ADVANCING THE PROFESSION OF ENTOMOLOGY \(^1\)

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It is indeed a pleasure to meet with you, and I consider it a great honor to be asked to address the Subtropical Entomological Society. I want to congratulate you on your enthusiasm for and devotion to the profession of entomology, which has enabled you to successfully organize this thriving Entomological Society. I understand that you have made overtures to the Florida Entomological Society looking toward affiliation. The Florida Entomological Society will certainly be strengthened by your joining with us, and it is my earnest hope that the relationship will be mutually beneficial to the two organizations.

When the invitation to be your speaker for this evening was received, the first reaction was one of pleasure in honor thus bestowed. This reaction quickly turned to one of bafflement when the search for a subject began. Because of the somewhat brief interval between the receipt of the invitation and the time of the meeting, the duration of the first reaction was very short. Therefore, with some misgivings about its acceptability, I have chosen “Advancing the Profession of Entomology” as my title.

Some of us here tonight are students with all of the vigor and impatient thirst for knowledge of those just being initiated. Some are teachers with a broad knowledge and deep understanding of the whole field. Some are systematists, morphologists, ecologists, biologists or other specialists who have acquired a scholarly knowledge of their chosen field of activity. Others are economic entomologists. Economic entomology has recently been described as “a heterogenous mixture of entomology, business, economics, education, law, medicine, agriculture, engineering, physics, chemistry, biology, and statistics, all applied in various proportions and combinations to the control of insect pests”\(^2\). No matter what the relative standing the various branches of entomology may occupy in our own eyes or in the eyes of others, the most important fact is that we are all entomologists. Each of the various branches of the science of entomology is intricately interwoven with all of the other branches so that there can be no placing of one branch above another or discredit to one branch without injury to the whole. Then let us ask, why should we who represent these various branches of the profession be concerned with the advancement of the profession as a whole?

The answer to that question is that as individuals we make our contribution to the reputation of the entire profession. Perhaps the statement just made sounds trite, but I think this idea should be given consideration occasionally by such groups as this. Only as individuals acting in concert in this and similar groups can anything be done about advancing the profession. One thing can be said with certainty. If our

\(^1\) An address delivered to the Subtropical Entomological Society, Miami, Florida, on June 13, 1956.
profession is to advance, promising young people must be attracted into it. It follows that those of us who are members of the profession must act in such a manner that young people will be attracted to entomology.

The recent celebration of the 100th anniversary of economic entomology centered attention on the attainments of the past. The acceptance accorded that celebration by the general public is testimony to the glory of the past. That the profession of entomology has such a glorious past is due in large part to the unity of action of the students, teachers, scholars and applied branches all working together. Now that the period of celebration is past, it is time to consider the future. Then we ask, how can we as individuals advance the profession of entomology?

Many of you have seen the pamphlet, which was prepared by the Entomological Society of America, designed to direct the attention of high school students to entomology as a profession. The Florida Entomological Society, through the efforts of a special committee, is preparing an exhibit on the subject “Entomology in Action” for use at fairs and other such places where it will attract the attention of the general public and particularly young people about to enter college. Another committee of the Florida Entomological Society is assembling a set of color slides and is preparing an accompanying talk for presentation to high school seniors on the same subject, “Entomology in Action.” Another method of attracting young entomologists is to encourage the establishment of apprenticeships or fellowships in entomology. Another excellent means of acquainting young people with entomology is through the Girl Scout and Boy Scout organizations. Almost all of us could volunteer as counselors for the entomology merit badge. Incidentally, the boy or girl who completes the requirements for this merit badge has had a good introductory course in entomology. These are some of the things that are being done or can be done to attract young people into the profession of entomology.

The present day trend toward greater specialization in narrower fields of most human activities is also evident in the profession of entomology. This specialization is responsible for the fact that the isolationist or the worker who can not or will not work closely and in harmony with others is rapidly disappearing. Dr. Herbert Ross, in his presidential address to the Entomological Society of America in 1954, discussed at length methods of avoiding the harmful effects of specialization. He pointed out the danger of stagnation if there is not a free exchange of ideas between entomology and other branches of science. Dr. Ross also suggested “that we increase the exchange of ideas between the various specialized fields of entomology, that we develop a more extensive system for bringing information from other branches of science into entomology and that many more entomologists integrate the findings of entomology into the pertinent basic and synthesizing branches of science.”

