NEWS TO ME

GLEANINGS BY YOUR EDITOR

Vocational Education Week is February 7 through February 13. What are you doing to promote your profession?

The U.S. Office of Education estimates that the United States needs 15,000 more vocational teachers today and by 1975 the figure could grow to 75,000. This number will be needed to give instruction to the 17.2 million expected enrollment in vocational classes.

The number of individuals qualified to teach vocational agriculture increased by 70% from 1965 to 1970 but only 50% of those qualified in 1970 entered teaching. This is the smallest percent in 5 years according to Ralph Woodin, The Ohio State University, chairman of the AATEA Committee on Teacher Recruitment. There are some states which qualified an abundance, while other states failed to qualify sufficient teachers. However, only 10% of the teachers qualified in 1970 crossed state lines for employment.

Twenty-one percent of the total AVA membership is in the Agricultural Division. C.M. Lawrence, Administrator, Agricultural Education, State Department of Education, Florida continues as president of the Agricultural Education Division of AVA.

The 1970 AVA Convention, held in New Orleans, December 5-9, 1970, had the highest registration of any national convention ever held. Over 400 separate meetings were scheduled during the convention. C. L. Mondart, supervisor in Louisiana, was convention program chairman for the Agricultural Education Division.

There is great confusion existing today as to what is agriculture. Talk to people about agriculture and some don't know what you had in mind. Some think it is only farming. A point many people miss is that farming and agriculture are not always synonymous. Agriculture is the business of putting 205 million breakfasts, 205 million lunches, 205 million dinners — 615 million meals a day on the table for 205 million Americans. Out of every 100 jobs in private industry, 33 are related to agriculture and food.

The opportunities in agriculture are so numerous that the most important criteria for the man or woman seeking a career in this area is desire. The latitude of available jobs in our industry are so great it is likely a prospect has the necessary aptitude to fill a niche somewhere. The most important word in the last sentence is prospect.

Agriculture must convince talented young people both rural and urban, boys and girls, that we have challenging opportunities available. — Dr. M. R. McClung, West Virginia University in *Food and Agriculture in West Virginia.*

The 1971 AVA Convention will be held in Portland, Oregon December 3-8.

Over $26 million of federal funds were spent for vocational education in 1969. This was 12.8% of the total federal appropriation for vocational education, or an average of $20.57 per student. Total enrollment in agriculture was 850,705, or 10% of the total number of students. Thirty-four percent of the total enrollment were in adult classes.

A mailing directory of post-high school programs in agriculture has been compiled by Maynard Iverson, Research Associate in the Department of Agricultural Education of The Ohio State University. Entitled "1970-71 Directory of Post-Secondary Education in Agriculture and Natural Resources Occupations," the publication lists, by states, the name and address of the institution, the agricultural programs offered and the individual to contact for information. A copy of the publication is available from the author or through The Ohio State Agricultural Education Curriculum Materials Service, Room 201, 2120 Fyffe Road, Columbus, Ohio 43210.

Our amazing farm productivity is a chief reason for our national affluence. According to *Farm Journal,* the fact we can spend 86¢ out of every dollar of personal income for things other than food allows us to support a wide range of consumer goods and services. We can pour money into education, the arts, household appliances, automobiles, sports, housing, highways, airplanes, electrical power, hospitals and many other activities in amounts that beat any other country.

Farmers are industry's best customer, using each year ⅓ as much steel as the automobile industry; enough rubber to put tires on 85% of the new cars, and more petroleum than any other industry. Farming employs more people than any other industry and is the biggest customer for the products of the nation's workers. — Editorial in Oct. 1970 *Farm Journal*

A survey in Alabama showed 13,31[illegible] annual employment opportunities in agri-business in their state. Last year Alabama graduated 4,580 students in vocational agriculture at the secondary level. There must be opportunities for employment in Alabama for a lot of people with limited training. Who said there wasn't any future in agriculture?

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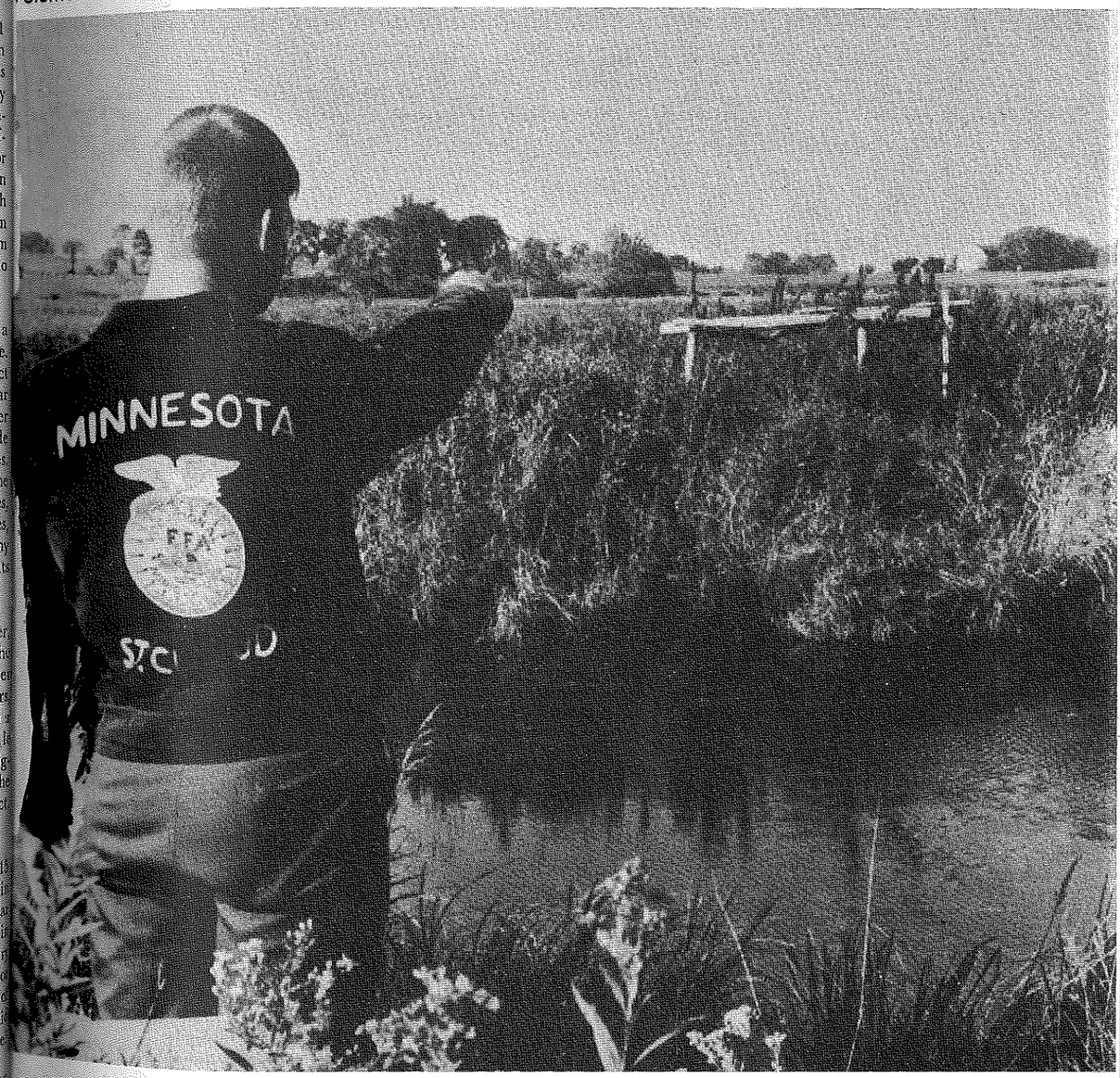

ENVIRONMENTAL SCIENCE EDUCATION

The
Agricultural Education
Magazine

EDPRESS Vol. 43 March 1971 No. 9

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COVER PICTURE

John Salzer, former president of his local FFA chapter, is farming with his dad. He is examining a local area and thinking about the ecological relationships of clean water, plant cover and wildlife populations as habitat is developed and restored. (Photo by Harlan Jopp, instructor, submitted by W. J. Kortesmaki, State FFA Executive Secretary.)

Editorials

From the Editor . . .

BRIDGES


Harry W. Kitts

Our lives depend upon bridges. Daily we pass over steel and concrete structures that enable us to cross over a stream or river or avoid going down into deep chasms and up the other side. Bridges may shorten or straighten the path. They make our progress easier. But there are other bridges in our lives not made of material things. One of the important bridges in our daily life is the bridge of COMMUNICATION. We need to talk to each other as individuals and nations spanning the racial, political, economic, religious, language and cultural barriers. We need to understand each other and to work more closely and harmoniously with each other. Ecology, conservation, pollution may be new areas to some people. This issue is devoted to articles emphasizing the importance of the problem. Authors tell of the activities of individuals and groups at the local, regional, state and national level to work together on this gigantic problem. This issue of the magazine is a bridge of CONVENIENCE. By picture and print we may be able to speed the process, reduce the cost and increase the understanding and appreciation of many individuals. If a reader gets a suggestion for an activity which he or his students may do to increase the efforts to solve the problems relating to pollution and conservation in our society today, this issue may be worth the time and effort devoted to its preparation. We approach the bridge of CHALLENGE. Many individuals stop at the bridge of CUSTOM. They do not have the strength, the money or the desire to continue their journey farther. For the people who continue on the road to the bridge of CHALLENGE, life often becomes fuller of meaning, of expectancy and of satisfaction in achievement. Just as architectural structures require detailed and accurate engineering design and construction, the bridges we encounter in life need the detailed investigation, experimentation and research to achieve the best design. As we develop educational programs and our action programs, may we benefit from the engineering research of others to develop sound educational programs and activities to make this a better world in which to work and play and achieve satisfaction.

Guest Editorial

ECOLOGY — WHAT IS IT?

Roger W. Schoenecker

Administrator of the Bureau of Information and Education

Minnesota Department of Natural Resources, St. Paul

Yesterday most people couldn't even spell it. Today, it is a household word. ECOLOGY. This new awareness is a sudden thing for most people, especially since learning that they are directly involved — that there is such a thing as a web of life, that man is a part of it and that the web is in serious trouble.

Most agricultural educators have known all along that there is a delicate balance in nature that cannot be continually abused and disturbed with impunity. But until now, formal programs of instruction have dealt primarily with the conservation and use of natural resources such as soil and water. The approach has been mainly concerned with economic factors.

Nowhere is an understanding of the full role of environmental stewardship more important than with those who own and work the land. Teachers of agriculture are beginning to broaden their approach, but so far not enough stress has been put on selling the benefits of ecologically sound farming practices.

Recently the Department of the Interior announced it will photograph American cities from aircraft flying above 50,000 feet to determine the feasibility of monitoring urban land use changes and to try to determine their environmental effects. If the tests show that such remote monitoring procedures are successful, satellites may be used on a continual basis. The possibility exists that such sophisticated equipment could also be used in rural areas to monitor poor farming practices and check their effects on the ecology —including indiscriminant ditching and draining, poor feedlot placement, unchecked chemical spillage and seepage. The Department of Interior announcement said the project is simply one of "monitoring" the environment, but it is plain to see that if such a program becomes feasible, the next step is policing.

