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WHERE BEE RESEARCH IS PUBLISHED: A JOURNAL ANALYSIS FOR 1961-1970

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The purpose of the analysis

The first stage of preparing material for *Apicultural Abstracts* is locating publications to be reported. We are fortunate in having an international team of voluntary helpers who "scan" scientific and technical publications in different countries, and send information to headquarters of new items which they consider should be reported in the journal.

In order to improve the efficiency of this "scanning" stage of the work, a list has recently been prepared² of the titles of journals that proved most productive during the past ten years, i.e. those yielding the greatest number of publications reported in *Apicultural Abstracts*. In this list, Class 1 journals, the most productive, are the 143 which yielded 8 or more items each in the ten years; they contributed 62% of all journal-papers. The 110 journals in Class 2, yielding 4-7 items each, contributed a further 8% and increased the coverage to 70% of all journal-papers.

In the process of compiling these lists, information came to light which will be very useful to some of our readers and of interest to many more.

The analysis for 1961-1970

This analysis is concerned with the 7151 papers and articles in journals which were reported in *Apicultural Abstracts* in the ten years 1961-1970. A further 1114 publications such as books, bulletins, conference proceedings, and standards, gave a grand total of 8265. The counts on which the analysis is based are not related to the quality (or even length) of the papers. For this

TABLE 1. The "top ten" journals, in terms of the number of papers reported in *Apicultural Abstracts*, 1961-1970.

Journal	Language	Country	Total count
Pchelovodstvo	Russian	U.S.S.R.	253
American Bee Journal	English	U.S.A.	179
Bee World	English	Britain	177
Journal of Apicultural Research	English	Britain	162
Zeitschrift für Bienenforschung	German	Germany (D.B.R.)	150
Annales de l'Abeille	French	France	148
Journal of economic Entomology	English	U.S.A.	128
Annals of the Entomological Society of America	English	U.S.A.	108
Bulletin apicole de Documentation scientifique et technique et d'Information	French	France	107
Insectes sociaux	E,F,G	France	104

reason German research, much of which is published in very long papers, scores lower than work done in countries where it is customary to publish in a series of very short papers.

Table 1 shows the "top ten" journals, with their yields. All are in the most common languages for bee publications³ (see Table 3), and all but three of the journals are devoted entirely to bees. A further ten high-yielding journals are given in Table 5, and the new list "The journals yielding most papers for *Apicultural Abstracts*: 250-300 journal titles based on an analysis for 1961-1970" is much more comprehensive; there the journals are grouped under country of origin².

TABLE 2. Numbers of journals yielding different proportions of the 7151 journal-papers reported in *Apicultural Abstracts* during the ten years 1961-1970, starting with the most productive.

No. papers As % of total		No. journals yielding these papers		Total no. papers per journal
Actual	Total	Additional		
10.8%	771	4	4	162 or more
20%	1412	9	5	107 or more
30%	2169	18	9	69 or more
40%	2847	31	13	40 or more
50%	3574	60	29	17 or more
59%	4249	119	59	9 or more
70%	5007	253	134	4 or more
77%	5505	419	166	3
87%	6205	769	350	2
100%	7151	1715	946	1
62%	4441		143	8 or more (Class 1)
8%	566		110	4-7 (Class 2)
30%	2144		1462	1-3
100%	7151		1715	

Entries are derived from actual counts, except the apportionments between journals yielding 1, 2 and 3 papers, which are calculated from counts on a c. 10% sample of journals (those whose initial letter is A).

Table 2 shows how the yield per journal drops off, in a more or less exponential sequence, each additional 10% yield of papers being scattered over roughly twice as many journals as the previous *total*. The 18 journals ranking highest (just over 1% of the total) contributed 30% of the papers reported; it needed 13 more journals to yield the next 10% of papers, and 29 to give the next. The sixty most productive journals contributed 50% of the papers reported in *Apicultural Abstracts*, and thereafter more and more journals had to be covered to get less and less reward in terms of papers reported. Fifty-nine more journals gave only 9% more papers, and the next 134 journals gave 11%. The final 30% of papers—the most difficult of all to locate—raised the total number of journals from 253 to 1715, i.e. by 1462.

