Excellence in the Education of Future Agricultural Communicators[1]

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I am pleased to have this opportunity to speak to you. I'd like to take a minute to reconstruct the circumstances leading up to this talk, because I think it's of interest to you.

Last summer, your board approved our suggestion that some kind of liaison be established between the Committee on Educational Policy in Agriculture and your Association. President Ryker promptly appointed an ad hoc committee to address itself to questions we had raised in the initial contact—questions such as: Why is undergraduate enrollment in agricultural communications relatively small, particularly in view of the apparent need for many more graduates? What changes, if any, should be made in curricula in agricultural communications in the coming years?

The Committee included Carl Hamilton of Iowa State, B. E. Kearl of Wisconsin and William Ward of Cornell, with Mr. Ward serving as chairman.

So far, so good. But then the Committee tossed the ball back to me—would I address the annual meeting of your Association? I said yes.

In extending the invitation, Mr. Ward asked that I try to lay the ground work for a thorough study of both undergraduate and graduate education in agricultural communication. This I will try to do, although my remarks will reflect the fact that the primary concern of the Committee on Educational Policy in Agriculture is **undergraduate** teaching.

Before I start on the assigned topic, I think is is appropriate to tell you something about the organizations which I represent.

The Committee on Educational Policy in Agriculture, which we call CEPA, was formed in 1961 by the Agricultural Board of the National Academy of Sciences—National Research Council. CEPA has the task of reviewing trends in undergraduate education in the agricultural sciences and making recommendations for the future. CEPA is one of eight college committees or commissions supported by the **National Science Foundation** and charged with working to improve undergraduate teaching in the sciences. The others are concerned with the biological sciences, chemistry, physics, mathematics, engineering, geology and geography.

CEPA has seven members. Its chairman is A. E. Darlow, Dean Emeritus of the Division of Agriculture at Oklahoma State University. The other members are Daniel G. Aldrich, Jr., Chancellor of the new Irvine Campus of the University of California and former University Dean of Agriculture; George R. Ferguson, President of Geigy Agricultural Chemicals; George A. Gries, Head of the Department of Plant Pathology at the University of Arizona; A. R. Hilst, Professor of Agronomy at Purdue University; Roy M. Kottman, Dean of Agriculture and Home Economics at the Ohio State University, Director, Ohio Agricultural Experiment Station and Director, Ohio Cooperative Extension Service; and Lloyd E. Partain, Assistant to the Administrator for Recreation in the Soil Conservavtion Service.

You may also be interested in a little background information on the National Academy of Sciences—National Research Council, or the NAS-NRC.

The NAS-NRC is a **private,** nonpropfit organization of scientists and engineers dedicated to the furtherance of science and its use in the general wefare. The organization representing the first part of the title—The National Academy of Sciences—was created under a Federal Charter signed by President Lincoln in 1863. It has, through the years, devoted a large part of its efforts to studies and recommendations on scientific and engineering policy matters for the Federal Government.

The National Academy of Sciences is a **membership** organization of approximately 700 scientists and engineers. The National Research Council, on the other hand, is the operating arm of the Academy, created under the Academy's Charter in 1916. It is a mechanism for bringing together many scientists and engineers in boards and committees—about 5,000, in fact, today.

The Academy-Research Council today has a permanent staff of about 700, and an annual budget in the vicinity of 15 million dollars.

Both CEPA and the NAS-NRC have a deep interest in your role in the communication of agricultural science and in the education of agricultural communicators. There are, after all, only two really important jobs relating to agricultural science. One is discovery and development. The other is dissemination—not only for use by those in agriculture but, increasingly, for guidance in formulation of public policy and for the education

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of the general public.

Probably only a minority of you are **directly** involved in either undergraduate or graduate programs for the education of future agricultural communicators. But if you are a typical audience, each of you has a deep interest in the education of those who will be entering your profession in coming years.

My talk is based on this assumption, as well as on the premise that if you are an employer of agricultural communicators, you **ought** to be concerned about their education. More than this, you are in a unique position, since most of you are members of college and university staffs, to provide leadership and assistance to education programs, both nationally—through your Association —and on your own campuses.

