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COVER STORY

Even when many things lie dormant, curiousity in the young lives actively.

John Root



Lawrence Goltz

Renee Harrison

Mark Bruner

Mark Bruner, Editor THE A.I. ROOT CO., PUBLISHERS P.O. BOX 706

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ESTABLISHMENT OF THE NORTH AMERICAN COMMISSION ON PARASITIC MITES AND AFRICAN HONEY BEES

THE FIRST AMERICAN SEMINAR ON APICULTURE was held on October 19 -21st in Guadalaiara, Mexico, In attendance were more than 1,000 Mexican apiculturists and approximately 40 U.S. and Canadian industry, university and government representatives. GLEANINGS IN BEE CULTURE covered the seminar and, because of the importance of this gathering, reports will be filed simultaneously, by GLEANINGS with the other major U.S. publications, Although the seminar dealt with African bees and varroa, of most concern to Americans and Canadians, was the immediate problems related to acarine infestation. The preponderance of this report will deal with that subject.

In that the facts related to the acarine situation are rapidly changing, we suggest that you regularily consult *GLEANINGS*, *AMERICAN BEE JOURNAL* and the *SPEEDY BEE* for the most current information. Prior copies of those magazines can also be used for specific background as an accompaniment to the following.

THE MITE



Acarapis woodi

Acarapis woodi, is an internal parasitic mite that infests the trachea of the honey bee and completes its life cycle there - posing the threat of suffocating its host. Because it is internal, diagnostic measures require disection and microscopically enhanced analysis. In early July, 1984, the mite was detected in Texas, then Louisiana. In October, new confirmations were made in the states of NY, ND, SD and Florida, with rumours of unofficial discoveries made in 2-3 additional states.

THE TRILATERAL COMMISSION

A major objective of the tri-national conference in Guadalajara, was to establish a commission which would encourage and implement:

1. Compreher sive sharing of acarine information between representatives of beekeeping in the U.S., Canada and Mexico.

2. Coordinate research needs to best expedite understanding of effective, standardized diagnostic, theraputic and management techniques relevant to acarosis.

Through a series of meetings, each country designated five representatives to THE NORTH AMERICAN COMMISSION ON PARASITIC MITES AND AFRICAN HONEY BEES. The next meeting of that group will coincide with the American Beekeeping Federation's meeting in Tampa in early January. It was agreed that committee members would be appointed for one year and would, in a composite sense, reflect representation from the beekeeping industry, government, research and university communities. Selected to the committee, from the U.S., were Larry Gunter, President of the American Beekeeping Federation; Glen Lee, Animal Plant Health Inspection Service (APHIS); Dr. Al Dietz, University of Georgia; Dr. William Wilson, USDA Laramie, Wyoming; Binford Weaver, Weaver Apiaries. From Canada: Mervyn Abrahamson, Canadian Honey Council; Don Grey, Agriculture Canada; Dr. Gard Otis, University of Guelph; John Gruszka, Provincial Apiarist, Saskatchewan; and a researcher to be chosen by the industry at the Canadian Honey Council meeting in November. From Mexico: Dr. Oscar Barraza, commercial beekeeper; Dr. David Cardoza.commercial beekeeper;Dr. Antonio Zozaya, government researcher: Dr. Ernesto Guzman, researcher and industry representative; one representative from Meil carlota, the principle Mexican industrial / honey organization.

THE MEXICANS

Acarine infestation was discovered, in 1980, by Dr. William Wilson and Dr. Dick Nunamaker from the USDA bue lab in Wyoming. The detection was not as a part of acarine surveying, but came incidental-



Dr. Gard Otis, University of Guelph, Canada; and Dr. Oscar Barraza, Mexican commercial beekeeper.