No time has been available for analysis by country or language. But in the B.R.A. Library a record is kept of each new language represented among publications received. Table 3 lists these languages to date, the groups being subjectively assessed.

TABLE 3. Languages of publications received by the B.R.A. Library 1949-1970.

<i>Group 1. The most common languages</i>			
English	German		
French	Russian		
<i>Group 2. Languages common enough to be important in bee literature</i>			
Bulgarian	Hungarian	Portuguese	
Czech	Italian	Rumanian	
Danish	Japanese	Slovak	
Dutch	Norwegian	Spanish	
Finnish	Polish	Swedish	
<i>Group 3. Languages occurring less frequently in bee literature</i>			
Afrikaans	Flemish	Lettish	
Albanian	Georgian	Lithuanian	
Arabic	Greek	Persian	
Armenian	Hebrew	Serbian	
Azerbaijani	Hindi	Slovenian	
Chinese	Kirghiz	Turkish	
Croatian	Korean	Ukrainian	
Estonian	Latvian		
<i>Group 4. Languages represented but which do not relate to publications reported in Apicultural Abstracts</i>			
Chishoua	Latin	Swahili	
Esperanto	Malyalam	Tamil	
Irish	Provençal	Welsh	
Kannada			

Comparison with other subjects

In principle, the results of the analysis are similar to those in other fields, but there are interesting differences in scale. Two sets of comparative figures are summarized in Table 4. One⁵ relates to a wide field of study, "Journal literature covered by *Physics Abstracts* in 1965", and the other⁴ to a specialized one, "Cardiovascular serial literature: characteristics, productive journals, and abstracting/indexing coverage" (1967). These are referred to as PA and CV respectively.

The total number of papers concerned is 7151 for AA, 5860 for CV, and 32 279 for PA. The "easiest" half of the abstracts came from 60 journals for AA, 33 for CV (each yielding 50%), and 25 (yielding 52%) for PA. The easiest three-quarters or so came from 419 journals for AA (77%), 116 journals for CV (75%), and 50 journals for PA (71%). The *total* number of journals yielding papers was 1715 for AA, 789 for CV, and 495 for PA.

The most impressive aspect of this comparison is the breadth of journal coverage of *Apicultural Abstracts*. On average, for every 200 papers reported,

Physics Abstracts had to scan only 3 different journals; 200 cardiovascular papers were scattered over 27 journals, and 200 papers for *Apicultural Abstracts* over 48 journals. Congratulations to our "scanners" who find all these papers to feed into our abstract journal!

TABLE 4. Numbers of journals yielding different proportions of papers on physics in 1965 (PA) and on cardiovascular subjects in 1967 (CV). Table 2 gives similar results for *Apicultural Abstracts*.

As % of total		No. papers Actual		Total no. journals yielding these papers	
PA	CV	PA	CV	PA	CV
32½%		10 480		10	
	33%		1953		13
	50%		2930		33
52%		16 785		25	
	67%		3907		75
71%		22 996		50	
	75%		4395		116
86%		27 858		100	
	100%		5860		789
100%		32 279		495	

One reason why physics is comparatively easy to encompass is that the physical properties of a substance are likely to be the same wherever it is studied, whereas this is not so with biological properties and characteristics. Also bees—and honeybees especially—are used in widely different studies, so information on them is found in journals relating to many disciplines—physiology, pathology, histology, microbiology, and so on. Then beekeeping and the use of bees for pollination are world-wide occupations. So the same type of information may be needed from all regions—for instance on parasites, foraging behaviour, or bee forage. Advances are made in many countries; and they are published in many national and international journals on agriculture, as well as in specialist beekeeping journals¹. The study of bee products widens the scope still further: to the chemistry of waxes, proteins, carbohydrates, pheromones; the pathology and therapeutic effects of bee venom, and so on.

This great circle of interest, centred on bees, involves us with the large number of journals that yield perhaps only one or two papers in a decade. These papers are, however, none the less important because they are difficult to track down.