With the preceding in mind, I would like to consider four major topics today. I will put them in the form of questions:

1. What will be the work of the future agricultural communicator—say, 10 or 15 years from now?
2. What are the ideal professional characteristics of this person?
3. What kind of education should he have?
4. What will be the demand for agricultural communicators and what can be done to increase the supply of trained persons to meet this demand?

My primary purpose is to raise questions. But I will also suggest some answers. However, I certainly don't pretend to have all the answers—or all the questions, for that matter. As a matter of fact, I have intentionally chosen to limit my remarks in most instances to the communication of **agricultural science** per se, acknowledging that there are other aspects of agriculture to consider.

Now, then, the first question: What will be the work of the future agricultural communicator? I will mention two major areas of responsibility which I expect the agricultural communicator will be undertaking 10 or 15 years from now.

First, he will have an increasingly important responsibility for reporting and **interpreting** contemporary agriculture, especially the scientific aspects, **for the general public.** CEPA defines agriculture broadly, to include the **management,** with scientific knowledge, of all renewable natural resources found on land and in inland waters. The task of of the agricultural communicator, then, will be to help enhance the average citizen's appreciation of his environment. More than this, he will have the responsibility of informing the voting and taxpaying citizen about the use and conservavtion of land, forests, wildlife, water, air, natural beauty and so on. He will **share** in the broad task of informing the **people** about science so that the contribution of science will be brought to bear as public opinion and public policy are shaped and solidified.

This first area will be the responsibility, primarily, of the **science writer** and the **science editor.** These persons may cover other sciences besides agricultural science. Nevertheless, there will be many communicators who will be concerned at least in part with communicating agricultural science.

Second, the agricultural communicator will assist in the task of getting specific technical knowledge to farmers, urban and suburban homeowners and many others involved in some way with agriculture including such off-farm audiences as pesticide operators, turf managers, field men and the like.

There will certainly be other important roles for the future agricultural communicator, including **persuasive** communications such as advertising and public relations, and the study of the communications process as it relates to the subject matter, the institutions and the people of agriculture.

What **other** roles would you add?

Now, the second major question: What are the ideal professional characteristics of the future agricultural communicator? Or, to put the question another way: What competencies make for excellence in agricultural communications?

It is not possible to compile an exhaustive list because whether or not a certain competency is needed—and the degree of need—will vary according to the type of agricultural communicator. I will only start a list by suggesting several competencies that will be needed by **many** agricultural communicators.

The first is **knowledge of science.** The importance of this is obvious when one considers that much of agriculture is science and that a portion of science is agricultural. Does the agricultural communicator of the future need a detailed knowledge of the **subject** matter of science? Probably not. But shouldn't he have some idea of the history and philosophy of science, and its growing relationship with public affairs? Shouldn't he have an insight into the process of science—how it works. Then, too, if he is acquainted with the **interdisciplinary character** of scicene he will be better able to relate agricultural science to other areas of science—to recognize for example, the importance of human health of certain agricultural research discoveries and, conversely, the relevance to agriculture of a discovery in medical science.

What are the limitations of science? The future agricultural communicator will need to realize that one experiment does not give the final answer. An hypothesis must be tested again and again, by the original investigator and by his peers, until it may be accorded the status of a theory or concept. Even then it cannot be treated as dogma, but must be found to be verifiable and repeatable without exception before it may eventually become a scientific law or principle.

An agricultural communicator needs to understand this if he is to report and interpret agricultural science accurately.

A second vital characteristic of this future agricultural communication is **knowledge of agriculture,** not just its science component, but agriculture as a larger entity, as a nearly inseparable part of our economy and our society. He should see agriculture as a complex system involving continuous operations from the time a seed is planted until food, fiber and other pro-

ducts are consumed—as a system in which a number of disciplines are brought to bear on problems involving production, natural resources and agriculturally related businesses.