ly as an extension of enzyme work being conducted by Wilson and Nunamaker. In the interim, Mexican beekeepers have been attempting to control the mite through chemical applications including FOLBEX VA (bromopropylate impregnated paper strips burned at the hive entrance), menthol, eucalyptus, and a compound of nitrobenzine and methyl silicitate, marketed under the tradename of ACAROL. Additional details related to these treatments follows in this report. Although frankly admitting they consider the African bee much more of a threat than acarine, Mexican beekeepers acknowledge that acarine can be an especially serious problem during times, such as winter, when there is an absence of nectar flow. Guesstimates as to the present extent of infestation in Mexico is 5,000 apiaries (600,000 colonies) with upwards of 30-45 percent infestation. Some states, such as the Yucatan and Baja California, remain mite free. Of concern to the Mexicans is the question of why the U.S. has not seriously begun to deal with the mite problem until after it was detected in the U.S. By way of extrapolation, some Mexicans are fearful that similar inadequate advance work will increase the damaging effects of the coming African bees and varroa mites. Additionally, the Mexican beekeeping industry, with its concentrated leadership, claims not to be able to depend upon its own government for predictable research help or necessary project funding. An ideal situation for Mexicans would be the presence of U.S./Canadian research activities and facilities

> Continued on next page GLEANINGS IN BEE CULTURE

on both sides of the U.S./Mexican border. It seems likely that personal support, from individual Mexican beekeepers, can be depended upon for the provision of field colonies and human resources.

THE CANADIANS



John Gruszka, Provincial Apiarist, Saskatchewan; and Merv Abrahamson, President of the Canadian Honey Council, taking bee samples in Mexico.



During the past several years, the Canadians have been surveying for acarine. To date, 500 samples have been taken and 252 analyzed -- all negative. The Canadians cite lack of budgeted funding as a reason for not being able to progress further with such sampling. In fact, Canada's Animal Disease and Prevention Act, does not specifically list acarine and varroa. It seems likely that future attempts to introduce these mites into the agricultural codes will succeed, thereby providing the potential for the establishment of laboratory and research wherewithal.

In the meanwhile, Canadian sampling will be immediately intensified in order to verify whether or not the mite is in Canada. If it should be discovered, the U.S. containment and eradication policy will be adopted, at least initially. During the Guadalajara meeting, an opinion was voiced, several times, from a member of the U.S. group, that Canada was probably already infested owing, at least in part, to the close proximity of the Canadian border plus the fact that Canada, some years ago, imported a number of Mexican package bees. Canadian response to this was that the Mexican imports were screened for acarine and were destroyed at the end of the season. Furthermore, regardless of whether or not acarine is present through some other migration, the only sensical. way from the Canadians to proceed, is with the assumption that Canada is still mite free. With that as a guideline, the main concerns of the Canadians center around methodology for keeping acaraine out of that country, and to have assurances, from the U.S., that there will be adequate procedures of insuring that package bees and queens, shipped into Canada, are mite free. A statistic that may be surprising to some, is that approximately 70 percent of bees in Canada are now overwintered. That is due, in large part, to a massive educational effort undertaken by the Canadians, to convince beekeepers that proper wintering management can result in bigger next-year crops. Additionally, \$750,000 has been spent on developing two strains of winter-hardy bees. Because the acarine is most severe during winter or inactive seasons, Canadian beekeepers who overwinter are understandably concerned and from their ranks there is a lobby calling for closing of Canadian borders. At present, import restrictions apply only to bees from confirmed areas of U.S. infestation and not to most large U.S. package bee and queen regions. The import restriction against Texas bees is to be reviewed every three months. On the other extreme of this issue. are Canadian beekeepers who kill their bees in fall and restock with packages in the spring. They are equally as concerned about border closing because of the effect that would have on their style of management. To their way of thinking, the fact that they exterminate bees in autumn greatly reduces or eliminates the threat of interprovincial acarine spread. The consensus of the Candian representation in Guadalajara seemed to be that a middleof-the-road approach was the most reasonable way to proceed until a thorough sampling in both the U.S. and Canada could be provided to better indicate the scope of the mite problem. In many respects, of the three countries, the Canadians are perhaps best organized to

cope with acarine infestation. Their beekeeping is organized on two levels: the Canadian Honey Council and the Canadian Association of Professional Apiculturists. The relative smallness in numbers helps the Canadians keep focused objectives and leadership. Secondly, although it has been popularily believed that Canada is not yet self-sufficient from the U.S. package bee and gueen industry, some Canadians believe that Canada could weather a few tough years and become sufficient by increasing imports from New Zealand, lifting import restrictions from Australia, and using their wellestablished provincial aplary and association systems for creating enough springtime splits and divisions of bees to satisfy an adequate number of domestic needs for restocking bees. As stated earlier, however, this is an option that the Canadians would prefer not to resort to. In fact, they have even expressed willingness to consider accepting surcharges on package bees if that is what is necessary for the U.S. industry to provide satisfactory assurances and certification of mite-free packages and queens.