This may indicate that while the Orwellian world may be closer than we think, we don't have the time to sit around and wait for a spy-in-the-sky to zap offenders. To keep this public love affair with the environment from fizzling for lack of requitement, agricultural educators will have to play the most important role of all.

Writers like Leopold, Carson, Erlich, Storer and Osborn can at best be the Harriet Beecher Stowes of their times — catalysts to get the reaction started and to keep it going to completion. They can get us thinking about the effects of pollution, population, pesticides and predation and they can scare us into wanting to do something about it — but it is ultimately the educator who must produce the behavioral changes in people — people who, in turn, produce environmental changes for the better.

There are those who argue that proper care of the country is more important than proper care of the city. The mental pictures that many people call up when environmental degradation is the topic are of a smog-filled, traffic-choked, people-crammed, smokestack-lined megalopolis of a city. True enough, that is where a great deal of it happens. But its effects are on the farms and forests and prairies and waters and waysides. Almost as much of it is being done by rural people as urban people. While the market value of a square block of downtown Dallas is priceless compared to the market value of an acre of Kansas, when bare survival is the topic I'll take the wheatland over the concrete every time.

Even if we ignore the doomsday trumpet of the alarmists, it must be agreed that something is going to give sooner or later. Before that happens, we better have a positive plan to prevent it. Like what?

Recently, a group of professional people, all under 30, organized a secret group calling itself the "eco-commandos." The purpose of the group is to do something positive about environmental problems. So far, they have accomplished their objective beautifully.

Their first job was a nighttime raid on the Miami area sewage disposal plant where heavy yellow dye was dropped into treatment vats. Soon, yellow water showed up in some very peculiar places in the city.

Another caper of the mystery commandos was to place notes in sealed beer bottles and drop them two miles out to sea, next to the sewage effluent pipes that are supposed to allow sewage to be carried far out into the ocean by the Gulf Stream. The message in each bottle read, "This is where Miami sewage goes." Instead of going out to sea, the bottles began showing up on beaches along 120 miles of Florida coastline.

Another raid produced bright red signs along some of the state's plushest beaches warning vacationers of the dangers of "pathogenic bacteria found at or near this location."

The group even wrote the President to warn him that his Key Biscayne retreat is "washed by raw sewage" and to get his support to fight area pollutors.

At this point, it is difficult to say whether or not the eco-commandos are succeeding. While it should be stressed that such methods cannot be entirely condoned, it is refreshing to note that here is one group of young people tired of sitting around listening to theories and slogans. They are tired of listening to excuses. They are doing something about the problems.

There has been a growing demand for an updating of agricultural education, for a greater effort at educational research. One of the charges leveled against current agricultural research is that it fails to tackle the "real, substantive and critical problems facing the profession." Another is that when research produces substantial findings, little effort is made to disseminate the information.

What better place to spend research money, time and talent than in the area of ecological degradation or rural America and what to do about it?

COMING ISSUES

April	—	***Education for the Disadvantaged***
May	—	***Professional Improvement for Teacher***
June	—	***Articulation of Agriculture into the Total School Program***
July	—	***National, State and Local Leadership***
August	—	***Maintaining Programs of High Standar***
September	—	***Instructional Materials***
October	—	***Broadening the Offering in Vo-Ag***
November	—	***Support by Industry and Organization***
December	—	***Multiple Teacher Departments***

OUR ENVIRONMENTAL DILEMMA

Wiley B. Lewis
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Of the waters, they made a cesspool; of the air, a depository for poisons; and of the good earth itself, a dump where rats nuzzled in piles of refuse.[1]

These words could well summarize the accomplishments of the present generation of Americans if additional consideration is not given to our environmental problems. The quality of our environment has been deteriorating at an unprecedented rate.

Who is responsible for this deterioration? Man alone must shoulder the responsibility for serving as the primary source of environmental contamination. His waste products and his activities contaminate the air, pollute the water, and despoil the land. These contaminating waste products consist of man's domestic wastes plus those from industry, recreation, transportation, and agriculture.

Regardless of the cause, concern for environmental conditions has led to the development of several occupations in which the worker's performance is directed toward controlling or affecting the characteristics of the environment. Such individuals work in the occupational areas of environmental control technology and environmental health. Environmental control technology occupations generally involve the planning, designing, maintenance, or repair of air-conditioning, refrigeration, and heating systems while environmental health occupations include those related to sanitation, radiological health, air pollution, water pollution, and noise and lighting control.[2]

With these types of environmental occupations available, what role should vocational agriculture personnel play in preparing the required workers? What should agricultural leaders be doing to alleviate present environmental conditions? In attempting to answer these questions, particularly the latter one, three types of action are considered necessary: *education, research,* and *local and regional action.*

Education

In the area of education, several types of programs should be developed. First, farmer education programs designed to aid in the performance of agricultural tasks that will reduce the possibility of environmental pollution should be initiated. Present production and off-farm programs should be altered to place emphasis on environmental considerations. Second, educational programs for all students should be developed based on the "new conservation" — that of preserving and maintaining the quality of the total environment. Third, educational programs designed to provide citizens with the facts necessary for making decisions and critically evaluating conjectured statements about pollution and contamination is necessary. Fourth, educational programs should be designed to provide non-farm concerns with the information and techniques required to reduce pollution. Teachers of vocational agriculture and other persons concerned with environmental problems can play a major role in each of these proposed educational programs, either through regular instructional programs or by aiding in carrying out special school or community programs.

Research

Research activities should be directed to determine what factors contribute to pollution and what can be done to prevent its effects. While teachers of vocational agriculture and other agricultural leaders may not be directly involved in such activities, they can help by informing interested researchers of suspected sources of contamination or symptoms of pollution and cooperating with those doing the actual research work.

Local and Regional Action

Agricultural personnel can help local and regional action groups by taking an active interest in activities designed to prevent or eliminate sources of pollution and to inform the public of present conditions. Such groups could be aidcd by advising them on possible courses of action and helping them to identify acceptable solutions.

Teachers of vocational agriculture should accept part of the responsibility for providing needed instruction. But while they accept this responsibility, they should also realize that many problems will be encountered. Two problems which exist at this time are the lack of a total commitment on the part of the people and their agencies to improve the environment[2] and the general lack of curricular materials dealing specifically with environmental considerations.[3]

Because of these and other factors, the environmental problem will not be easily solved. In fact, the road to a controlled and healthful environment will be long, hard, and uphill. However, we have the capacity to deal with these problems effectively. It is only necessary that an enlightened society be prepared to commit its resources and energies to the task. Agricultural personnel can help by providing some of the needed education, research, and local and regional action to inform the people of our environmental dilemma and by providing agricultural workers with the opportunity to obtain the skills and knowledge required so they may aid in the enhancement of our total environment.

[1]Stewart, George R. *Not So Rich As You Think.* Boston: Houghton Mifflin Company, 1967.

[2]"Next Step: The Planet Earth." *Environmental Science and Technology,* III, NO. 9, September, 1969, p. 803.

[3]Lewis, Wiley B. Review and *Analysis of Curricula For Occupations In Environmental Control.* Information Series NO. 30. Columbus, Ohio: ERIC Clearinghouse on Vocational and Technical Education. The Center for Vocational and Technical Education, The Ohio State University, December, 1970.

AN APPROACH TO MEANINGFUL EMPLOYMENT

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The importance of preserving America's natural resources in current times has been established and plans for the conservation of these resources is apparent. Presently, national, state and local as well as private agencies are actively engaged in developing programs to preserve our natural environment. Although the objectives of these planning programs are generally the same, even though there are great differences in administration, there are indications that all of these programs have a common problem of procuring secondary school, technically trained graduates.

Meaningful natural resource job placement is usually complicated by two factors: (1) breakdown of communications between the technical school and the agricultural community and, (2) lack of professional career investigations by potential graduates. Getting these graduates to prepare for and accepting jobs in their major fields of interest is an important part of school training. Making students aware of job opportunities can be a very effective way of eliminating the uncertainties of initial employment. The initial exposure of a young adult to the real-work-world must be made interesting and challenging.

This article deals with an approach to job placement by interested school administrators, who realized the needs of its graduating student body, initiated by the Natural Resource faculty at Essex Agricultural and Technical Institute, Hathorne, Massachusetts.

An Idea To Reality

Employment outlooks for the 70's appear promising for the field of natural resources. A growing population and rising standards of living are cited for these increased demands (U.S.D.L., 1969).[1] Federal, state and local agencies are planning innovative natural resource programs. All of these agencies will have new and exciting job openings for individuals who possess all types of agricultural training.

Too often, natural resource jobs appropriate for high school students become available and because of a lack of communication between school and the community, these jobs are not filled or are filled by individuals without technical training. Over a period of time, the Essex Agricultural and Technical Institute administration realized this problem and decided to take steps to correct it.

Actually, the sources of jobs were no mystery but discovering job availability was the real problem. This problem was then attributed to a definite breakdown of communications between the school and the agricultural community. Important steps were initiated at Essex Agricultural School to bridge the gap between school and the natural resource community.

At this point, the natural resource faculty outlined a plan of action in terms of establishing a Natural Resource Career Day Program. The program would extend invitations to the different community members to come into the school for a day of employer-student discussions concerning job opportunities.

The faculty presented the plan to the school administration who in turn scheduled a meeting with the Advisory Committee. This group is composed of professional natural resource men whose frequent suggestions and recommendations assist the administration in organizing school curriculum and issues. The structure and organization of this committee followed closely the suggestions by Seuss[2] in his studies of resource advisory committees.

After the approval, contacts were made with the different members of the local community and they were asked to contribute to the Career Day program. Among the members that agreed to contribute were U.S. Forest Service, U.S. Fish and Wildlife Service, Soil Conservation Service, state and municipal highway departments, tree and recreational departments, private paper and landscape contractors. In composing a list of possible contributors, emphasis was placed on geographic location as many of the graduates accepting jobs would probably be living at or near home. In some cases this was not possible, however, later developments showed that distance from home to work did not deter many students from accepting jobs away from home.

Organization and Program Format

Helping the students realize that the employer needs and desires student help was the basis of initiating this Career Day. This Career Day was planned to involve visitation of community employers to the school to provide for both formal and informal discussions concerning student employment. In the school atmosphere where the students feel "at ease" they ask questions of prospective employers and hopefully the exchange between the students and employers provide maximum flexibility whereby both parties could appraise each other.

The Career Day program was scheduled with a minimal amount of work because a professional atmosphere existed within the school staff. The role of the school's guidance counselor(s) is most important because he becomes the liaison official between the school and the community; the counselor would be the coordinator between the school and the community. A program such as this can be enlightening to a guidance department for it can demonstrate the real potential of vocationally trained students.

As a result of the initial contacts, the school started to receive interesting suggestions for the programing of the Career Day; this "feed back" indicated consistent employer emphasis towards techniques of modern machinery. Examination revealed that prior graduates were deficient in techniques of modern machinery.