Because of this unavoidable trend toward specialization, there is a greater need for closer cooperation between the specialized branches of entomology and between the entomologists and workers in other sciences such as ecology, physiology, chemistry, biology, and genetics. That

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this need for cooperation between scientists in differing fields has been recognized and is being met is illustrated by regional and state projects on insecticide residues. These projects involve economic entomologists, chemists, toxicologists, physiologists, and nutritionists. The joint publication by Louisiana and Arkansas of the bulletin entitled “Bollworm and Tobacco Budworm as Cotton Pests in Louisiana and Arkansas” is an excellent illustration of the advances made possible by the cooperation of two state experiment stations. An illustration of voluntary cooperation among widely scattered entomologists is provided by the regional project on the control of the corn earworm on sweet corn. In fact, this cooperative effort is not a formally outlined project. For the past five years entomologists representing the Entomological Research Branch, U.S.D.A., State Experiment Stations of Alabama, Georgia, Florida, Virginia, Pennsylvania, Texas, Illinois, Maryland, North Carolina, South Carolina, Kentucky, Ohio, and California have gotten together at the Cotton States Branch meetings and have agreed upon the experimental plan to be followed for a particular year. Mr. J. W. Ingram of the Entomological Research Branch is acting as coordinator, and Dr. W. G. Eden has compiled the data. Each year a different phase of the corn earworm problem has been selected for study. With such coordinated planning, the results from one year’s study can be relied upon with complete confidence; whereas, if one worker alone conducted the same experiment, he would have to repeat the experiment several years to obtain data that could be relied upon with the same degree of confidence. With this kind of cooperation, a great deal more can be accomplished in a short period of time.

The administrative leaders of research organizations are keenly aware of the handicaps of this movement toward specialization and will encourage more of the cooperative types of projects. For example, 100 per cent of the projects reported upon in the 1924 Annual Report of the Florida Agricultural Experiment Station were conducted by individuals working alone. By contrast, in the 1954 report 39 per cent of the projects were conducted by individuals, 50 per cent of the projects were conducted by two or more cooperating workers in the same department and 11 per cent of the projects were conducted by workers in different departments. Of course, the staff of the Experiment Station has increased tremendously in this thirty year period. However, these figures emphasize the statement made earlier that the isolationist is rapidly disappearing. In a talk made about a year ago to the Sanford Kiwanis Club on the increasing complexity of the work of the Experiment Station, Dr. Beckenbach stated that the solution of present day problems requires the efforts of a team of scientific workers trained in different fields. He said also that in the selection of staff personnel the personality and ability of the applicant to work with others are given very careful consideration. All of this means that we as entomologists must place ourselves in the vanguard of this cooperative movement if the profession of entomology is to maintain its rightful position along with the other sciences.

Therefore, it is a waste of valuable time and somewhat childish to be concerned about the fact that recent presidents of the Entomological Society of America have been workers in the field of applied entomology.
Wigglesworth in a paper entitled "Contributions of Pure Science to Applied Biology" published in the Jubilee Number of the "Annals of Applied Biology" develops the thesis that it has more often been the applied branches of science which have accumulated new knowledge. The pure sciences then have been forced to develop new theories in explanation of existing knowledge. Each of you can suggest several instances in which this has happened. Instead of the illustrations Wigglesworth used, I have chosen two from our own experience here in Florida. The first is in the field of taxonomy. Only after the economic entomologist had pointed out the differences in habitat, biology and reaction to insecticides, two specific entities for the chinch bug were established. The second example is an unsolved problem in physiology. Those working with insects that attack citrus know that before parathion came into general use the phenomenon known as greasy spot was not a factor in citrus culture. They have found if oil is used in the spray schedule alone or in combination with parathion, greasy spot will not become serious. Wigglesworth goes on to state that in the solution of practical problems the applied scientist is in the forefront of the search for knowledge, that the processes of thought are the tools used by the applied scientist and that the function of pure science is to furnish applied science with adequate tools.

We should all exhibit the spirit of the British urchin who was accustomed to play in the streets near Buckingham Palace. The two boys being reared in the Palace had watched the snowball battles which often took place among the boys playing in the street. The two princes had attempted to put on similar battles inside the Palace fence. But they could never achieve the thrill and the reality of the battles outside the fence. So the two princes would watch the battles outside; and as they watched, they developed an intense longing to join in one of these snowball battles. One day as they watched, their guardian’s attention was distracted for a moment. Immediately George said: "This is our chance, Philip!" and they slipped through the gate. After only a few moments all signs of Royalty were thoroughly erased. Then the police arrived upon the scene and bundled the entire group into the paddy wagon. The boys were lined up before the judge in his wig and gown, on his high seat, representing the majesty and authority of British law. The judge said to the first boy: "Who are you, my lad?" The boy drew himself up and replied: "My Lord, I am the Prince of Wales." The judge sat a little straighter, but he decided to go on with the questioning; so he turned to the second boy and asked: "Who are you, my lad?" The second boy replied: "My Lord, I am the Duke of Gloucester." This startled the judge, but he proceeded with the questioning and turning to the third boy asked: "Who are you, my lad?" The third boy shuffled his feet, brushed his trousers, lifted his head and replied with a limehouse accent: "My Lord, I stand with my buddies, I am the Archbishop of Canterbury."