THE AMERICANS



Don Dixon, Provincial Apiarist, Manitoba; and Darrell Wenner, California queen breeder, comparing notes.

Many times it has been expressed that, unfortunately, inadequate advance preparation was done with regard to acarine infestation. Then, for a time, it was hoped that the mite had been contained and eradicated in Texas and Louisiana -- giving the U.S. a second chance to prepare. With recent far-flung discoveries linked to migratory beekeepers, and the estimate that mites had been in the Chandler Apiaries in Texas for at least 13 months, such seems now to be wishful thinking.

At present, emergency action orders Continued on next page

have been placed on newly confirmed infestations and eradication, which had been completed in Texas and Louisiana, without indemnification to the beekeepers, has been put on temporary hold for other infested apiaries. Further action is pending completion of what will be a nationwide survey beginning immediately and to be completed by the end of February, 1985. Basically, U.S. and Canadian action plans having to do with acarine, are dependent upon the survey, which will determine the scope of infestation. Because of Canadian concerns that the sampling be as statistically accurate as possible, especially with regard to certifying mite free package bees and queens, considerable negotiation took place at the Guadalajara seminar in order to reach a mutually agreed upon standard for sampling. That proposal, as it now stands, is that surveying will be done, nationally to encompass all operations involved in shipping bees. At least 10 percent of all apiaries owned by a beekeeper will be inspected. 10 percent of all hives in that yard (if more than a hundred), but no fewer than five, will be sampled. 100 bees will be taken from each colony with no fewer than 500 per yard. The sampling will further be biased by selecting from end row, strongest, weakest and center colonies. Composite samples will be taken from cell builders and starter colonies. These latter colonies are prime areas for infestation detection owing to the fact that they are often built up to strength by adding population from other colonies in the apiary. The sampling procedures just described are thought to be quite statistically accurate. Up to 10 percent of the total samples will be sorted out for varroa mite inspection, and a certain percentage beyond that will be tested for Africanization. In that way, preparation for both will be furthered. To date, 16,000 samples have been taken with half being processed.

Obviously, this surveying is going to be a massive undertaking. APHIS actually has no funding for the work it has been doing, and will do, in dealing with acarine infestation. Unspecified contingency reserves have been used. Additionally, there is a distinct question as to whether or not the manadate of APHIS will permit that organization to remain involved, in its current capacity, with the mite situation. The purpose of APHIS is to deal with pests, predators and disease in incipient stages, not to follow up on such matters in terms of long range identification and control. APHIS has, however, committed it's resources to the national survey, after which and upon which, consequent decisions will be made. Were APHIS to remove itself all or in part from the involvement with acarosis, it may then become necessary for each state to contend, in its own way, with acarine. To some degree, that has begun to happen already. Georgia, for example, has passed regulatory measures requiring a certificate of acarine-free health on shipments of bees passing into or through that state. In fact, that requirement lead to the discovery of mites in New York bees destined for Florida. For migratory beekeepers in Florida, such regulations certainly may not make life easier, and raises the possibility that some migratory beekeepers may, out of what they perceive to be econonmic necessity, ignore or avoid the law. The Canadians naturally see this in a different light. To them, a state like Georgia, because of tight regulations, has suddenly, despite distance, become much more attractive as a package and queen producing state.

Exactly what each state's capabilities of making a concentrated effort against mites is far from clear. Obviousperhaps and ly, diagnostic, managerial/treatment education would be necessary on a large scale. Some states, like Ohio, have a well developed apiary inspection system with each county being served by an inspector. Others have next to nothing in the way of provisions of funding or human resources for apiculture. Establishing a workably consistant fight against the mites may be the biggest challenge of all. In states with a package bee industry, it can be expected that bee breeders and packagers, themselves, may eventually become the intregal part of mitefree certifying. In the event that chemical fumigants eventually become available, it is not difficult to foresee a time when APHIS would certify packagers in fumigation techniques. Packagers would then perform those treatments and certify the health of their bees. As stated earlier, the costs of such measures may be borne through a surcharge of some type, but that is a giveand-take that both packagers and buyers seem willing to take for the purpose of maintaining the economic health of both parties.