Equipped with this background in science and agriculture, the agricultural communicator will be able to put his story in an appropriate context rather than report an isolated event or discovery. He will, for example, have a grasp, or be able to get a grasp, quickly, of what's involved in the pesticides controversy, or the basis for agricultural production problems in the tropics, or the significance of the development of hybrid wheat.

Equipped with this background, he will be well on the way to achieving a third essential characteristic, that of being an **interpreter,** as well as a reporter.

The third major question: What kind of education for excellence in agricultural communications?

Should there be specific preparation for agricultural communications through an education that encompasses both agriculture and communications? Does the future agricultural communicator **need** an education in agriculture? Does he **need** instruction in communications? Is an **undergraduate** degree in agricultural communications too specialized? Should his education instead emphasize the natural sciences or the social sciences or the humanities or be distributed equally among all these?

I am not going to suggest that we try to identify the **one best type of preparation** for future agricultural communicators. I doubt that there will ever be agreement on this. Nor should there be. There are and will be a variety of suitable means to the end of excellence in the education of future agricultural communicators.

It's more important, I think, to answer questions such as this.

What competencies needed by the agricultural communicator can be best learned and most appropriately taught at each stage of his education—in grade and high school, as an undergraduate, in graduate school, on the job, in adult education courses, and in other ways?

Your association could provide a valuable service by offering answers to this question.

In spite of my insistence on a variety of academic routes to the occupation of agricultural communicator, I submit that for **many** future agricultural communicators, an undergraduate program that combines agriculture and communications will be desirable. Therefore, I would like to discuss briefly the undergraduate program in agricultural communications—not in detail, but I would like for you to consider for a moment the future communicator's education in two areas—science, including agricultural science, and communications.

And I should like to report that we are in the midst of a revolution in college teaching of science and mathematics. This has many implications for the matter of excellence in education of the future agricultural communicator.

Biology teaching, for instance, is beginning to reflect the push in biology today toward the molecular—the basis for life, mechanisms for inheritance and the like. The general **chemistry** course on many campuses isn't the **inorganic** chemistry it used to be. It's becoming more organic and may even include some physical chemistry. Much traditional material is being to'sed out of the introductory **physics** course. Cont' ,o-rary **mathematics** is changing, too.

One of the goals of the courses in the ences should be to develop an understanding of the nature of science and the process of research. For the student who is strongly science-oriented, the future science writer, why shouldn't you recommend participation in an undergraduate research project and/or an undergraduate research seminar that will surely strengthen his concept of science? They are available now in many colleges.

He might also spend, if possible, a summer internship with an agricultural scientist, or another type of scientist. The point is that, in some way he should as Dr. Watson Davis, Director of Science Service, has said, "Get his hand dirty and his mind disturbed in a research laboratory."

It is encouraging to note that agricultural communications curricula are putting more emphasis on the natural and social sciences. However, there may still be weaknesses. For instance, it is not uncommon for agricultural communications curricula to require as little as one quarter or one semester of bioloy. Is this enough, in view of the importance of biology to agriculture?

An example from the social sciences—only a portion of the students in agricultural communications get instruction in the learning process. Should all of them?

Relatively few get statistics and hardly any have an introduction to computers now. **Should** they, in view of their increasing contact with research in agriculture and in communications?

At this point, I would like to thank those of you who answered my recent inquiry about agricultural communications curricula. Much of the remainder of this talk is based upon information you provided. I did not poll all the colleges—just those I knew or suspected had undergraduate curricula in agricultural communications or agricultural journalism. If your college has such a program and I overlooked you, I hope you will forgive.

Some of the information you provided raises a question about education in the **agricultural** sciences for future agricultural communicators. Should there be specialization in a specific agricultural subject, such as animal science or agronomy, at the undergraduate level? I would argue for breadth. As a matter of fact, most undergraduate agricultural communications curricula do **not** require a major or minor in a specific agricultural subject, but instead require a **distribution** of courses.

