Current Curriculum Trends in Colleges of Agriculture

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Any discussion of goals in education, or of curriculums to accomplish such goals, must be in the perspective of the times and must take into account the forces found in the contemporary setting. Certain forces presently operating for change in formulation and administration of curriculums can be identified. Some of these are:

1. A pervasive emphasis on inter-relationship of all basic sciences and all fundamental research to the production, processing, and distribution elements of the agricultural industry.
2. The changing place of agriculture in the national economy, and in relation to the world economy.
3. The lessening number of people in farming occupations, the increasing size of production units, and the "big business" frame of reference.
4. The growing technology and efficiency in production.
5. The "image" of agriculture in the public mind.
6. The continuously growing proportion of young people going to college.
7. Students showing they are ready to accept the challenge of excellence in education.

In this "space age" of ours perhaps the most important of these forces is the renewed realization of the inter-relationship of all sciences. This undoubtedly grows out of what is so often referred to as the "explosion"—the explosion of atomic energy, the explosion of technology, nuclear reactors, radiotelescopes, digital computers, and many other mechanisms and techniques.

There are in progress certain well organized efforts to teach agriculture at the secondary school level, i.e., "vocational agriculture" on the basis of the related biological principles. Dean Fred Briggs and S. S. Sutherland at the University of California, Davis, in cooperation with the California State Department of Education have developed and used experimentally in selected schools an agricultural course of study built around 20-some basic principles of biology and related sciences.

This may require a radical change in emphasis in teaching—a shift of emphasis from the product of science to the process of science. An understanding of this process, of its basis in logic, and its limitations with respect to validity will enable the student to interrelate his mathematics, biology, physics, and chemistry.

All agronomic education, of course, is in an atmosphere of close relationship of the biological and physical sciences, but the further extent of inter-relationship with the social and economic sciences needs attention; and manifesting itself in all areas of education.

A report under the heading of "The Nation's Engineering Research Needs, 1965–1985," presented by the Committee of the Engineer's Joint Council a few months ago will probably have continuing implications for engineering education. Resulting from a 2-year study by a special 15-man committee headed by J.H. Holloman, formerly manager of the General Engineering Laboratory of the General Electric Company and now Assistant Secretary of Commerce for Science and Technology, it stresses that it is the responsibility of engineers to "produce literacy in both the social-economic-political and educational theorists; (2) closer collaboration between educational theorists; (3) the introduction of interdisciplinary programs in "bionics;" and (4) effort to eliminate and broader concepts adopted—how life develops, the variations which take place, the cycles, the way in which plants and animals (involving heredity) and die (diseases and epidemics)."

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In this connection it is interesting to note that the agricultural faculties and institutes in some countries offer a degree in Biological Engineering rather than Agricultural Engineering.

A panel of French businessmen and educators studied the French educational system and recommended a revision of the related biological sciences, that the study of natural sciences, especially those of man, be revised. They said: "Descriptive details should be eliminated and broader concepts adopted—how life develops, the variations which take place, the cycles, the way in which plants and animals (involving heredity) and die (diseases and epidemics). Such basic knowledge will facilitate, in the future, understanding of the evolution of human life, developments, economics, the social sciences, mathematics."

There is a general feeling among top-level engineers that the time has come when an engineer must be educated to the doctorate level. This may be an anomaly at a time of close relationship of the biological and physical sciences, but the further extent of inter-relationship with the social sciences is manifesting itself in all areas of education.

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