As a companion to the impending national survey, two grants, one to Dr. William Wilson, USDA, Laramie, Wyoming; and one to Dr. Al Dietz, University of Georgia, have been applied to the acarine situation. The work of Dr. Wilson, over the course of approximately 120 days, will be to draft an overall strategy for dealing with acarine. Among other things, Dr. Wilson's work will be conducted with great consideration to the following possible detrimental effects of acarosis:

1. Damage to the package bee and queen industry. (As stated earlier, no idemnification for eradicated bees has been provided. Beekeeping associations have been lending a hand to restock "depopulated" apiaries.) 2. Damage to migratory beekeeping.

 Deprivation of pollination services (in some parts of the country -- California almond fields, for example, pollination services were short even before the mite infestations).

4. General public relations and monetary problems related to securing loans, etc.

Dr. Wilson's work will involve a consideration of containment and eradication, diagnostic techniques, management, resistant stock, biological control, mite ecology/biology and economic impact of the mite, all in an effort to gain a comprehensive perpective of how best to proceed in future dealings with acaroisis. As a vital part of this, it is expected that laboratory facilities, perhaps in the south Texas area, will be established for the purpose of training U.S. Canadaian and Mexican researchers, and providing a base of operations, not just for acarine warfare but for advance work on the varroa and African bee.

The research of Dr. Dietz is covered by a two year USDA grant. Among other avenues of investigation, his research will involve seeking methodology for establishing mite-free gueen production. It is hoped that, perhaps, the age of a queen determines her susceptibility to mite infestation, and that such a factor might help in queen handling. Additionally, work will be done with regard to the production of mitefree package bees. Dr. Dietz will be working with a list of 10 chemical compounds for the purpose of establishing their viability as acaracides. At present, the Mexicans are using FOLBEX VA strips, which are burned at the hive entrance; as well as ACAROL, menthol and eucalyptus, substances which are introduced to the entrance on sponges, rags or small dish containers. Of concern to U.S. officials is whether or not compounds used in acarine control might leave residual toxicity. Mexican research has indicated that ACAROL (nitrobenzine, methyl silicitate, aromatics and other ingredients) has performed most successfully against the mite. In one report given at Guadalaiara, it achieved a 100 percent effectiveness, followed closely by FOLBEX. Some researchers have questioned the accuracy of these Mexican studies, but their work, at the very least, opens another direction for research exploration.

CONCLUSIONS

Anyone who has served on a committee realizes the difficulty often present in getting three individuals, let alone individuals from three countries, to agree on any given point. With that in mind, it is gratifying that a beginning was at least made in

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GLEANINGS IN BEE CULTURE



The Monthly Honey Report

Reporting Regions

November 10, 1984

The following figures represent the current prices reported by beekeepers and packers over the country. They are based on reports from many states averaged out for each region, Where insufficient information is received no price is shown. The retail prices represent the price of each size jar.