The natural resource faculty asked the different employers to bring in new equipment for demonstrations during Career Day. This was an important contribution by the community because the employers could see the potential impact of such a program. Evans[3] mentions the need of this approach by employers for student enlightenment as relative to future job endeavors. A similar approach is also supported by Drawbaugh[4] who suggests new situations for teaching also created a new environment and conditions for learning.

Because of the community-school exchange of ideas, a portion of the days' activities was designated for instruction and demonstration of the new industrial equipment. This part of the program proved to be one of the highlights for both students and teachers.

The Presentation

The Career Day was scheduled on a Saturday so as not to interfere with the regular school day routine. The program was oriented for graduating seniors but underclassmen were invited as the program committee felt that the exposure of underclassmen would help broaden their career outlooks and possibly lead to temporary employment.

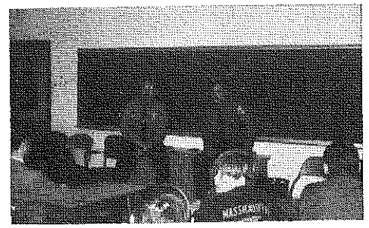
Experienced operators were on each piece of equipment and demonstrated basic operational procedures.

The first part of the program was composed of brief, informative presentations by selected personalities representing federal, state, local and private agencies. After the presentations, the students were encouraged to circulate among the local industrial equipment distributors and employers who brought their machinery to school for demonstrations. Basically the equipment demonstrations were on the tools commonly found in natural resources, ornamental horticulture and landscape work; the demonstrations were oriented towards the student level of comprehension. An experienced operator was on each piece of equipment and demonstrated the basic operational procedures. Demonstrations ranged from heavy equipment (tractors, bulldozers) to the latest tree hand saws. This demonstration permitted the students to observe the machinery and industrial practices.

The enthusiastic reception was probably due to the fact that the students could associate work experiences and equipment usage. It should be mentioned here that the approach by demonstrators was of a conservative nature and the "sensationalism" of operation for operational sake was avoided. Emphasis was placed on utilization of machinery as tools for assisting the worker.

In the afternoon, students circulated among discussion panels divided into (1) federal, (2) state and local governmental agencies and (3) private industry. These panels were organized as to the employment levels of the prospective students. The panels were conducted using the "team teaching" approach and the individuals who previously presented the morning speeches acted as panel moderators. There was a brief explanation of employment potentials and students were encouraged to ask pertinent questions of any or all of the panel members. It was felt that the students could benefit more by an open-ended format.

After the discussion groups were terminated, students who desired jobs sought out employers and further commitments were made between the employer and student. In essence, many doubtful students discovered new job capacities and were placed on interesting jobs.



U.S. Forest Service and Fish and Wildlife personnel used a "team teaching" approach to present governmental employment outlooks.

Conclusion

This program was created to help graduating high school students find meaningful and productive jobs within the field of natural resources. Frequently, natural resource jobs exist and students are not aware of these openings, subsequently, these students accept jobs outside their interest and training areas. Pertinent jobs can be found and interested students can be placed on good jobs usually where there is a working relationship between the school and community. Productive programs can be administered if this relationship is encouraged by an advisory counsel composed of interested school and community personnel.

A Career Day Program:

1. Assists in finding jobs for technically trained students who work under the leadership of professionally trained personnel.
2. Encourages meaningful exchange between the student and the prospective employer in the atmosphere of the school.
3. Allows students to gain insights relating to work techniques and conditions.
4. Provides an opportunity for prospective employers to hire interested and trained personnel for specific jobs.

[1]U.S. Department of Labor, Bureau of Labor Statistics. "Occupational Outlook Handbook," 1968-69. Bulletin No. 1550. 1969.
[2]Seuss, Andy, "Cooperation With The State Division Aids in Conservation Education." *Agricultural Education Magazine*, Vol. 41, No. 1: July, 1968, p. 20.
[3]Evans, Rupert N., "How Do They Exit From Your Program." *School Shop*, Vol. 29: June, 1970. pp. 23-25.
[4]Drawbaugh, Charles C. "Opportunity and Challenge to Develop Sound Local Programs in Vocational Education." (Speech reprint). Tri-State Vocational Conference, University of Connecticut. June, 1970.

EMPLOYMENT OPPORTUNITIES AND EDUCATIONAL REQUIREMENTS FOR JOBS IN OUTDOOR RECREATION

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Since World War Two, one of the most rapidly expanding business complexes in our nation has been that of outdoor recreation. As expansion continues, the desirability of knowing what employment opportunities are offered within this field gains new prominence.

As with businesses in many other types of industries, those contained within the outdoor recreation complex are finding it increasingly difficult to operate on a seasonal basis, depending on help hired as labor needs present themselves. Investments are too large, skill requirements too varied and the availability of qualified seasonal personnel too limited.

Recognizing these changing needs and the increasing potential for secure rewarding employment in this field, a study was initiated at the University of New Hampshire to determine exactly what employment does and will exist within the outdoor recreation complex as well as what skills are required to be eligible for these positions.

THE STUDY

Phase One of the study has been completed. An instrument was developed which would gather data pertinent to the job opportunities and related skill requirements for employment within the outdoor recreation complex. Although the major part of the field interviewing was performed in New Hampshire, to verify information and further develop instrumentation, interviewing was carried on throughout New England and the State of New York. This, in turn, allowed for collection and tabulation of data about the employment aspects of outdoor recreation during field testing and periodic review of the instrument. An extensive review of literature illustrated that, although there was much concern about how fast and in what directions the outdoor recreation complex was growing, little data had been compiled to show what opportunities this growth offered or what demands it placed on the employees within the field.

The investigation included all aspects of the outdoor recreation complex including supportive enterprises as well as those specifically concerned with providing opportunities for participation in some form of outdoor recreation. This was necessary because of the dependence of outdoor recreation enterprises and the supportive enterprises on each other. Thus, instrument development was oriented toward creating a tool which would record data from any aspect of the entire outdoor recreation complex. Field investigation was carried out based on economic region, rather than on specific types of outdoor recreation enterprises.

The Mount Washington Valley of New Hampshire was selected as the primary region with the Seacoast area of the State serving as a second area with heavy economic involvement in outdoor recreation. Together they encompassed the majority of the different types of outdoor recreation facilities found in New England and New York State. Investigation of supportive enterprises was restricted to the Mount Washington Valley Region because of time limitations.

All supportive enterprises identified on a road survey throughout the area were listed by type of enterprise. A random sample was selected from each type of business. This stratified random sampling technique appeared to be appropriate to insure cross sectional representation of the supportive enterprises. With the emphasis of the study being to develop an instrument while drawing some conclusions based on the data recorded, there were always two activities proceeding at once.

All information was collected by personal interview. Interviewing for winter recreation took place during January and February in the Mount Washington Valley. The interviewing for the supportive enterprises was done at this time to conserve and concentrate efforts. The Seacoast area was used to investigate summer outdoor recreation during July. As instrument development was of major concern, periodic checks were made, utilizing hand tabulation techniques, to ascertain how the instrument could be altered to be more effective. As the instrument was refined and categories were developed, machine tabulation became possible.

Data was collected from 59 employers in nine types of outdoor recreation enterprises, including campgrounds, golf courses, ski areas, resort hotels, youth programs, amusement areas, marinas, party and excursion boats and public beaches.

Data from 50 employers in the supportive enterprises was also collected. These supportive businesses were grouped as follows: eating and sleeping accommodations only, stores, sleeping accommodations only, eating facilities only, service stations and sporting goods stores.

The need for this type of investigation and its acceptance by the outdoor recreation industry can be recognized by the fact that, of all the individuals contacted for an interview, there was not a single refusal nor a hesitation to provide answers to the questions which were asked.

FINDINGS

With the completion of Phase One, an instrument of observation was created to record the information needed. It can be oriented toward machine tabulation and with slight revision, into a mail-out questionnaire.

With the exception of the public beaches and marinas, all of the outdoor recreation enterprises expected to expand their facilities or services for their patrons. Expected expansion within the recreation supportive enterprises was much less than in the outdoor recreation enterprises. However, family operations were more predominant in these supportive operations.

This expected expansion directly relates to future employment opportunity, but specific jobs and skills requirements cannot be identified fully from the data of this phase of the study, although 63 existing job titles were identified.

Full-time employment was shown to be on the increase. As expected, greater capital investment and the new skills required of employees are continually creating new need for year-round personnel. This does not indicate that all full-time people are skilled or that they have on-the-job or formal training in their job titles. Only 30% of the employees in outdoor recreation enterprises were found to have prior work experience in their job titles, and this figure was only 20% in supportive enterprises. Formal education specifically for the job title within which they were working was a credential held by only a few.

This does not mean that education and training is not needed. Many employers were found to have difficulty in obtaining capable help, at all levels of employment. A total of 13 different subject matter areas which would be of help if offered in organized educational programs were cited. Mechanics, Culinary Arts and Management accounted for most of these suggestions.

Lack of organized employment pools, training programs and knowledge of employment opportunities can be cited as having considerable bearing on the present state of knowledge about careers in the entire outdoor recreation complex. Most employers relied upon personal application or word of mouth to secure their employees in both the winter and summer seasons.

The findings of the initial phase of this investigation indicate that the outdoor recreation complex does offer opportunity for employment now and in the future and that formal programs are needed to train personnel for these jobs. However, we need to know much more before we can accurately estimate the number of jobs which exist, at what various levels of employment, those specific skills which are required by each, and which of these are best provided in formal education programs. Certainly many opportunities are presently overlooked because of an overall lack of information about employment within the industry.

RECOMMENDATIONS

The final instrument developed in the study should be used in a study of outdoor recreation and its supportive enterprises in New England and New York State to determine the job opportunities and employment needs of the recreation complex. This work will be Phase Two of the study.

From this data a teacher education program can be developed (Phase Three) which will utilize on-the-job experience for teachers of recreation. In addition, the recreation complex, with its supportive enterprises and educational institutions, should open avenues of communication to develop programs on the secondary, post-secondary and adult levels to teach entry level competencies and upgrade present employees. This will require educational institutions utilizing the recreation complex and supportive enterprises to develop advisory councils to keep themselves aware of the changing needs of the industry.

At the completion of Phase Three, there will exist a coordinated effort to provide relevant training for known employment within the outdoor recreation complex. Programs may be cooperative work experience programs, youth or adult programs, open-ended or for specific grade levels, curriculum being designed according to the needs of the outdoor recreation and supportive enterprises.

BOTANICAL GARDENS

Comments by your editor.

