MEANS WHEREBY THE ECONOMIC ENTOMOLOGIST CAN ADVANCE APICULTURE¹

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Bee keeping in the United States is progressing and considerable advances are being made in various phases of the work, but there still remains much to do before apiculture as an industry takes its rightful place as a phase of scientific agriculture. The honey resources of the United States are very great. At present vast quantities of nectar are wasted every year because of the lack of bees to gather it, and, even where bees are kept, the wastefulness due to crude and improper manipulation is entirely too great. Persons interested in the advancement of this industry fully realize this condition of affairs, but the difficulty is to set in order machinery whereby these conditions may be overcome.²

Apiculture is a branch of economic entomology and should be recognized as such. It is true that the nature of the work is quite unlike that of most of the work in economic entomology in that the object is to propagate rather than to destroy. The difference is not so great, however, when it is recognized that apiculture is primarily a study in life history but of a very detailed nature.

At present apiculture is advancing somewhat slowly and for two reasons. The main obstacle is bee disease, which causes a great annual loss to the bee keepers of the country and prevents the enlargement of operations. The second obstacle and the one of which I wish to speak particularly, is the need of competent and comprehensive research and educational work among those interested in bees.

In speaking of the work which the economic entomologist may do in helping this industry, there are several points which may be mentioned at once to forestall any presentation of them as objections. The economic entomologist is a very busy man and work on bee keeping would be adding to his already heavy work. The amount of money available for a new line of work is usually small or possibly entirely lacking and, in most cases, work on bee keeping would be a new line of work. The training for work on bee keeping is not usually included in that furnished a prospective economic entomologist and it is a safe assumption that the practical manipulation of bees would be new work to most men engaged in state work. It therefore follows that any work which may be undertaken, in most cases at least, must

¹This paper was read by title at the meeting, but as it is closely related to the one which follows, it is inserted at this point in the report.—SECRETARY.

be such as to require little time and money and a rather meager knowledge of practical bee keeping.

In a recent paper¹ I discussed the need and possibilities of apiculture and classified the needs as scientific, economic and educational. The scientific needs are those resulting from a lack of proper research along statistical, zoölogical, botanical, chemical and bacteriological lines. There is no real line of demarkation between scientific and economic needs, since economic work is but the application of the results of scientific work. The educational work is the presentation of the results of scientific and economic research to the man who needs it. In part of these lines of work at least the economic entomologist may be of the greatest help.

The furtherance of the work depends largely on a definite knowledge of the present conditions of bee keeping, and to this end the Bureau of Entomology has undertaken the compilation of statistics as to the conditions of bee keeping in Massachusetts. Of the technique used in this work, Mr. Gates will speak more fully. Similar work is being undertaken in Maryland in coöperation with the State Entomologist. The work in Massachusetts has already resulted in great good in stirring the bee keepers to greater activity, and they are now actively engaged in getting a disease inspection law passed. In Maryland, with the work just begun, a good bee keepers' organization has been established as a direct result of the work. This work is too large an undertaking for the Bureau to undertake in all the states, nor does it seem desirable, for this is work which seems more properly to belong to the state. The advantage of a detailed knowledge of the present status of the industry, with information as to the honey resources, is of inestimable value in planning educational work. This work involves considerable time and may, therefore, be out of the question for many state entomologists.

There are, however, several lines of work which suggest themselves. In a paper which I read before this association a year ago,² I urged that the state entomologists interest themselves in bee disease work. There is no other line of work in most states that would be of greater help to the industry. The distribution of bee diseases in the state is undoubtedly the best argument which can be used in asking for new laws and where laws already exist this should be definitely determined as an aid to the inspector and as an educational measure. This the

¹Phillips, E. F., 1909. The Status of Apiculture in the United States, Bulletin No. 75, Part VI. Bureau of Entomology.

²Phillips, E. F., 1908. Bee Diseases: A Problem in Economic Entomology. Journal of Economic Entomology, Vol. 1, No. 2, pp. 102-105.

entomologist can do with little work. He can soon learn to diagnose American foul brood and most cases of European foul brood. In case of doubt, the Bureau of Entomology will be glad to make bacteriological examinations. The examination of samples not only is the means of identifying samples for bee keepers who do not know the diseases, but publications may be sent out or recommended giving methods of treatment.

It need not be pointed out that Farmers' Institutes are an important factor in agricultural education. The state entomologist may, without great effort, see to it that talks on bee keeping are included in the institutes, either by himself if he feels able to do it or by some good practical bee keeper. There is an element of danger in this work which should be mentioned. Bee keeping is not an industry in which every one can engage with profit and Farmers' Institute talks should not be of such a nature as to induce great numbers to take up the work. They should aim to make better bee keepers of those now in the business and encourage only careful persons to begin it. Any other procedure will lead to grave disappointment. The state entomologist may well exercise a little supervision over these talks to eliminate wild nature-faking, which is too often a fault with bee talks.

In traveling about the state the entomologist often has opportunity to give out information on bees and to get information of value to other bee keepers. It would be better if he could give out information himself in person or in letters or bulletins, but, if not, he can put the bee keepers in touch with the Bureau of Entomology.

A METHOD OF SECURING APICULTURAL STATISTICS

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Until recently, the only source of statistical information on apiculture has been the Federal Census; but, unfortunately, this is found incomprehensive. It fails to strike to the root of the industry and to give fundamental information, as for instance, on the prevalence of bee diseases, prevailing methods and implements, progressiveness in certain sections of the country, enemies and like economic problems. Such things the one who is attempting to promote apiculture must know. They are also of interest to the bee keeper, who cannot be enlightened by the Census Reports. Moreover, there is considerable evidence that the data presented in the Census Reports does not adequately picture the importance and magnitude of the industry. The