Wholesale Extracted

Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged

Containers Exchanged		1	2	3	4	5	6	7	8	9	
60 lbs. (per can) White		42.00	44.00	42.00	40.00	38.40	38.00	36.00	35.25	40.80	-
60 lbs. (per can) Amber		40.00	42.00	43.00	38.00	31.62	32.40	30.00	34.00	37.80	
55 gal. drum (per lb.) White			.50	.52	.57				.56	58	
55 gal. drum (per lb.) Amber			.42	.42			.46		.55	.54	
Case lots — Wholesale											
1 lb. jar (case of 24)		28.50	24.00	24.90	25.92	38.40	25.00		25.00	25.50	
2 lb. jar (case of 12)		27.50	23.30	23.25	23.76	34.80	23.50		24.75		
5 lb. jar (case of 6)		30.00	27.80	24.90	23.04		25.75		24.50	24.60	
Retail Honey Prices											
1/2 lb.	5	.90		.75	.85	.85	.79		95	.90	
12 oz. Squeeze Bottle		1.50	1.19	1.35	1.19	1.20	1.20	1.29	1.29	1.30	
1 lb.		1.50	1.39	1.35	1.42	1.85	1.37		1.59	1.50	
2 lb.		2.70	2.59	2.60	2.62	3.55	2.29	2.25	2.59		
21/2 lb.		3.35					3.25		3.29		
3 lb.		4.00	3.75		3.39	4.98	4.75	4.00	3.59	3.75	
4 lb.		5.00	4.95		4.99		5.00	4.70	4.60		
5 lb.		6.00	6.00	5.25	5.39		6.50	5.40	5.99	5.25	
1 lb. Creamed				1.45			1.39	1.50	1.50	1.50	
1 lb. Comb		2.25	1.95	2.25		1.95	1.92	2.10	1.69	2.25	
Round Plastic Comb		1.75		1.85			2.00	1.75	1.70	1.50	
Beeswax (Light)		1.30	1.20	1.50	1.40	1.25	1.20	1.15	1.15	1.35	
Beeswax (Dark)		1.25	.1.10	1.25	1.25	1.15	.85	1.05	1.10	1.15	
Pollination Fee (Ave. Per Colony)		24.00	20.00	27.50	18.00	19.00		19.00	19.00	25.00	

MISCELLANEOUS COMMENTS

REGION ONE

Connecticut has a verry spotty crop. This has been the case for 3 years. Beeyards five miles apart produced from nothing to 75 pounds. Eastern NY colonies produced about 25-30 pounds. Most of the crop is sold by now. Meetings on the mite taking place in CT. A task force will be formed. Pollination prices may have to be higher next year to make up for other problems and losses.

REGION TWO

West Virginia reports good fall flow, bees strong for winter and honey prices up slightly. PA honey sales slow but better than summer. Fall flow very poor -- 40 lbs (with 60 lbs being normal). Maryland bees have had a little weight gain in fall but some feeding required. Honey sales steady.



REGION THREE

Indiana wholesale sales very slow. 15,000 Ibs of honey given away in a town of 40,000 people in two hours. Much Indiana honey going on Ioan. More buyer interest in beeswax this year. Wisconsin reports wholesalers doing a slow business, with no honey from U.S. bekeepers being offered to local packers; with appearances being that prices will be rolled back 10 - 20 cents less to consumers because of honey due from Canada at 50 cents delivered to packers' docks. Hardly any fall flow experienced in Illinios -- feeding going on. Small producers going to Federal loans even with one barrel.

REGION FOUR

Honey reporters needed for this region. Contact the editor.

REGION FIVE

Honey sold well at fairs in North Carolina. Fall honey flow from goldenrod and asters is slow. Very dry in Sept. and Oct. Only 1 inch in two months.

Reporters needed for this region. Contact editor.

REGION SIX

Alabama mite survey progressing. Situation looks good because of Alabama's no comb transportation law prohibiting migratory bees. Tennessee reports dry weather all of Sept. Many colonies needing feeding. Honey market still below normal

Continued on page 654

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GLEANINGS IN BEE CULTURE



Using Honey and Pollen Plants to Choose The Best Apiary Locations

By LARRY GOLTZ, GBC Western Editor Redding, CA

A number of considerations are usually involved in determining the best locations for apiary sites, among them being accessibility, both from the standpoint of travel distance and transit, apiary protection, water supply, avoidance of stinging problems and, last but not least, the nectar and pollen resources. It is the last, dealing with honey and pollen plants, which will be discussed here.

A few beekeepers are satisfied to maintain their bees without expecting any returns except the possibility of a small amount of surplus honey for their own use. That is fine and a small home apiary is an ideal arrangement for this purpose. The economy and convenience of such an arrangement cannot be improved upon. Other beekeepers. or those who wish to expand beyond their home bee yard may look to other locations with the purpose of expanding production and increasing the profitability of their beekeeping. The greater the productivity of bees, the better the profitability; at least it is a first step. Of course. other factors involved with an increase in productivity must also be considered when attempting to raise the profitability of beekeeping. With outyards come increased transportation costs and a greater investment in time, both major considerations in any small business.