An arboretum is defined as a plot of land where different trees, shrubs and other woody plants are grown for study and popular interest. The plants may be arranged and labeled according to the family and the relationship to other plants of the same species. Many of the arboretums and botanical gardens located throughout the world were started by wealthy individuals who had an interest in plants and plant materials. Generally they are open to the public and have developed interest and appreciation of plant life. They have increased the scientific methods of growing trees and shrubs. Most arboretums collect plants from many parts of the world and attempt to raise new and rare plants in an environment not considered natural. The Middleton Gardens near Charleston, South Carolina date back to 1740 and are said to be the oldest formal gardens in the United States. Other arboretums in eastern U.S. originated prior to or during the Revolutionary War period. The New York Botanical Garden occupies 250 acres in Bronx Park and has the finest greenhouses on the continent. The National Arboretum in Boston, the Missouri Botanical Garden in St. Louis, Fairchild Tropical Garden in southern Florida, the Morton Arboretum near Chicago, the Arnold Arboretum in Boston, Boyce Thompson Southwest Arboretum in Superior, Arizona are well known in the U.S. One of the most unusual gardens is the International Peace Garden, containing about 2,200 acres, located at the geographical center of North America on the boundary line between North Dakota and Manitoba. It was planted to commemorate over 100 years of peace between the United States and Canada. Assiniboine Park, consisting of 282 acres, is a marvel in Winnipeg, Manitoba, Canada. The Royal Gardens at Kew, near London, the Botanical Garden in Rio de Janeiro, founded by King John VI of Portugal in 1808 are foreign gardens of renown as are gardens in Melbourne, Australia; Buitenzorg, Java, Singapore, Calcutta, Vienna and Rome. The Jardin des Plantes, in Paris, is one of the oldest and largest in the world, growing over 15,000 species.

Climatic conditions in the central Northern Plains area of U.S. are different than where most botanical gardents are located. Summers are drier, winters are colder, winds are more prevelant and often stronger, temperatures fluctuate more readily than in the southern and coastal and tropical areas. But efforts are being made to develop gardens in these areas. All gardens do not have to be large. Read the articles by Robert Gambino, Richard Grubough, Ronald Hefty and Ned Stump in this issue to gain suggestions how you may work with local individuals and organizations to start a botanical garden in your community.

A SCHOOL ARBORETUM

Established Arboretums Provide Useful Suggestions When You Start Your Own

Robert B. Gambino
Housatonic Valley Regional High School
Falls Village, Connecticut

Have you thought about using the School grounds as a teaching aid in Ornamental Horticulture? Many teachers have, but few have done anything about it. I am talking about the development of a school arboretum or land laboratory that can be used by the total community, not just the development of a nursery or turf plot near the school for class use.

In order to learn more about the scope and potential of such a facility, I visited arboretums, botanic gardens, and parks to gain an understanding of the established institutions and apply any of their practices or methods toward the development of similar facilities that would fit within the educational goals of the Housatonic Valley Regional High School Vocational Agriculture Center.

The following institutions were studied: Cornell Plantations, Ithaca, New York; Monroe County Parks, Rochester, New York; The Holden Arboretum, Mentor, Ohio; George Landis Arboretum, Esperence, New York; Planting Fields Arboretum, Oyster Bay, New York; Barard Cutting Arboretum, Oakdale, New York; and Longwood Gardens, Kennet Square, Pennsylvania.

Educational programs at these institutions run from guided tours and self-guided tours of plant displays (both native and exotic collections of trees, shrubs, vines, and flowers) to instructional classes in Bonsai Culture. There are programs for Golden Age groups, Retarded Children, and those under rehabilitation. The facilities are used for studies of ecology and environmental biology. There is course work in plant identification and culture, flower arranging, Christmas decorations, and applied botany.

The Housatonic Valley Regional High School is located in the northwest corner of Connecticut on the banks of the Housatonic River and consist of a 30-acre campus with adjacent farm land and a ¾ acre nursery. In addition, there is a seven acre Christmas Tree plantation, flowing stream, and an 11 acre woodlot. The Appalachian Trail runs through this property. The site has tremendous potential in terms of natural science, silviculture, and horticulture education.

Specific items of interest found in most arboretums, botanic gardens, and parks which can be applied toward the development of a meaningful outdoor educational facility are:

(1) Development of a plant selling program. Students can propagate native and/or exotic plants of interesting habit and offer them to the public free of charge or at cost. In some cases the items could be rooted cuttings or seeds.

(2) Arbor Day offers itself as an ideal time to introduce the community, teachers, and students to the developing facility. On this day, donated specimen plants could be planted.

(3) Donations of specific plant materials could be solicited from garden clubs, business organizations, and the community. A list of recommended plant species can be obtained from Extension Horticulturist at State Universities.

(4) A labor force will be needed to develop and maintain the facility. Certain students requiring a supervised work experience program could be given the opportunity to work on the facility and receive a nominal wage and a practical and educational work experience.

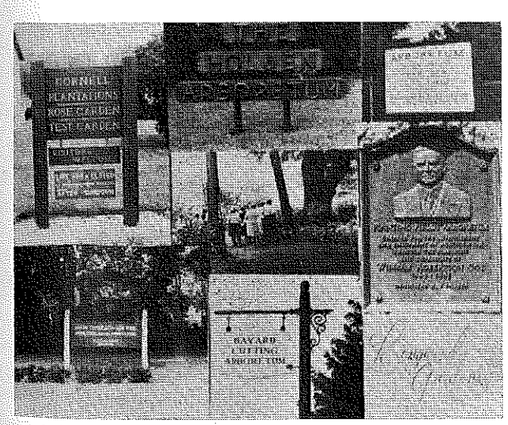
(5) A nature trail can be developed within the school area encompassing mature woods, mountain stream, second growth, open fields, and a river bank. This facility could be open to the public and would be an ideal adjunct to the educational resource of the Regional School District.

(6) The facility could be used by biology and science teachers to complement their teaching. The athletic department might use the trails as part of the cross-country course.

(7) An adult program offering courses or programs in tree identification, ecology, landscaping, pruning, wild flowers, and Christmas decorations could be established. These programs could use knowledgable students and/or volunteers as assistants or instructors.

(8) The Future Farmers of America organization could offer a program similar to "Head Start" by providing a meaningful agricultural - horticultural experience for inner city children using the Vocational Agriculture Center and Arboretum as headquarters.

The implementation and success of this idea will be the result of coordinated efforts on the part of the Housatonic Valley Regional Vocational Agriculture Center, the school staff and administration, the Board of Education, and community leaders.



When developing an outdoor school facility, many well established arboretums can be a source of valuable information and advice.

From the Book Review Editor's Desk

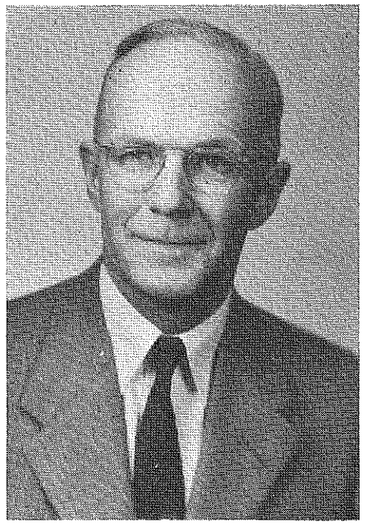
TIPS AND TRICKS IN OUTDOOR EDUCATION, edited by Malcolm D. Swan. Danville, Illinois: The Interstate Printers and Publishers, Inc., 1970, 184 pp., $3.95.

Subtitled "Approaches to Providing Children with Educational Experiences in the Out-of-Doors," this book contains an assortment of ideas, sugestions, plans and guides that educators may use in providing students with educational experiences outside the four walls of the classroom. The editor and his colleagues, members of the Department of Outdoor Teacher Education at Northern Illinois University's Lorado Taft Field Campus, designed the book as an aid for teachers in providing students with supplemental outdoor experiences. The book presents a variety of subject matter including: conducting field experiences, animal studies, awareness and creative expression, community resources, ecological studies, geology and soils, magnetic compasses, measurements and mapping, nature arts and crafts, plants, outdoor recreation, water and weather.

The book contains suggestions that would be valuable in ecological studies. Activities are suggested that provide the setting and inspiration for innovative approaches to teaching language arts, mathematics and possibly other courses — especially for the academically disadvantaged.

Many of the "tips and tricks" included in the book have direct application for teaching applied biological and agricultural courses at the elementary and secondary levels in rural and urban schools. A copy of the book would be a valuable addition to the teacher's library.

David L. Williams
University of Illinois



EARLY LEADERS IN VOCATIONAL AGRICULTURE

Louis M. Sasman
—Wisconsin

Dale Aebischer, Supervisor of Agricultural Education
State Department of Public Instruction
Madison, Wisconsin

Louis M. Sasman served as Chief of Agricultural Education for the Wisconsin State Board of Vocational, Technical and Adult Education from 1924 to 1960. During this long tenure, the program of vocational agriculture made great progress in both scope and quality. Mr. Sasman's influence on the program both in Wisconsin and nationally was most significant.

Among his many contributions to agricultural education are the following:

1. Developed an early and extensive state-wide young farmer program in Wisconsin.
2. Initiated and guided the program of leadership development from the early local agricultural clubs to an extensive state-wide FFA program involving 14,195 members in 279 chapters.
3. Developed a basic program of agricultural instruction which enabled students to have a variety of alternatives in occupational choices.
4. Served as AVA Vice President for Agricultural Education.
5. Served on numerous national and regional committees.
6. Contributed numerous articles to Agricultural Education Magazine and other national publications.

He was born and raised on a farm at Black Creek in northeastern Wisconsin and attended a one-room rural school in that area. He graduated from the Appleton High School and enrolled in the College of Agriculture, University of Wisconsin, from which he received a Bachelor's Degree in 1916 and a Master's Degree in 1926. His ambitions to farm were modified by a physical condition and he started to teach vocational agriculture in 1918 at New Richmond, Wisconsin. Additional teaching experience was gained at Omro, Wisconsin, and Chazy, New York.

Mr. Sasman became an itinerant teacher-trainer in agriculture for the Wisconsin State Board of Vocational, Technical and Adult Education early in 1924, and a few months later became Wisconsin's Chief of Agricultural Education, a post which he held for 36 years with time out in the mid-fifties for two years of service as an agricultural education specialist in Egypt.

Mr. Sasman's background of farm experience, his understanding of farm people and their problems, his professional training and skill as a teacher, and his considerable vision as to the possibilities of vocational agriculture made him a natural leader for the program in its formative and later stages.

Under his guidance, Wisconsin's total program grew rapidly in both size and quality in all of its phases. Young farmer instruction developed rapidly under his leadership and became a significant bridge between the high school instruction and the adult program.

Mr. Sasman believed strongly in maintaining high standards in all aspects of vocational agriculture. Even his most severe critics respected the quality which he built into local and state level programs. Nowhere was this more true than in the development of effective agricultural mechanics programs.

Leadership development as a part of vocational agriculture was recognized early in the program in Wisconsin. Agricultural clubs were common in most of the departments from the beginning and developed activities and programs in leadership which provided a strong base for the launching of FFA chapters in 1929. As State FFA Advisor, Mr. Sasman stimulated the development of a wide variety of activities including public speaking, quartets, band, junior fairs, camping programs and regularly scheduled radio programs.

While Mr. Sasman's deep appreciation of rural life and of the significance of farming never lessened throughout his long career, he was keenly aware of the great technological changes which were taking place in agriculture. From the beginning of the program of vocational agriculture in Wisconsin, its graduates found opportunities in all phases of agriculture.

