



Eva Crane Trust

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The Bee Research Association *

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THERE has been a veritable explosion in the output of research on honey and bee products since 1949, when the Bee Research Association (B.R.A.) was founded. Countries with long-established beekeeping research stations have expanded these and created others; many new countries have set up bee research establishments for the first time. More and more effort is being applied to finding out about bees, and how to get better economic returns from keeping them.

Last year the B.R.A. published a "Bee Research Directory," a guide to current research throughout the world on bees and subjects related to them. We were able to enter in our "Directory" bee research institutes or departments in 60 different countries. For a further 30 countries we could list the name of some organization, or B.R.A. member, who would be a useful contact for scientists needing information from that country. This makes a total of 90 countries that we are in touch with from the research point of view. And a new development or discovery in any one of these 90 is potentially of value to any of the other 89.

But—and it is a big but—the results of all this work are of no use to those who do not know about them. And they are published in 50 different languages: from Albanian to Arabic, French to Finnish, and Polish to Portuguese. Who can get these 50 languages translated so that people in other countries can use the research published in them? Also, our own records show that discoveries relating to bees are published in at least 2,000 different periodicals. Who even sees all these publications? It is this job of world-wide liaison between the research institutes, beekeeping developments and beekeeping industries of the world that the B.R.A. has tried to do for the past 18 years.

Breaking the language barrier is in itself a formidable job with 50 languages to tackle. I have studied recent

analyses in broad subjects such as chemistry and nuclear physics, and in the smaller one of bees and apiculture. In all, English is the most important scientific language, followed by Russian and German; around 80 percent of publications reported in abstract journals are in one or the other of these languages; English accounts for say 55 percent and German and Russian together for the balance. In the apicultural field the next most important languages are probably French, Polish and Japanese.

When the B.R.A. was founded in 1949, one of the first projects was a multilingual "Dictionary of Beekeeping Terms," and this has been a labor of love by specialists in many countries. Volume I (1951) gives the equivalents of 1,500 technical terms in English, French, German and Dutch. Volume II (1958) gives the same terms in English, Italian and Spanish, and Volume III, published in Poland in 1964, gives Russian, Czech and Polish together with the English, French and German from Volume I, which is now out of print. The terms are numbered for cross-reference between each volume, so that all nine languages can be inter-translated. The next volume will cover the Scandinavian languages.

Meanwhile, you will be asking *how we keep track* of what is being published in all 90 countries and 50 languages, and how we select and handle what is useful and make it available. In fact, how do we find and collect our nectar, how do we process it and put it on the market?

First, *gathering our nectar*. We are in touch with virtually all the institutions in the world where research is done, and are constantly on the alert for news of others being set up, and of scientists in other fields whose work is likely to have a bearing on bees. At meetings I "scout" for new forage at close range but in print I must do it with words. *Please* will any scientist who is not already in touch with B.R.A. let me know what they are doing, and send me their reprints?



About half the new scientific publications on bees are sent to us directly by their authors. The rest we must search for and this is shared between scientists in many countries. We are always needing to add further members to our team of scanners and abstractors, so any offered help is appreciated.

We get help from government departments in many countries and enjoy a world-wide cooperation from scientists, beekeepers and even linguists who have no special interest in bees. Without their help many people would never know about research work that has benefited them.

We must now pass on from our nectar, and the enzymes needed to digest it, to honey that is our end product. And here I should like to change my metaphor. In the rapidly developing field of information science, including information retrieval, we hear a lot about computers. In a lecture a few months ago, it was suggested that we should formally introduce a third type of ware, meaning the pool of information available. This the lecturer referred to as foundation garments which "should inspire confidence without contributing to the display . . . must provide discipline without restraint, and . . . be fashioned to suit a variety of visible presentations." For the information that we do our best to collect and make available—the foundation garment on which progress in bee research and technology can be built—must serve a wide spectrum of fashion, from the sophisticated ball gown of chromatography and mass spectrography, to the more practical mini skirt and jeans of hive management.

Our pool of useful information comprises both new advances and the store

* Taken from her address before the XX1st International Apicultural Congress, College Park, Maryland, August 14, 1967.

of knowledge built up from past advances. The new advances we process and publish, and send out to the 90 countries where we have members and subscribers, in the form of three journals.

First, "Apicultural Abstracts" contains brief summaries of new publications. This is published quarterly and, since it was started in 1950, has brought to its readers' notice a total of 9,214 publications: some describe new research on bees, bee husbandry, honey, venom and pollination; the rest are useful to the world's bee industry for other reasons. They may give, for instance, details of bee diseases in a certain country, of a successful insurance scheme for beekeepers, or a warning about using combs preserved with a wax-moth killer. In selecting these 9,000 publications, perhaps 20 or 30 thousand have been read and studied. If we know that a piece of work as original is in fact not new, but has already been published, then we say so, believing that this can be a real help to the progress of research workers. What we want to give to research workers and beekeepers is as broad a spectrum as possible of subject matter that may help them, restricted to sound fact and a responsible hypothesis but excluding statements and recommendations based on ignorance.

