reduction has been that many trained scientists and engineers are currently unemployed and available. The correlary to this argument is that I am qualified to

design a space ship. I assure you that this is not true. Similarly, it is not true that the unemployed scientists and engineers are capable of moving directly into the water quality control field. Scientists and engineers are trained in rather specific areas and cannot change hats so easily. It is true that with adequate training in the chemical, physical, biological, economical, and social aspects of the water quality control field, these scientists and engineers represent a considerable potential. Indeed, some of these scientists and engineers currently hold traineeships in programs supported by the Environmental Protection Agency.

A second argument to support training cuts is that there are now many universities offering training in the environmental areas and many students are entering the field. This is true - it is true because of the present EPA support. Development of the existing programs has been due to this federal support, and having built the factories and established the need for the finished products, it seems unfortunate to shut off the supply of raw materials. Yet, as I've indicated, over half of the students in such programs currently receive EPA support. The curtailment of this support could have a traumatic effect on existing programs and, unfortunately, it would occur at a time when public and private universities are generally ill prepared to pick up the pieces.

The final argument offered in support of the proposed reduction of training activities is that adequate research support is available from EPA, NSF, and other agencies. I wish this were true. It isn't. EPA research grants are becoming virtually extinct. Available research support is now almost all in the form of research contracts. In contrast to research grants, these contracts are not a desirable source of student support. This is because it is extremely difficult for university professors to meet contractual obligations and schedules using employees who are partially-trained, part-time and transient. In addition, the sporadic, short-term nature of such contracts does not give the continuing base of support required for a viable training program. Thus, while it is true that much federal support is available, most of the work is being carried out by industrial research and development groups, consulting engineering firms, and similar organizations.

### Summary

In summary, the future promises an increased demand for professionals trained in the water quality control area. Federal training support in the past has proven to be a successful means of meeting this demand. Whereas facilities and faculties for meeting the current training demands are essentially in existence, over half the students in such programs rely on the Environmental Protection Agency for support. A precipitous reduction in that support could have disastrous effects on the output from such programs and, indeed, could lead to dissipation of existing training capabilities.

Perhaps the federal training program which was successful in the 1960's is not what is needed in the 1970's. The EPA's current posture with

regard to training would seem to be symptomatic of that. Perhaps some imaginative new thinking is needed on support of water quality control training activities. If AAPSE can be of any service by meeting with EPA officials concerned with manpower, research, and training on this matter, we would be happy to do so. The object of such an effort would be to seek a solution which would meet EPA's needs and assure satisfaction of the manpower requirements in future years.

#### PARTIAL TUITION GRANTS AVAILABLE FOR UNIVERSITY OF MICHIGAN SHORT COURSE

The last issue of the NEWSLETTER contained an announcement of a Summer Institute Course on Physicochemical Processes for Industrial and Municipal Water Pollution Control at the University of Michigan, August 14-18, 1972. Professor Walter Weber, Director of the program, has indicated that partial tuition grants are available for faculty and staff who hold teaching appointments in four-year, degree granting universities or colleges. The amount of this grant is \$125, and it is applied directly to the course tuition of \$275. Applicants should request Faculty Advancement Program information and forms from Mr. Warren Wilkinson, Engineering Summer Conferences, Chrysler Center - North Campus, The University of Michigan, Ann Arbor, Michigan 48105.

#### NEW MEMBERS

The following persons have recently joined AAPSE:

**Dr. Vulli L. Gupta**  
Associate Professor of Civil Engineering  
University of Nevada  
Reno, Nevada

**Dr. John Nesbitt**  
Professor of Civil Engineering  
Pennsylvania State University

**Dr. James E. Etzel**  
Professor of Civil Engineering  
Purdue University

**Dr. A. J. McDonnell**  
Associate Professor of Civil Engineering  
Pennsylvania State University

**Dr. Atya Benzina**  
Assistant Professor of Civil Engineering  
Sir George Williams University  
Montreal, Canada

ASSISTANCE REQUESTED FOR MANPOWER STUDY

A program planning group at Wright State University, Dayton, Ohio, is trying to assess the national manpower needs for an interdisciplinary program in Social Systems Analysis and Administration. They would greatly appreciate AAPSE members and others sending information (including survey data if available) about administrative or research positions in our field for which there are present or projected manpower shortages. In particular, they need to know of administrative, professional practice, or research positions for which a graduate degree would be appropriate.

In addition to their work regarding social systems, they are also concerned with assessing manpower needs in other areas at both the doctoral and at the master's level. Thus if you can identify needs for which other types of graduate programs would be appropriate, they would find the information most useful.

Please direct your response to Dr. A. C. MacKinney, Dean, Division of Graduate Studies, Wright State University, Dayton, Ohio 45431.

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Please detach and mail to:

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Virginia Polytechnic Institute and State University  
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A.A.P.S.E. NEWSLETTER

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