The success of a balanced program of instruction, coupled with realistic application of what was learned by students to a wide range of agricultural activity, clearly demonstrated the value of Mr. Sasman's educational philosophy. Effective instruction and experience in basic agricultural science, record keeping and use of records, management, marketing, financing, agricultural mechanics, cooperative action, and leadership training, made vocational agriculture not only a resource for our most basic industry but an effective vehicle for the educational development of thousands of youth.

The pattern of educational development which is reflected in the current emphasis on agri-business and other off-farm occupations was established early in the program. Mr. Sasman recognized that a sound basic program in agricultural science, economics and leadership development was essential in all agricultural occupations. The degree of specialization remained flexible depending upon the circumstances surrounding a local program and the inclination of a student to work toward specific goals through individual study.

Recognizing the wide variation in the interest and academic ability of students, Mr. Sasman stressed the potential of vocational agriculture to stimulate and to motivate all individuals toward becoming effective students throughout their lives. Relatively narrow interests of some students were used as a basis for the training of such individuals to become involved in a wide variety of practical and academic activities which greatly broadened their occupational and educational horizons.

While specific competencies were recognized as being important in getting started in an agricultural occupation, narrow specialization was not allowed to limit students to blind occupational alleys from which there were no alternatives.

The soundness of Mr. Sasman's philosophy is reflected in the careers of thousands of vocational agricultural graduates in all phases of agriculture who have successfully met the endless challenges encountered in the dynamic agricultural industry.

At the national level, Mr. Sasman served on numerous AVA and U.S. Office of Education committees, including those which developed the initial instruments for evaluation and assessment of vocational agriculture. He served as Vice President of AVA for agriculture from 1948 to 1951.

He received the Honorary Wisconsin Farmer Degree in the FFA in 1932 and the Honorary American Degree in 1947.

He is a 32nd Degree Mason and has been a Mason for over 50 years. He has been a member of Kiwanis for over 25 years and is active on committees on Agriculture and Conservation and International Relations.

Mr. Sasman retired in 1960 but has maintained a keen interest in the continued progress of agricultural education. He is serving as State Director of the National Retired Teachers Association with over 7,000 members in Wisconsin and organizes and teaches defensive driving courses on a volunteer basis in addition to numerous other activities. He is in good health and continues to make his home in Madison, Wisconsin.

ENVIRONMENTAL MANAGEMENT & VOCATIONAL AGRICULTURE

A FFA member leads a class of elementary students along a trail in search of leaves for identification and collection. Other tours may study bird life and wild animal habitat.

Richard Grubough

Ronald Hefty

Ned Stump

Vocation Agriculture Instructors
Prairie Heights, Indiana

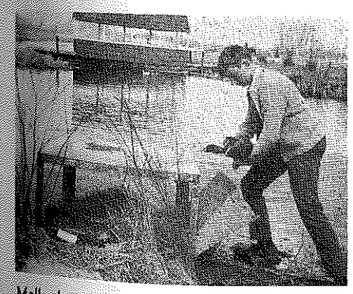
Echoing from every corner of our nation today is an increasing awareness of environmental management problems ranging in size and scope from the small indestructible fiberglass cigarette filter to the oil slicks and burning fuels of rampant offshore oil wells — from D.D.T. in the Great Lake Coho salmon to stacks of decaying automobile bodies and — from atmospheric jet smog to the slums of over population. Untold other problems, many yet unidentified, are looming ahead as we continue the rapid pace of a progressive civilization. No matter how we attempt to categorize our environmental problems of resource management — they all turn out to be *people* problems. Legislators and laws may give partial answers but for lasting solutions, only education has the answer in helping people understand themselves, their problems, and their solutions.

Many agencies and schools offer training in this direction, but still more and better programs are needed. At Prairie Heights Community Junior and Senior High School, situated in northeastern Indiana, we attempt to incorporate this training into our Vocational Agriculture curriculum with emphasis on the vocational opportunities existing and developing in the natural resources area. Our school, built on a 194 acre rural farm, is located adjacent to a State Fish and Game Management Area in rolling lake country. This outdoor laboratory of crop, wood, and waste land acres coupled with our geographical setting provides ideal opportunities for natural resources education activities.

Contact begins with the Junior High students where emphasis is placed on topics of general conservation as they apply to all phases of agriculture. Junior High students assist in maintaining a mile long (with a second mile loop being developed) Nature Trail established by the local F.F.A. Chapter when the school was built. The trail winds through an old orchard and includes a dozen stops, each emphasizing different features. Stops include information about wildlife, soils, ecology and insects. The Junior high school students have planted trees and wildlife shrubs, built foot bridges, taken winter wildlife study trips, and camped over night at the half acre pond (which was constructed through F.F.A. planning and financing) as part of their extended class activities. Freshmen and sophomore students receive instruction in forestry, wildlife, and conservation as part of their two-year high school introductory program. During these years they have opportunity to learn and apply basic natural resources principles on the school acres. Students learn to cruise timber, judge soils, manage trees and apply soil conservation ideas as part of their study efforts.

Junior and Senior high school students have the option of selecting courses in Production Agriculture, Agriculture Mechanics or Natural Resources programs or a combination of these. Four Natural Resources semester courses are offered enabling the student to complete a major. Topic titles include—Wildlife, Soil and Water, Forestry, and Resource Conservation. The present sequence in Soil and Water or Resource Conservation has not been completed, however, strong interest and participation in the Wildlife and Forestry courses indicate their probable success. Related activities carried out on the school land laboratory and in the surrounding community provide the link between theory and practices, reinforcing classroom concepts. A list of prime activities which have helped include:

1. establishing and improving the school farm nature trail.
2. providing tour guides for elementary and visiting adult groups to the farm and nature trail.
3. planning, financing and stocking a one-half acre wildlife, irrigation, and recreation pond.
4. collecting daily weather information at our weather station for Purdue University Agricultural Weather Advisory Council.
5. observing and maintaining phenology plantings in cooperation with Purdue University Agronomy Department.
6. planting approximately 10,000 evergreen seedlings annually.
7. establishing a host area for natural alfalfa weevil control by parasitic wasps from Europe through Purdue University Entomology Department.
8. using strip cropping and contour tillage practices on the 100 tillable school farm acres.
9. live trapping, weighing, photographing and releasing small fur bearers.
10. building wood duck and blue bird nesting boxes.



Mallards and geese have been raised on the school pond which was developed by the FFA relating to soil and water conservation studies.

Forestry class members select and prepare to harvest a Christmas tree from the school farm plot as part of their extended class activity.

11. feeding wildlife corn and sorghum seed during the winter (from our sorghum molasses project).
12. managing 5000 scotch pines for Christmas trees and 2000 white pine for a green shelter belt.
13. completing taxidermy work with fish, fur and fowl species.
14. conducting a fishing derby at the school pond.
15. visiting the Pigeon River Fish and Game Area.
16. listening to conservation and forestry specialists concerning local problems and career opportunities.
17. identifying trees and conducting timber surveys.
18. building a rustic log cabin on the nature trail.
19. taking each student on an airplane ride over his home and the school farm.
20. cooperating and working with people of our community.

A supplementary experience in Natural Resources includes a one week chapter achievement trip each summer to the Canadian wilderness for those student members qualifying through the chapter achievement point system. Planning, traveling, cooking, playing and just living together for a week in an area where the lake water is safe to drink and stars twinkle visibly brighter above a vespers fire at day's end develops a deeper understanding and concern for our increasing environmental problems.

Book Review

FOREST AND FORESTRY by David A. Anderson and William A. Smith. Danville, Illinois: The Interstate Printers and Publishers, Inc., 1970, 357 pp., $6.95

Forests and Forestry is a text that will provide a better understanding of forestry. The text is well organized; the sentences are very short and meaningful; and in consideration of the comprehensive coverage of the field of forestry the detail of each subject is good. The greater portion of the book is applicable to forestry throughout the United States. However, the tables and illustrations are generally restricted to the thirteen southern states.

The twenty-one page introductory chapter is typical of the fact-crammed twelve chapters that follow. Forestry is well defined and the history of forestry education in the United States is detailed. A section on the importance of forests to the South is fully documented with tables and statistical data. The history of forestry in the United States, the beginning of state forestry, and the origin and functions of other federal agencies concerned with forestry are narrated. The first chapter also explains the beneficial influences and the social and economic values of forests.

Topics included in other chapters of the text are: how trees grow and reproduce, tree identification, land and timber measurements, the forest environment, silviculture, forestry economics, range management in the South, wood characteristics and identification, harvesting, preservation of wood, fires, insects and disease.

Each chapter is concluded with review questions, suggested activities, and a bibliography. The 25 page index is a good indicator of the volume of factual data in this book. There is also a 21 page glossary.

Mr. Anderson is head of the Information and Education Department of the Texas Forest Service at Texas A and M University. He has had 36 years of forestry experience. Mr. Smith is Extension Forester of the Texas Agricultural Extension Service at Texas A and M University. He has had experience in all segments of public and private forestry.

The text is directed toward vocational agricultural teachers and students. It will provide private forest land owners with current information on technical forestry assistance programs and other data essential to good forest management. Potential forestry students would do well to study this text in conjunction with their career decision making. Youth organizations that are oriented toward the out-of-doors would also do well to have a copy in their library.

Frank H. Armstrong
University of Vermont

ENVIRONMENTAL SCIENCE EDUCATION IN OHIO

Jack Newmarch, Vocational Horticulture Instructor
Washington Park Horticulture Center
Cleveland, Ohio

and

Welch Barnett
State Supervisor of Agricultural Education
Columbus, Ohio

Educators in vocational high school programs and two year post-high school technician training programs in Ohio have recognized in a three-fold manner the need for training in the environmental science and management areas. A pilot program has been established in the Cleveland City School District where agricultural education students receive training relative to environmental science and protection. A specialized resource reference is being developed in the Agricultural Education Department of The Ohio State University for agricultural education programs in water management. Technician training programs in water pollution control are in operation in the Muskingum Area Technical Institute (MATI) located at Zanesville, Ohio. Plans for initiating two or three additional vocational environmental science and protection programs are being completed for the 1971-72 school year.

Vocational Environmental Science and Protection

Environmental protection is the "in" topic today in nearly all types of communication and news media. What is being done to improve our environment at the grass roots level? The Cleveland Schools is answering this question with a two-year course in Environmental Protection, designed to prepare students in grades 11 and 12 for skilled jobs in the fields of air, water, and land pollution detection and treatment problems and pest and sanitation control. Students are being prepared for jobs such as air and water samplers, pollution inspectors, testing and treatment specialists, exterminators, sanitation aides and equipment maintenance specialists.

Advisory Assistance

An advisory committee composed of representatives from municipal government, divisions of Air Pollution Control, Water Purification and Treatment, and Health and Industry personnel from sanitation and pest control have projected an annual need for over 100 skilled personnel in these fields of employment in the Cleveland area. Accurate projections of the need for help are difficult because of the rapid growth in funding of pollution and environmental control projects.