One of the keys to profitable, or, what is generally considered successful beekeeping, is to maintain apiaries in the best available locations. With modern transportation available nearly every beekeeper has the opportunity to place bees in the better foraging areas, a selection which can only be made with at least some knowledge of which plants yield nectar and pollen. No two areas are alike in this respect nor do the same conditions with respect to nectar flows occur each season.

One of the skills required in beekeeping. is the ability to inventory available nectar and pollen resources within the range of which a beekeeper can profitably operate. This particular inventory must be a continuing process, month by month and season to season. Certain patterns usually become evident on first or second examination of the area. Whether the land is farmed or is idle; what kind of vegetation exists: the contour of the territory; and if other apiaries are present. So many factors affect the flora of a region, or even a local area, that a beekeeper must have some knowledge of what to look for if a creditable job of inventory of prospective apiary sites is performed.

"A beekeeper need not have formal training in botany, the science of plant study. to learn to recognize the plants important to honeybees. Knowing the common names of plants helps in recording information and possibly communication with other beekeepers but learning to identify plants is an individual accomplishment that can only be achieved through the application of periodic visits to an area throughout the growing season. A simple system of recording the names of blooming plants seen, where and when seen is helpful. A beekeeper must be able to realistically distinguish flowering plants which are useful and those which are of no value to bees. often disregarding a profusion of blooming plants which offer no nectar or pollen to bees. I recall admiring literally acres of buttercups in northeastern Ohio during late summer: a striking landscape of golden bloom for the passerby, but of no value to the beekeeper. Some plants may afford pasturage more or less throughout the season, such as combinations of the various legumes, alfalfa, vetch, trefoil, and the various clovers. Other plants produce nectar and pollen only during a relatively short period of each season. Black locust, basswood, dandelion, fruit bloom and star thistle are examples of this type of vegetation. Others among the honey plants furnish flows of longer duration due to the diversity of species or the persistence of bloom. The mustards, various members of the sunflower-like fall flowers and the eucalyptus are examples of this. Weather and climate stability are often contributing conditions toward prolonging plant bloom.

A beekeeper must not only evaluate each potential nectar producing plant but must also take into consideration the time of bloom, especially in respect to expected weather conditions and likely colony strength at the time of bloom. Keeping bees year-round in or near an apple orchard with the expectation of getting a honey crop from this single source is usually futile as the duration of bloom is relatively short, flying conditions are usually less than ideal and colonies are generally understrength at fruit bloom time.

Many hobby beekeepers prefer to keep bees at their homes which has many advantages over having outyards. If you are so inclined you must simply accept what resources are available within one, two or three miles of your bees, not an inconsiderable amount of real estate when you think of this range in terms of a complete circle. However, conditions being what they are in many cities, suburban communities and even rural areas today, the limitations of such a bee location may suggest relocating your bees. Today, available land is often at a premium for building and other uses, leaving little unused land as habitat for wild plants. In only mature neighborhoods are you likely to find a plethora of blooming aged trees, shrubs and herbs which provide substantial bee forage on a continuous basis.

Looking beyond your neighborhood for possibly better apiary sites is a challenge to any beekeeper but one in which the investment in time and effort may be worthwhile. There remain many such locations despite some apparent over-exploitation of the better territories.

Driving country roads looking over the 'lay of the land' will usually give you a clue as to what to expect in the way of agriculture practiced. Level. fertile farmland intensively cultivated usually supports high vield cash crops such as the cereal grains: corn, wheat, oats or soybeans, with only soybeans having the possibility of being of value to the beekeeper If the land is rolling, but cultivated, carefully note the crops being grown. Abandoned farm land may or may not have honey plants included in a seasonal succession. If land is pastured by cattle or sheep there may be little or nothing left as bee forage unless there is a seeding of white clover or some other low growing herb that survived close grazing. One of the bee vards which I observed several years ago in Wyoming was in a field in which the vegetation could not have been over an inch or two in height. I did not climb over the fence to examine the herbage on which the bees must have been working, a step someone more purposeful would have taken. Cultivated fields interspersed with green fields or alfalfa or clover always bears looking at more closely. Frequently hay crops. alfalfa for example, is cut prior to bloom, a cultural practice advantageous to the dairy farmer or forage grower but not good for the beekeeper. What makes some legume-rich agricultural areas productive for the beekeeper are the marginal or nonproducing acres on which such escapes as "wild" alfalfa, vetch, trefoil, white, sweet or other clovers grow to maturity. Such areas may include roadsides and other uncultivated tracts of land, whether it be cultivated or rangeland, can vary con-

Continued on next page GLEANINGS IN BEE CULTURE



Fruit bloom is good for colony buildup but don't depend on it for a honey crop.