According to the information provided to me, nearly all of the students in agricultural communications are **required** to take, or **usually** take, instruction in the animal sciences, *plant* sciences, such as agronomy or horticulture, soil science, and agricultural economics. Many are also ex-

posed to agricultural engineering and rural sociology. However, there appears to be little exposure to two areas that are growing in importance—food science and technology, and forestry and wildlife.

Shouldn't there be, in some way, an introduction to some of the practical problems facing agriculture, such as protection of plants and animals from insects and diseases, to weather and climate, and to other aspects of the environment that affect agriculture?

Shouldn't there be exposure to international agriculture? Then, too, the agricultural communicator, perhaps more than any other person in agriculture, needs to have a sense of the history of agriculture.

Now you may rush to defend the educator and say this isn't possible—to accomplish all this, students in agricultural communications would have to take one or more courses in animal, dairy and poultry science, agronomy, horticulture, entomology, plant pathology, meteorology, agricultural history and so on, ad infinitum (or almost).

Let me assure you that I am not suggesting a separate course in each tradition area. A number of colleges of agriculture have recently introduced, or are devising, consolidated courses that replace existing courses in two or more areas. It's no longer necessary on some campuses for a student to take separate courses in animal, dairy and poultry science, for example, to get exposure to each. There is a single introductory course that covers all three.

I think that it's entirely possible for students in agricultural communications to get a broad exposure to agriculture through not many more than half a dozen well-taught courses.

In some agricultural communications curricula, the number of hours devoted to agricultural courses is being reduced, and emphasis is being placed on "principles" courses in agriculture. The consolidated, overview courses should facilitate this kind of change.

The point here is that the time is rapidly approaching when you as communicators, as educators, as employers, can urge a truly broad education in agriculture with little fear of asking for something that is unrealistic.

I will not take much time to discuss courses in communications—you know far more about this than I. I will only raise some questions for your consideration.

1. Should there be specialization within communications? I wonder if there's enough time for much specialization. If, for example, the student is to develop a specialty in advertising, can he build the foundation he needs in psychology, sociology and other social sciences and still get everything else he needs in four years?

It appears that most colleges do not require or encourage undergraduate specialization in a particular area of communications. If they do, most likely it will be a choice from three alternatives: newswriting and editing, radio-TV, and advertising.

2. What is the irreducible core of classroom work in communications needed by the students? Much of learning to communicate well, it seems to me, is practice. How much of this practice—in writing, public speaking, broadcasting—can and should come through extracurricular and summer activities? Many, but probably not a majority of the agricultural communications curricula, now require extra-curricular work. However, most of the rest of the students actually do such work. Are you providing as much part-time work experience for interested and capable students as you possibly can?

3. Is there sufficient attention to research in the communications processes? About half of the agricultural communications programs require or strongly recommend instruction in the interpretation and use of the results of communications research. Should it be 100 percent?

4. Finally, are communications instructors teaching and encouraging the highest possible quality in communications?

The last major question: What will be the demand for persons trained in agricultural communications and how can their supply be increased? Let's consider the supply first in terms of undergraduate enrollment in agricultural communications, acknowledging again that there are other academic routes to a career in agricultural communications.

Enrollment in agricultural communications is growing. We have data from 17 colleges: those colleges had 204 undergraduates enrolled in agricultural communications in 1964-1965, a healthy increase of 100 percent since 1960-61. By comparison, undergraduate enrollment in all of agriculture increased only a little more than 10 percent during that period.

The jobs to support higher enrollment apparently are there. Each student graduating with an undergraduate major in agricultural communications has from 2 to 6, and perhaps more, jobs offered to him.

The situation leads to these questions: Should there be efforts to boost undergraduate enrollment in agricultural communications to a quantity several times the present level, or more? If so, what are the implications for our philosophy and practice of counseling, curriculum planning, and teaching? Today, with only a handful of students in most departments, each student can get more individual consideration than if enrollment were much larger.

Fewer than half of the land-grant colleges and universities have a curriculum in agricultural communications. Should more? Your association could provide leadership by studying this question.