Curriculum

The environment involves all the surroundings; and because of this, a large scope of material is included in the course. The "in class" brings together the sciences of horticulture, chemistry, biology, meteorology, bacteriology, physics and phases of mechanics and engineering. A two-year course acquaints the students with all phases of air and water pollution. Curriculum components include ecology, air and water pollution detection, monitoring and treatment procedures, waste treatment, water purification, effects of weather and air pollution, pollution of the aesthetic and soil environment, disease and pest identification and control, federal, state and local pollution and pest regulators.

Facilities

The Washington Park Horticulture Center, located within the heart of Cleveland's industrial and public pollution problems, was established for students to use in the study of horticulture and the environment. Polluted air, water and land are in close proximity of the classroom. City air and water pollution monitoring and treatment stations, laboratories and plants are within a ten minute ride from the school. Thus, there are abundant opportunities to observe current efforts by the city and industry to control pollution problems. This location is ideal for use of the air and water pollution detection and treatment equipment.

Equipment

The costs for training in the environmental protection area are high and the amount set aside for equipment, in addition to that on hand, is $15,000. More will be needed in 1971. The equipment purchased for this class is similar to that found in the environmental control industry. Students learn to operate gas sampling equipment such as the Technicon II air sampler, to analyze the sulfur and nitrogen in the air. High volume air samplers are used for measuring dust and other particles in the air. Microscopes are necessary for the detection and observation of minute particles and bacteriology work. An analytical balance is used for precision measurement of samples of pollutants. Weather instruments record the temperature, air pressure, humidity, and wind speed and direction. A growth chamber provides the opportunity for studying the effects of pollutants on plants. High temperature furnaces are used to determine the per cent of ash in a sample. Drying ovens are necessary for heating and drying samples. Color intensity of samples is measured by a colorimeter. Much of this equipment is quite sophisticated. Thus, students with limited abilities find it difficult to learn the intricate operation. Students with backgrounds in the biological sciences and chemistry or physics find it easier. However, the lower ability students can learn the simplified techniques of pollution detection and sampling.

Cleveland students can continue their education in Environmental Management at Cuyahoga Community College or Cleveland State. Opportunities at the technician and professional levels are also rapidly expanding. Arrangements are being made to place students on cooperative training the last semester of their senior year. The environmental management industry is awaiting the opportunity to employ graduates from the class.

Water Management Resource Reference

This pilot program in Cleveland will provide useful information for the development of a water management teaching reference being completed by Mr. John A. Hillison, a graduate research associate working toward the completion of a Ph.D. degree in Agricultural Education at The Ohio State University.

Identification of Need

Needs for the water management reference have been established by conferences held with a number of people at many different levels of environmental work. Administrative personnel contacted were in the Division of Water, State Department of Natural Resources, the Division of Engineering, State Department of Health, the Columbus City Department of Health, the Utilities Department for the City of Lima, State personnel in the Soil Conservation Service, School of Natural Resources of The Ohio State University, and the Ohio River Valley Water Sanitation Commission, an interstate agency working with water pollution in the Ohio River Valley which has its headquarters in Cincinnati.

School officials at Penta County Technical Institute and Muskingum Area Technical Institute have also provided assistance. Non-administrative personnel in sewage and water treatment facilities have been contacted at Bowling Green, Findlay, and Weston, Ohio. There is a need for trained people to work in the area of water pollution control, especially at the municipality level in sewage and water treatment plants. The need for future employees will be mainly at the skilled and the technical levels.

Resource Teaching Reference

A reference titled "Water Management Reference" will be used with 11th and 12th grade vocational agriculture students. These students will be cooperatively placed at municipal sewage and water treatment plant facilities to gain practical on-the-job experience.

The 11th and 12th grade experience would be the finishing process of a kindergarten through 12th grade program now in operation in Ohio at many locations covering the entire area of natural resources. The kindergarten through grade 6 orientation to the World of Work Educational Program will emphasize natural resources with exposure to the world of work concerned with natural resources. The 7th and 8th grade career orientation educational program will involve more specific information on natural resources occupations. The 9th and 10th grade experiences will involve career exploration so that the high school student can describe which environmental area he wishes to follow for vocational experience in the 11th and 12th grade. Eventually, vocational environmental programs will be offered in water management, soil management, air management, and mineral management.

Post Secondary Two Year Technician Training

A water pollution control technician training program was initiated during the 1969-70 school year at the Muskingum Area Technical Institute. Any such educational program requires a period of change for improvement. Needs for additional equipment to expand the Muskingum Area Technical Institute program in water pollution control were studied during the first year. Several items have been obtained recently with assistance from State Vocational Education funds.

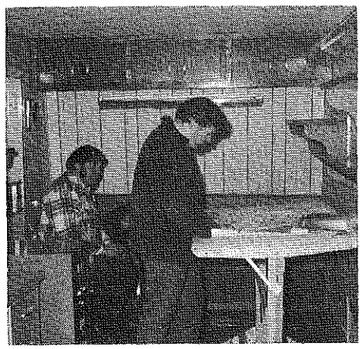
Mobile Laboratory

One major item is a custom-built trailer laboratory. The unit is all-metal construction, 22 feet long, 8 feet wide, with 7 feet of inside height. It is designed for a complete laboratory in one section and a small office-classroom in the other. This mobile laboratory is self-contained with its own electrical power units, water tank, heating, air conditioning and toilet. Trailer equipment includes the following items necessary for a standard water testing laboratory:

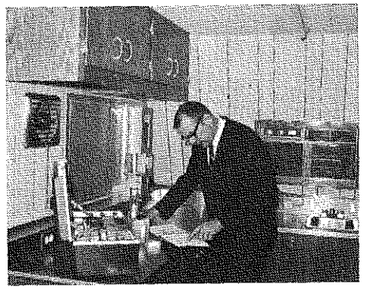
refrigerator, BOD incubator, muffle furnace, steam and hot air sterilizers, water still, vacuum pump, cabinets for microscopes, balances, glassware, chemicals and supplies.

Other portable items such as pH meter, thermometers, spectrophotometer, current velocity meter and sampling equipment are carried in the trailer as necessary. The laboratory can be moved to field location by a vehicle similar in appearance to a nine-passenger station wagon on a ¾ ton pickup truck chassis. If testing involves water of major streams, ponds or lakes, a 14-foot aluminum boat with a 5-hp outboard motor accompanies the mobile laboratory.

Testing programs may require checking water quality at points some distance apart. In these cases, the vehicle (or boat) will range out to obtain the samples for testing. Collectors will carry equipment to measure changeable factors such as temperature and pH at the place of sampling, returning to the laboratory for more complicated tests appropriate to that particular program.



Two students examining topographic maps in the work area of the mobile laboratory prior to going on field work.



Mr. Charles Woolf, instructor, Natural Resources Technology, at work in the laboratory section of the mobile trailer.

In the MATI curriculum, technical courses in water sampling and water testing are presented in the spring quarter. The trailer laboratory is put into full use at that time. Usage will be expanded to include special class projects and research. Projects now in the planning stage include tests of the Muskingum and Licking Rivers, multi-use reservoirs in Muskingum and Guernsey Counties, and in small watersheds in Noble County where the Institute owns 350 acres in a surface-mined region. The trailer is not specifically designed with living quarters but can be used as an overnight base if necessary.

Mobile laboratories designed for such purposes are recommended in the U.S. Department of Health, Education and Welfare technical education publication "Water and Wastewater Technology." The recommendation can be well supported. The trailer will provide an excellent opportunity for practical field experience to complement instruction in the classroom, laboratory and on the job.

Internship and Employment

The water pollution control technicians in training will participate in a fourth quarter internship period of work experience, supervised by Muskingum Area Technical Institute personnel. During this period, they will be on the job, training for employment in private industry, local, county, state or federal government.

GET INVOLVED!

Minnesota FFA's Reply to Quality Environment

W. J. Kortesmaki, State FFA Executive Secretary
Minnesota Department of Education
Vocational-Technical Education Section
St. Paul, Minnesota

Minnesota FFA's popular State Fair Children's Barnyard served as an 'input' center for Fair-goers to express their concern about pollution and environment. Among the over 100 messages recorded during the ten-day Fair was "I shot an arrow into the sky and it stuck!" The more timid individuals were provided an opportunity to drop a letter in the chapter house mail box.

Requests for recorded tapes and blackboard messages have been received from state, federal and private agencies interested in the pollution problem.

Messages from the State Fair FFA Children's Barnyard Sound-Off-Slate on pollution and our environment were expressed in Chinese, Danish, Finnish, German, Japanese, Swedish and Vietnamese. Fair-goers wrote on the outdoor 'gripes, groans and good ideas' public slate. Minnesota Governor Harold LeVander wrote in Swedish "Good air and clean water shall belong to us in Minnesota." Former FFA advisor, Leo Keskinen, Itasca State Junior College executive staff and a member of the Minnesota State Fair Board, wrote in Finnish, "Keep Minnesota Clean."

A sampling of the messages included:

I would like to make one thing perfectly clear — the air.

* * *

He turned to kiss me, but our gas masks got in the way.

* * *

Conservation is mostly conversation.

* * *

Tell your legislator. I did.

* * *

Our water is too thick to drink and too thin to plow.

* * *

Stop pollution, the life you save may be your own.

* * *

Air today — gone tomorrow.

* * *

S.T.P. — Stop This Pollution.

* * *

Don't yell Uncle — Yell anti-pollution!

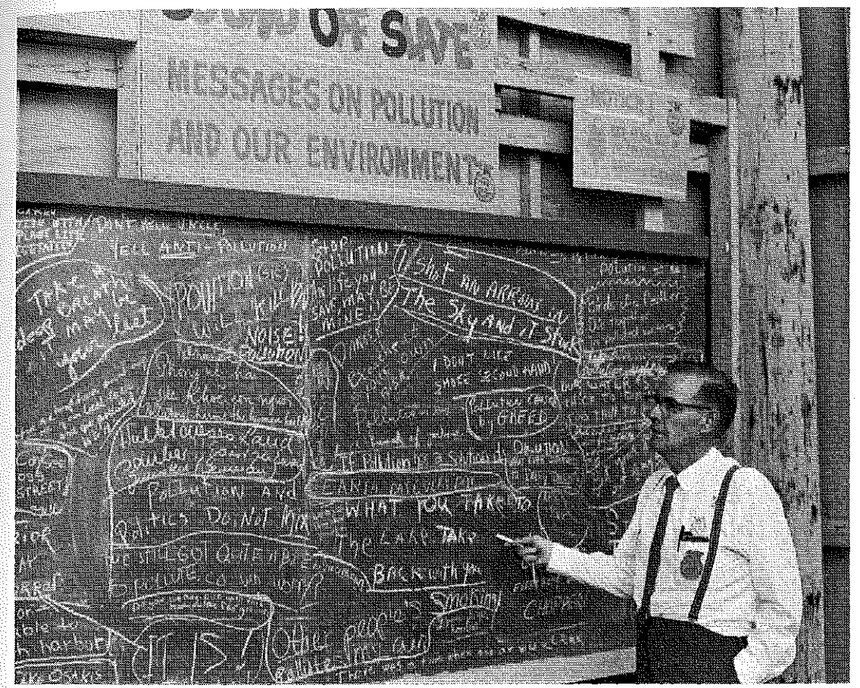
* * *

Birds of a feather die together in polluted waters.