Look for acreages of cultivated crops which yield nectar such as the sunflower (Helianthus).



Ranch or pasture land may, or may not be, good bee forage. Learn to know the plants which make up the herbage.



Shrubby plants are often excellent nectar sources. This is wild lilac (Ceanothus), widely distributed in the foothills of the Sierras in California.



Look for white clover (T. repens) in lawns and in closely grazed pastures and hayfields.



Don't fail to note any trees which promise nectar flows, as would this black locust (R. pseudo-acacia).



Sumac (Rhus) is heavily worked by bees and may offer good bee pasture in some areas.



Being able to identify a plant bees are working on is a valuable asset to any beekeeper.



Watch for legumes growing along roadsides. This vetch (Vicia) indicates that soil and moisture conditions are suitable for other legumes, including the clovers.

siderably in respect to being useful to foraging bees. Forest land is of doubtful value to bees unless it contains species of trees which have the potential of producing bloom such as basswood. locust, tulip poplar or sourwood. Low growing, shrubby vegetation such as the western chaparral may contain manzanita and ceanothus while other types of habitat may have such valuable honey plants as buttonbush, ti ti, gallberry, tupelo, sumac, brambles and other woody vegetation. Dense forests of either mixed hardwoods or conifers are usually poor locations except for the forest edges. Cut-over timber land may be good fireweed locations in the northern states. Be certain to take a close look at the tree species before passing up forested land as possible bee locations.



Watch for the appearance of the mustards Brassica spp.) in early spring. These plants appear year after year and bloom almost continuously throughout the season, furnishing nectar and pollen.

The competition for good apiary locations is quite intense where commercial beekeeping is practiced. Established locations must be respected. At the time the survey of vegetation is made it will save time and possibly some later conflicts if note is made of any existing bee yards. Placing your bees within two miles of an existing apiary belonging to another beekeeper may violate local regulations governing apiary densities, although these regulations usually exist in only some of the heavily worked, prime territories. In your region it may be merely a case respecting another beekeeper's prior rights when you avoid placing bees near another yard. In migratory beekeeping, bee locations may be temporarily left unoccupied and to avoid infringing on such reservations it is always best to inquire

locally about the possible existence of such places. Overstocking a good area with bees, causing possible loss to beekeepers with too-near locations, is not unusual, but can arouse some hostility, which is worse, as the bad feelings occur among the beekeepers, not among the bees. Most commercial beekeepers expect to have hobby and some side-line beekeepers operating nearby but there should be no confrontations as long as both respect the territorial rights and privileges of the other once established.

While the search for the best apiary locations goes on, the beekeeper must be prepared to "sell" the presence of bees to a landowner. This may not always be easy so be prepared for some disappointments. The beekeepers must also establish creditability with the landowner as a responsible caretaker of bees and of the property on which the bees will be located.

A good indicator of the value of a potential apiary location is the amount of foraging activity already going on. Few locations will be found in which there is no bee activity, if only from a few feral colonies living in nearby trees. Bee activity may also indicate that other apiaries are nearby. By observing what plants bees are working on you will have a much better idea of what the potential is in that area. If bees are already placed there you may be able to locate a few miles away and still be in a location with good plant populations of nectar yielding flora. It is likely that bees will be foraging on many of the same plants at another location, as is often the case with whole counties or even entire states. Once you have identified a plant, studied its distribution and correctly judged its value as a bee plant it remains only to pinpoint concentrations of the plant, or plants, and move your bees to the best available site. Merely extending the range of bees is simple, if they are in a restricted flight area, but improving their foraging opportunities at the same time may take more planning.

In summary, every beekeeper whether owning a few or many colonies has a chance of improving honey yield by relocating bees to areas which offer better forage than is available at another location but some knowledge and skill is required to first scout and locate the better sites.