You probably want to consider what can be done to boost enrollment. I haven't much to offer except questions, although I would like to make this brief observation: Perhaps we should stop talking about low enrollment in agricultural communications and accentuate the positive— the fact that enrollment, as I've just pointed out, is growing rapidly, not in all colleges, but in many.

Do we look enough for students, and employees, who come from nonfarm homes? An in-

formal study by CEPA showed that now about half of the students in colleges of agriculture are not from the farm.

What is your position in regard to the enrollment and employment of women in agricultural communications?

I suspect that agricultural communications is less visible to the prospective agricultural student than some other fields in agriculture such as animal science and vo-ag teaching. If this is true, can't you, as communicators, do something about this? How can a student with aptitude and interest in agricultural communications be directed into the field after he enters college? How can a student with communications abilities be stimulated to become interested in agriculture? Perhaps more important, how can we convince social science and humanities-oriented advisors in journalism schools that an option in agriculture or biological sciences makes sense?

Is there adequate career literature for the field of agricultural communications? We are pleased with the success of our new brochure "Threads of Life" which has reached nearly 100,000 copies in sales to the colleges of agriculture. As you may know, "Threads of Life" is slanted toward the biological science aspects of agriculture. The intent was to tie agricultural science to something that is better known and more appealing to the majority of high school students—biology—and also to be subtle in introducing agriculture.

There have been suggestions for a sequel which includes the social science aspects of agriculture. There is much doubt that CEPA will be able to do this. But we certainly encourage others to do so. This brochure might encompass "social sciences and communication arts" in agriculture, and be a joint undertaking by agricultural communicators, vocational agriculture, agricultural extension, agricultural economists, rural sociologists and so on. What group would be more logical to spearhead such an undertaking than the agricultural communications?

Now I would like to toss the ball back to you and encourage a thorough study of the preparation for agricultural communications. Several of you are now taking a close look at the undergraduate programs on your own campuses, with a view toward possible major revision. We encourage you, and trust that your efforts will be profitable.

Teacher Recognition Report

One of the purposes of the National Association of Colleges and Teachers of Agriculture is the improvement of teaching at the college level. Recognition of commendable work is an essential part of improving any type of performance.

NACTA began a formal program of teacher evaluation and recognition this year. The following men have been recognized for doing a competent job of teaching. These teachers were evaluated by their students during the first half of 1965. The evaluation procedure is in the spring issue of the **NACTA Journal.**

Frederick E. Beckett, Louisiana Polytechnic Institute

Robert Bedwell, Tennessee Polytechnic Institute

Maynard Boyce, Alfred Agricultural & Technical College

George W. M. Bullion, Tennessee Polytechnic Institute

Charles Cameron, Alfred Agricultural & Technical College

Wayne Carter, Alfred Agricultural & Technical College

Frances M. Churchill, Abilene Christian College

Dewey Davis, Abilene Christian College

Wilbur W. Frye, Tennessee Polytechnic Institute

Harold C. Funk, Tennessee Polytechnic Institute

Joe Galloway, Arizona State University

James D. Hamilton, Austin Peay State College

Frank Hinton, Austin Peay State College

John W. Hyde, Alfred Agricultural & Technical College

W. Clyde Hyder, Tennessee Polytechnic Institute

Donald Jones, Alfred Agricultural & Technical College

Keith K. Justice, Abilene Christian College

Hilbert Kahl, Northeastern Junior College of Colorado

John Kuprionis, Louisiana Polytechnic Institute

Wallace H. MacDonald, Alfred Agricultural & Technical College

E. Grant Moody, Arizona State University

Charles C. Pangle, Tennessee Polytechnic Institute

Bob T. Parham, Tennessee Polytechnic Institute

Wesley Parish, Alfred Agricultural & Technical College

Grant L. Richardson, Arizona State University

Neil Sandstedt, Northeastern Junior College of Colorado

Vincent C. Smith, Alfred Agricultural & Technical College

J. R. Wells, Fort Hays Kansas State College

Leroy Young, Southwest Texas State College