* * *

Nations that pollute together die together.

* * *



W. J. Kortesmaki, State FFA executive secretary, points to the many comments on the Minnesota State Fair FFA's public message board. The message receiving special attention is "What you take to the lake, take back with you!"

Individuals who had strong feelings on smoking — a health hazard, took advantage of the easel with 2′ x 3′ chart paper to record: *I don't like second-hand smoke . . . Smoking pollutes your lungs . . . The family that smokes together chokes together . . . Do you smoke? Are you coming to the State Fair next year???* The anti-smoking slogans are available to interested individuals and organizations as a part of Minnesota FFA's state-wide smoking education program.

Steve Thal, a president of the Watertown High School FFA chapter and district president, serves as student chairman of Minnesota FFA's concern about their environment. This FFA ecological activist, in his report at the December 29, 1970 short course on environmental quality — pollution control for Vo.Ag. — FFA personnel, said:

"The environment issue has received the attention of nearly 14,000 FFA members in Minnesota. Focusing their efforts on preventing water pollution and improving the condition of the land, the FFAers have done much to improve the environment.

As part of the Building Our American Communities program, specific provisions have been made for Environmental Clean-up and Control of Water, Air, and Solid Waste and Community Beautification Maintenance.

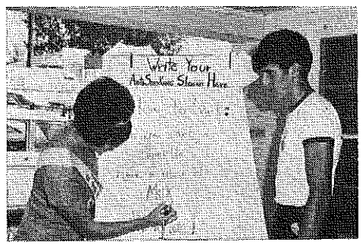
BOAC projects in use are:

River and Stream clean-up campaigns.

Planting of trees, grasses and shrubbery on banks of lakes and rivers to check soil erosion.

Environmental teach-in programs involving youth and outside speakers.

During the State FFA Camp ses-



Princess Kay of the Milky Way is shown writing "How To Quit: When you want a cigarette, have a glass of MILK instead" on Minnesota FFA's anti-smoking easel. State FFA Reporter Dallas Sams, Staples, looks on.

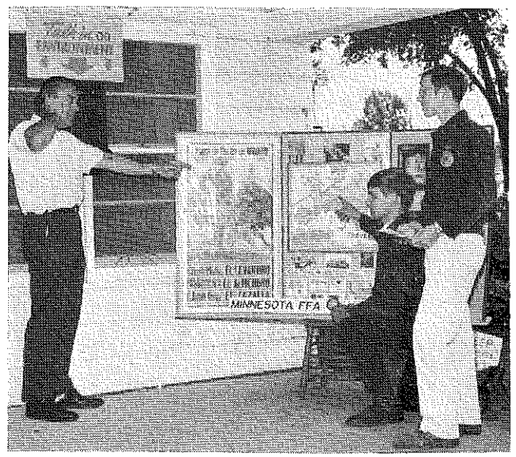
sion in August FFA members met with representatives of municipal, state and federal offices to discuss the problems and solutions concerning our environment.

In cooperation with Molar Enterprises of Minneapolis, FFA members are selling non-phosphate detergent, Clean-N-Clear, to help eliminate phosphate pollution of our waterways.

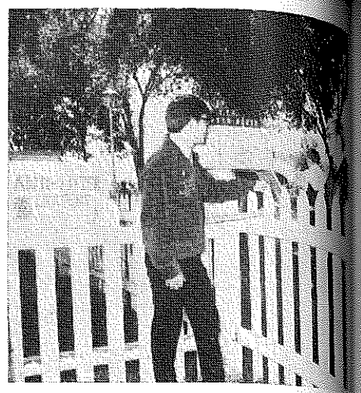
Minnesota's FFAers are helping to focus its members' efforts on combating water pollution by becoming involved in improvement projects on over 10,000 private parcels of land with special emphasis on land and farmsteads located near bodies of water.

A few of the specific 'Clean Waters' projects include:

- Stillwater FFAers have embarked upon a 100% goal of having all members get their rural water supply checked through the State Department of Health.
- Several chapters surveyed community to determine if dumping grounds are located in watershed or flood plain areas.
- FFAers are making feasibility studies of planting submergent and emergent aquatic vegetation for water purification and fish habitat improvement.
- Chapter members, individually or in groups, have removed water pollutants, e.g., autos, tires, logs, etc.
- Families and neighbors of FFAers are urged to take care in the proper disposal of used oil, herbicide and insecticide containers and barnyard manure.
- FFA sponsored field trips to pinpoint probable sources of pollution in streams, lakes, rivers, creeks.
- Fencing of shores of rivers and lakes to prevent livestock from grazing shore area and using water as a drinking place.
- Diverting barnyard and feedlot runoff into seepage areas instead of nearby lakes and rivers.



Ray Erwin, Stillwater High School FFA adviser, using the telephone to describe the pollution problems he observed while chaperone for a FFA tour to Europe in 1970. State FFA President Jim Sorlie, Osakis, and district FFA President Steve Thal, Watertown, are shown on the right.



Citizens with ideas on pollution and environm... that they wished to get off their chest had a... opportunity to do so at the Minnesota State F... Letters were dropped into the FFA Chapter Ho... Mailbox. (Photo by W. J. Kortesmaki, State F... Executive Secretary)

- Stressed limiting application of pesticides, commercial fertilizer and barnyard manure on slopes with potential wash-off toward bodies of water.
- Cooperated with local sportsmen's club in cleaning up and beautifying the shores of local lakes, rivers and streams.
- Conducting clean-up days at public fishing and access areas.
- Chapter members with homes near lakes assisted in planning and installing septic tanks and cesspools to dispose of sewage.
- A number of FFAers are again selecting water pollution as topics for their standard and extemporaneous speech contests.
- Perry Bollum, Redwood Falls FFA member, won the 1970 State Soil and Water Conservation speaking contest on the topic "Water, Wealth or Worry." Perry's opening statement was "The responsibility to stop water pollution is yours and mine!"
- "Our environment and pollution" was discussed at a number of FFA fall leadership district meetings.
- A knowledgeable speaker talked to FFA chapter meeting on water purification as related to animal nutrition."

From the Research Editor's Desk

J. David McCracken
The Center for Vocational and Technical Education
The Ohio State University, Columbus, Ohio

ENVIRONMENT-RELATED RESEARCH IN AGRICULTURAL EDUCATION, 1969-70

Gary F. Beasley and Earl B. Russell

Gary F. Beasley and Earl B. Russell are graduate students in agricultural education and research associates at The Center for Vocational and Technical Education, The Ohio State University, Columbus. *This compilation of agricultural education studies related to environmental quality is intended to reveal current research efforts and challenge those considering topics for future studies.*

The quality of our environment is justifiably a concern to all Americans. Some agricultural educators are expressing their concern through research which attempts to preserve and enhance the quality of our environment. Evidence of increasing concern is apparent in this listing of research cited from *Summaries of Studies in Agricultural Education* in the four regions for 1969-70. Included are six completed studies and six studies in progress. All completed studies are available for loan from university libraries, university departments of agricultural education, or state divisions of vocational education.

Completed Studies

Annis, William H. and Richard G. Floyd, Jr. An Interstate Investigation of Employment Opportunities and Educational Requirements for Jobs in Outdoor Recreation and Conservation Enterprises. Staff Study, 1969, University of New Hampshire. 82 p. Agricultural Education Program, University of New Hampshire, Durham.

Brown, Norman Allen. Characteristics and Influence Patterns of Students Who Enroll in the College of Agriculture and Natural Resources after First Enrolling in Another College. Dissertation, Ph.D., 1970. Library, Michigan State University, East Lansing.

Hummer, John W. An Instructional Program in the Establishment, Operation and Management of Campgrounds in Pennsylvania. Paper, M.Ed., 1970, The Pennsylvania State University. 84 p. Library, The Pennsylvania State University, University Park.

Mosher, Harry L. The Duties, Attitudes and Career Prospects of Forest Technicians in the 13 Northeastern States of the U.S. Thesis, D.Ed., 1970, The Pennsylvania State University. 210 p. Library, The Pennsylvania State University, University Park.

Novotny, Ronald Emanuel. Soil and Water Competencies for the Albany Area High School Agricultural Mechanics Program. Thesis, M.S., 1970. Education Library, University of Minnesota, St. Paul.

Stevens, Glenn Z. and Norman K. Hoover. Vocational-Technical Education in Agricultural Resources. Staff Study, 1970. 41 p. Final Report, Project 19050, Research Coordinating Unit, Pennsylvania Department of Education, Harrisburg.

Studies in Progress

Dupperon, Roland J. Occupational Titles and Competencies Needed for Campgrounds. Paper, M.Ed., Department of Agricultural Education, The Pennsylvania State University, University Park.

Kluth, William Floyd. An Evaluative Study of Possible Environmental Pollution Control Activities Which Could be Promoted by Vocational Agriculture Departments in Idaho, M.S. Agricultural Education Thesis Study, University of Idaho.

McCreight, Donald E., T. J. Marron, K. Novak, ET AL. Manpower Needs and Job Requirements for Off-Farm Agricultural Occupations in Rhode Island. Staff Study, Teacher Education Department, College of Resource Development, University of Rhode Island, Kingston.

Palmer, Wilbur H. Developing a Natural and Environmental Science Curriculum. Project, Research Coordinating Unit, Division of Vocational-Technical Education, New Hampshire Department of Education, Concord.

Roberts, Herbert. Employment Opportunities and Competencies Needed for Outdoor Recreation — Operation and Management in Rhode Island. Non-thesis, Supervised Field Practicum, M.A., Teacher Education Department, College of Resource Development, University of Rhode Island, Kingston.

Stevens, Glenn A. and Norman K. Hoover. Vocational-Technical Education for Natural Resources and Environment-Related Occupations. Staff Study, Agr. Exp. Sta. Project 1903, Department of Agricultural Education, The Pennsylvania State University, University Park.

It is interesting to note from the above citations that the North Atlantic Region is represented by nine of the twelve studies. If the studies cited are representative of where environment-related research in agricultural education is being conducted, perhaps those of us in the Central, Pacific, and Southern Regions need to reexamine present research priorities. Particularly striking is the fact that none of the studies were focused on environmental problems resulting from urbanization.

News and Views of NVATA

JAMES WALL
Executive Secretary

Presentation of a gavel to out-going NVATA president Millard Gundlach, Montfort, Wisconsin by fellow Wisconsin teachers at the New Orleans convention. Left to right: Howard Jones, Muscoda; Royce Havlik, Gays Mills; Avery Marshall, Richland Center; Fedelis Bosch, Highland; Wayne Raymond, Lancaster; Gundlach; Ed Scadden, Cuba City; and Lowell Ahrens, Mineral Point.

Convention Highlights

From all reports and comments it appears that the recent NVATA Convention at New Orleans was the best ever. The hotel facilities were excellent, programs started and closed on time, attendance was above average and a general "good feeling" was prevalent. Following are a few of the highlights—

. . . Glen McDowell, Pikeville, Kentucky was elected President. He was the Vice President for Region IV.

. . . Sam Stenzel, Colby, Kansas, was re-elected Treasurer.