Different countries are at all sorts of varying levels in research work and in beekeeping techniques, and it is not easy to serve them all equally. Those we MUST serve are the research workers at the forefront of the subject they are dealing with, because on them depends the next step that has not yet been formulated by anyone, and which constitutes primary progress. I would like here to put in a word about fundamental as opposed to applied research. I know that to many beekeepers it seems more obviously useful to search for an ideal type of hive, or the ideal wintering set-up, than to pry into the private lives and glandular secretions of insects. But the more fundamental any newly acquired piece of knowledge, the more universally applicable it is.

Practical or applied research is of course essential. Bees are kept under a wider variety of climatic conditions than any other domestic animal. They can live almost everywhere on the earth's surface where there is flowering vegetation. So every advance must be applied and tested under innumerable conditions. Here again, "Apicultural Abstracts" can play a useful part: a new bee repellent for getting bees out of honey supers may behave differently at various temperatures, and by publishing results for say Mexico and Canada

we may be saving time and money for beekeepers in India and Scandinavia.

This leads us to "Bee World," another journal published quarterly by B.R.A. In this publication, we try to provide a more digestible account useful both to scientists and to forward-looking beekeepers throughout the world. We know it is above the heads of some beekeepers but, since about 100 beekeeping journals are published for beekeepers in general, we believe that "Bee World" performs a greater service by catering for advancement of the craft. This has always been its function; "Bee World" was founded in 1919 by Dr. A. Z. Abushady of Egypt as "an international monthly journal devoted to the progressive interests of modern bee culture." Dr. Abushady edited the publication until 1926.

From 1929 to 1949, "Bee World" was edited—and indeed largely written—by Miss Annie D. Betts, to whom beekeepers and scientists alike owe a great debt of gratitude for documenting information for them throughout these 21 years. The first 30 volumes of "Bee World" were, and are, the chief source of information on bee research and beekeeping developments in the world for these 30 years. One of the early tasks of B.R.A. was to publish a cumulative index, with 20,000 separate page references, to cover these 30 years before "Apicultural Abstracts" was started. I would urge both scientists and beekeepers to use this index. An enormous amount of money is wasted every year because people will not take the trouble to find out whether an idea is in fact new, or whether it has been tested and reported on 5, 10 or 50 years ago.

To complete the account of our dealing with new advances, I must mention the third B.R.A. publication: "Journal of Apicultural Research." This was started in 1962 in response to requests from bee scientists for publishing original research reports—from any country—that reach the required standard: the journal has an International Editorial Advisory Board. This journal, like our others, is published in English. Our policy has been to publish to a high standard in one language, rather than to dissipate our energies.

"Apicultural Abstracts" can also be purchased on index cards, each card carrying subject classification numbers on the Universal Decimal Classification, which is independent of languages and therefore equally useful in any of our 90 countries. We maintain a complete Author and Subject Card Index (known as CASCIAA), which has a separate card for each subject entry. Copies of these index cards can be purchased right back to 1950. With "Bee World"

and its index back to 1919, this gives bee research workers an indispensable tool: a key to research relating to bees for almost 50 years—and kept up to date each year. I do not think that many world industries are as well served as this.

The headquarters of B.R.A. are at Hill House in Chalfont St. Peter near London. At Hill House the B.R.A. has one of the best libraries in the world of scientific and technical material on bees and beekeeping. Our chief competitors in this respect are in fact our closest friends and helpers: the U.S. D.A. Library (Apiculture Branch) at Beltsville, the Albert Mann Library at Cornell University in New York State, and the Central Agricultural Library in Moscow. And we do what no other bee library does—we lend our publications to members in any country in the world.

Through exchange and gifts from libraries and individuals all over the world, the Library was built up, catalogued and documented, so that now we have some 10,000 reprints of scientific papers, 2,000 books, sets of 500 different journals, and some 6000 pictures, as well as our card indexes. We also have built up a valuable Library of Translations, again through the voluntary help of many people. These translations are borrowed by members throughout the world, or photocopies can be purchased.

In building our own library, we have used duplicate material to help other libraries, especially in the Soviet Union and Brazil, and to set up Branch B.R.A. Libraries, first in Canada at the University of Guelph, then in Africa at the Beekeeping Department at Arusha in Tanzania, and in Asia at the Central Research Institute at Poona in India.

The B.R.A. receives some government grants, but it depends largely on membership and subscriptions for its income, and on the voluntary work of a large number of people in many countries. We are, like many organizations, thwarted for lack of funds. For instance, we could do a lot more if we had even the most modest type of punched card machinery for information retrieval.

But the B.R.A. is rich in the goodwill and cooperation of its members, and in the enthusiasm that bees seem to engender in those who handle them—in spite of their stings. As a result, bee research and the bee industry of the world are well equipped in their foundation garment: it does indeed provide discipline without constraint. It may provide no spectacular display, but I trust that, after 18 years of service, it inspires confidence. •