Recommendations to libraries for 1971–1980

Our analysis can provide useful indications to those who have to decide on the journal subscription list for a bee library in the forthcoming years. The first ten journals listed in Table 5 are likely to include rather more than 20% of the papers and articles which are selected for reporting in *Apicultural Abstracts*, and the second ten journals in Table 5 should add another 10%. The remaining 70% of papers are likely to come from more than 1500 journals.

If more than twenty journals can be afforded, then "The journals yielding most papers for *Apicultural Abstracts*"² will suggest titles for selection. It will

also show which journals in a general library are likely to be most worth looking at. But even if 170 journals are obtained regularly, the list would still omit 90% of the journals reported in *Apicultural Abstracts*. So the final recommendation to libraries would seem to be: buy *Apicultural Abstracts* and see that it is used to the full.

In Table 5, the new journal *Apidologie*, which is being published to succeed both *Annales de l'Abeille* and *Zeitschrift für Bienenforschung*, takes the place of these two journals which were in the top ten of Table 1. Much Russian research

TABLE 5. Journals likely to yield most bee research papers in next decade. Language key: E=English, F=French, G=German, R=Russian.

Journal	Language	Country	Average annual count 1961–70
The first ten			
<i>Apicultural Abstracts</i>	E	Britain	
<i>Primary journals</i> (mainly or entirely original research papers)			
Journal of Apicultural Research	E	Britain	16
<i>Apidologie</i>	F, G	France	—
Journal of economic Entomology	E	U.S.A.	13
Annals of the Entomological Society of America	E	U.S.A.	11
Bulletin apicole de Documentation scientifique et technique et d'Information	F	France	11
Insectes sociaux	E, F, G	France	10
<i>Mixed primary/secondary journals on beekeeping</i>			
Pchelovodstvo	R	U.S.S.R.	25
American Bee Journal	E	U.S.A.	18
Bee World	E	Britain	18
The second ten			
<i>Primary journals</i>			
Pszczelnicze Zeszyty naukowe	Polish	Poland	9
Trudy nauchno-issledovatel'skogo Instituta Pchelovodstva	R	U.S.S.R.	7
Indian Bee Journal	E	India	6
Vědecké Práce výzkumného Ustavu včelařého CSAZV	Czech	Czechoslovakia	5
Anale. Stațiunea centrală de Apicultură și Sericicultură	Rumanian	Rumania	5
<i>Mixed journals</i>			
Gleanings in Bee Culture	E	U.S.A.	9
Allgemeine deutsche Imkerzeitung	G	Germany (D.B.R.)	8
<i>Non-specialist journals</i>			
Compte rendu hebdomadaire des séances de l'Académie des Sciences	F	France	10
Nature	E	Britain	7
Zeitschrift für vergleichende Physiologie	G	Germany (D.B.R.)	7

is published in the *Trudy* appearing in the second ten, but this annual volume has appeared under several names and guises in the decade under review. The Russian beekeepers' journal *Pchelovodstvo* is now written in a more popular style than ten years ago, but has retained the same name. If *Trudy* follows this example in the next decade it is likely to replace *Pchelovodstvo* as the highest-yielding journal of all for *Apicultural Abstracts*. *Allgemeine deutsche Imkerzeitung*, in the second ten of Table 5, succeeded *Deutsche Bienenwirtschaft* (also *Südwestdeutscher Imker* and *Westfälische Bienenzeitung*) in 1967.

Of the twenty journals in Table 5, 14 deal specifically with bees, three with insects more generally, and the three "non-specialist journals" in the second ten have a wider frame of reference. Any individual library would have to adjust its own selection according to the languages its readers can use.

Conclusion

The counts on which this analysis is based were made because we needed an up-to-date "core list" of high-productivity journals as a working tool for our journal scanners in different countries.

The analysis itself was undertaken to check the effectiveness of our general system, and to see how *Apicultural Abstracts* compared with other journals. While the analysis was still in progress, it was decided to publish a synopsis of it for general use and interest. It was not then foreseen that *Apicultural Abstracts* would show such a very high level of performance. For this we thank and congratulate our many helpers.

References

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