. . . New Vice Presidents elected were William Harrison, Leedey, Oklahoma, Region II and Odell Miller, Raymond, Ohio, Region IV. Mr. Harrison replaced W. T. Black of Louisiana who retired from the Executive Committee and Mr. Miller replaced Mr. McDowell.

. . . Alternate Vice Presidents were elected to one year terms as follows:

Region I —Luther Lalum, Kalispell, Montana

Region II —David McVey, El Paso, Texas

Region III—Grover Miehe, Monticello, Iowa

Region IV—Jim Guilinger, Sycamore, Illinois

Region V —W. D. Neill, Jr., Clarkton, North Carolina

The Region VI Alternate Vice President is Jim Shadle, Hegins, Pennsylvania. He will be completing the final year of a three year term.

Registration

. . . A total of 752 registered as follows: Teachers—299; Teacher Educators—120; Coordinators—9; Supervisors—71; others including wives and guests—253.

. . . Regional representation — Region I—65; Region II—151; Region III—139; Region IV—162; Region V—148; Region VI—83; and D.C.—4.

. . . Attendance at meal functions — State Presidents Dinner—109; Harvestore Breakfast—531; Coop Breakfast—503; NVATA Awards Breakfast—320 and Past Officers Dinner—40.

Awards

. . . Outstanding Service and Cooperation Awards were presented to United States Steel Corporation and Ford Tractor and Implement Operations—North America. Accepting for U.S. Steel was Charles Bourg, Manager Agricultural Supplies Marketing, and for Ford, George Huma, Personnel and Organization Manager.

. . . Dr. Ralph Bender, Ohio State University and Dr. Milo Peterson, University of Minnesota were named as Honorary Life Members of NVATA.

. . . Receiving Special Citations for significant contributions to Vocational Education in Agriculture on a National level were:

Donald McDowell, Executive Director, National FFA Foundation Sponsoring Committee, Madison, Wisconsin.

L. W. Davis, Consultant, Allis-Chalmers, Milwaukee, Wisconsin.

Ronald H. Anderson, District Director, Southwest Wisconsin Vocational-Technical School, Fennimore, Wisconsin.

A. R. Head, Principal, Pioneer High School, Pioneer, Louisiana.

W. H. Wayman, retired State Supervisor, Charleston, West Virginia.

Honorable Orval Hansen, Congressman from Idaho.

C. Dana Bennett, Special Consultant, Foundation for American Agriculture, and Farm Film Foundation, Washington, D.C.

. . . The following associations were recognized for attaining 100% membership:

Montana, Utah, Wyoming, Oklahoma, North Dakota, Missouri, Alabama, Georgia, Georgia (c) and Rhode Island.

. . . Associations receiving the Professional State Association Award were:

Arizona, Oregon, Washington, Wyoming, Oklahoma, Iowa, Minnesota, Nebraska, North Dakota, South Dakota, Wisconsin, Illinois, Ohio, Kentucky, Michigan, Missouri, Georgia (w), North Carolina, Tennessee, New York, Pennsylvania, Vermont and Virginia.

. . . Outstanding convention speakers included—

Dr. Arthur Lee Hardwick, Associate Commissioner for Adult, Vocational and Technical Education, United State Office of Education.

Fred Stines, Publisher, SUCCESSFUL FARMING Magazine, Des Moines, Iowa.

Honorable Congressman Orval Hansen of Idaho.

. . . Jim Guilinger of Sycamore, Illinois became the first teacher of Vocational Agriculture to pay for a Life Membership in NVATA.

. . . The reception sponsored by the Louisiana Association was superb. Also, the "loot bags" full of favors were great.

. . . Something new was the many fine door prizes provided by the Mississippi Association. These prizes were presented at the close of each General Session.

Resolutions

The following resolutions were adopted by the NVATA Delegate Body at their final general session at the New Orleans convention.

PROFESSIONAL LEADERSHIP — recommends that AVA consider employing specialists in each of the fields of service.

NATIONAL FFA JUDGING CONTESTS — recommends that vocational agriculture teachers increase their suggestions to the National Contests Committee for improvement of the contests.

AATEA — recommends that teacher educators increase the content and emphasis in their pre-service curricula pertaining to professional organizations.

STATE SUPPORT COMMITTEES — recommends that each state develop a State Support Committee for Vocational Agriculture and the FFA.

U.S. OFFICE OF EDUCATION — calls for support of Dr. Arthur Lee Hardwick, Associate Commissioner of Adult, Vocational and Technical Education, the reorganization of USOE and recommends efforts be continued to obtain full funding and adequate staff.

TORT LIABILITY — asks the AVA to develop guidelines for legislation to exempt teachers from tort liability and to secure sufficient insurance coverage for tort liability in the absence of adequate legislation.

MANPOWER LEGISLATION — urges that Agricultural Education become involved in planning programs that may result from new comprehensive manpower legislation.

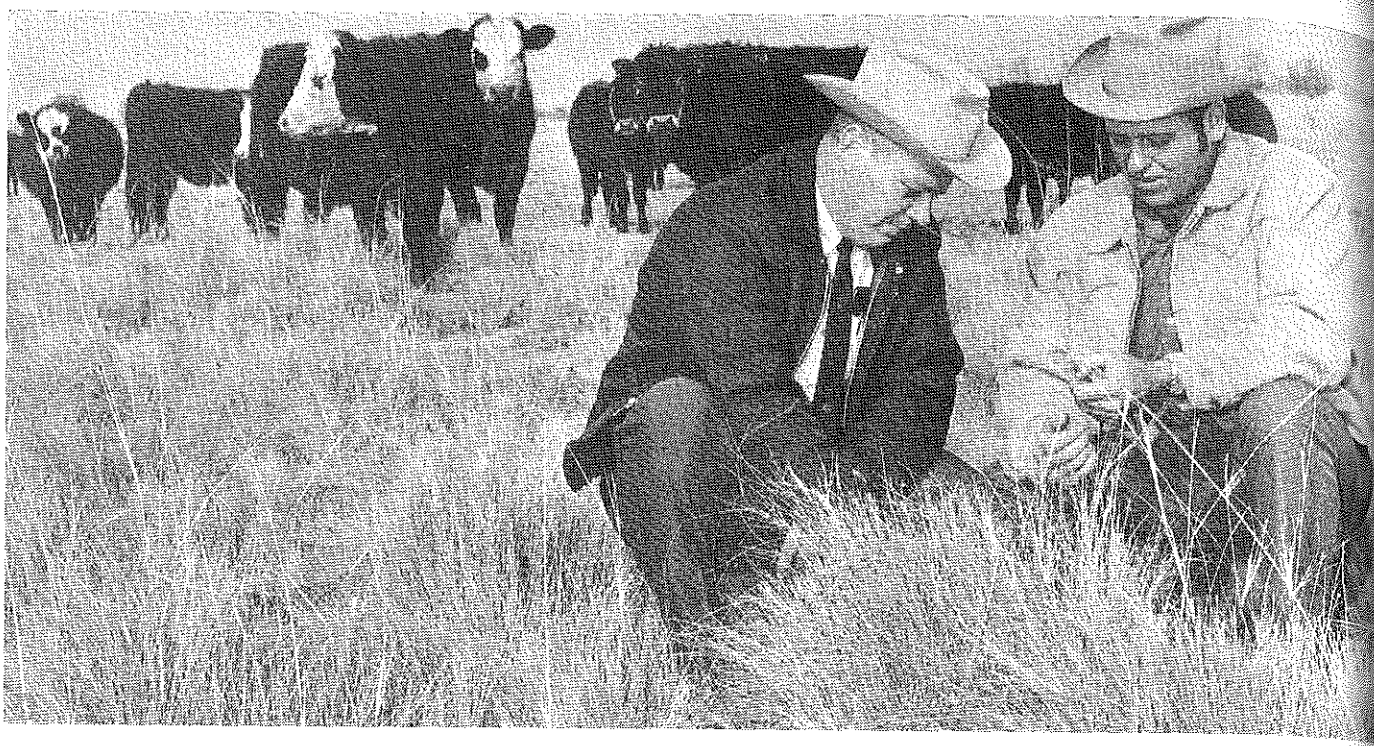
NVATA COMMUNICATIONS — asks the Executive Committee to provide direction for specific activities aimed at the implementation of the NVATA Program of Work and that State Associations make the best use of the materials provided by NVATA.

PROGRAMS OF VOCATIONAL AGRICULTURE — urges members to accept the responsibility for maintaining and improvement of quality programs, and asks the support of NASAE and AATEA in developing guidelines for the same.

FARM TRAINING FOR VETERANS — asks for legislation amending the Act to provide 6 hours of classroom instruction per week and a minimum of 6 hours on-farm and/or group instruction per month.

SUPPORT BY OTHERS — convey to the many individuals, organizations and companies, its sincerest appreciation for their support in our behalf to bring about changes in the USOE and to solicit their continued support.

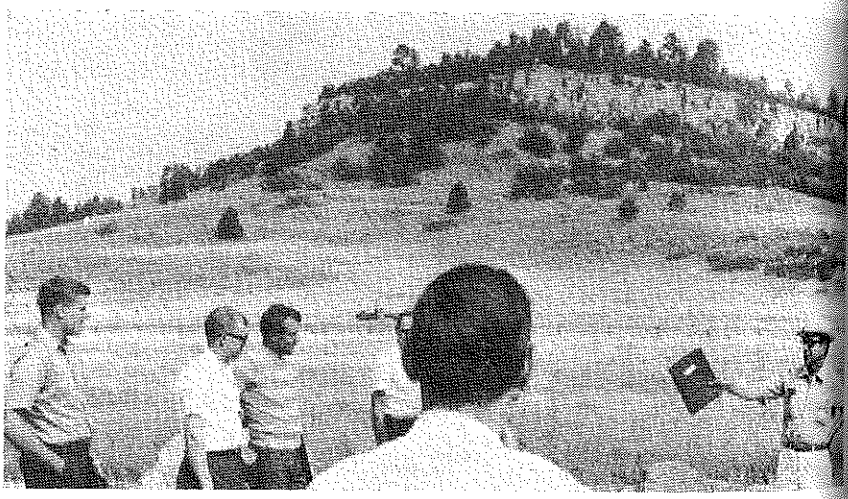
MILITARY SERVICE DEFERMENT — request that the stand on agricultural deferments be considered in hardship cases.



A former vocational agriculture student who has been established in farming for the past 15 years in the Hennessey, Oklahoma community is visited by a state vocational agriculture staff member. Earl Marshall is president of the Young Farmer Association of Oklahoma. Donald D. Brown is district vo-ag supervisor and consultant to the Young Farmer Organization in Oklahoma. (Photo by Robert Price, Oklahoma State University)

Stories in Pictures

ROBERT W. WALKER
University of Illinois



A range management tour was part of the program at the South Dakota Agriculture Teachers Annual Conference, August 3-6, 1970. (Photo above by H. W. Gadda, South Dakota State University)

Floriculture students learn disbudding and staking of potted chrysanthemums from their high school instructor, C. C. Beam, Herndon, Virginia. (Photo at left by C. C. Beam)