ASSISTANCE REQUESTED

The author is presently updating literature on the nectar and pollen plants of North America. He solicits your help in this very important endeavor It is our suggestion that readers send Mr. Goltz any information pertaining to the most important forage plants in your area. List the common names and as much about these plants and their relationship to your beekeeping as possible: particularly its yield potential, distribution and density, habitat, honey characteristics (if distinguishable) and anything else that may be of value or interest to other beekeepers. Photos (if available), would be welcome. Your contribution, if used, will be acknowledged by the author in the publication. Mail the information to the author at the following address. Your cooperation would be very much appreciated

Larry Goltz Editor 1230 Canby Rd. #122 Redding, CA 96003







DECEMBER 1984





QUESTIONS ANSWERS 8

Q. I have two hives on another person's property. He wants them moved about a hundred feet. Can this be done in winter? What is the best way? William E. Wary, Muncie, IN.

A. The easiest way to move those bees will be just to set them in their new location in winter, preferably late winter, when the flying bees of this season will have been partly replaced by young bees. If you wait until warm weather, then you'll have to move them two miles away for about three weeks before moving them back to their new location, which would be a headache.

- Richard Taylor

Q. I started this spring with three 3-pound packages, and have fed them over 53 gallons of sugar syrup, mixed five pounds of sugar to the gallon. The colonies are very strong and healthy, but I have trouble separating the brood chambers because of the burr comb. I cannot crowd frames because of heavy attachments of burr comb. It takes fifteen minutes just to separate one brood chamber from the other, and large chunks of dripping comb are torn from the bottom of the frames. Surely this is not the way it is supposed to be? Novice Beekeeper, Johnstown, Ohio.

A. You overdid the feeding something awful. The bees, in their desperate effort to create storage space for all that incoming syrup, built burr combs wherever they possibly could, there is seldom any need to feed bees at all. A colony established from package bees needs to be fed sugar syrup only until the foundation is pretty well drawn out. Beyond that you accomplish nothing by surfeiting the colony with any kind of syrup. Two or three feedings, to get them going until the dandelions are in bloom, should be plenty.

Richard Taylor

Q. What is your reasoning behind your policy of having eight frames in supers and nine in brood chambers? W.R. Kreitzer, Lexington Park, MD.

A. The combs are very easy to uncap and extract when spaced carefully eight to the super. Brood chambers are much easier to remove and replace when the colony is inspected when spaced nine to the hive.

DECEMBER 1984

- Richard Taylor

Q. I caught a swarm of bees this summer that had seven queens in it. What is the explanation of that? Al Crouch, (No address).

A. That was an "after-swarm," and the queens were virgins. The first, or "prime" swarm contains only one queen, the old one. If a virgin queen then emerges in the parent hive, she is likely to destroy any unhatched queen cells. But when two or more virgins hatch more or less simultaneously, one or more of them is apt to accompany the smaller afterswarms that sometimes leave at intervals of a day or so following the prime swarm. Some such after-swarms contain numerous virgin queens.

- Richard Taylor

Q. The formula for mixing terramicin and powdered sugar to control American foul brood given in the July '84 issue of Gleanings, (pg. 362) seems to me and quite a few other beekeepers around here to be wrong. It calls for one tablespoon of terra mixed with three tablespoons of confectioners sugar. Isn't that too strong? Ed Bryce, Richmond, VA.

A. It should have been one teaspoon of terra and three tablespoons of powdered sugar. There is great variation in the recommendations given by different writers, however. The one just given is the recommendation of Dr. Jaycox. Dr. Furgala, on the other hand, recommends a one-to-three mixture, precisely the proportion given in the formula last July. Franklin Carrier recommends five teaspoons of terra per pound of powdered sugar. All of these are for terramycin 25, which is the commonest kind.

What I do is mix sixteen tablespoons of terra with a two-pound package of confectioners sugar, and that always has worked for me. Ladle about a tablespoon of this over the top bars of the brood chamber, using hive tool as a ladle. Do this three times at one-week intervals in the spring, well before adding any supers, to prevent foul brood. But don't treat a colony known to be diseased. Call your bee inspector instead, or burn it yourself.

Richard Taylor

Q. How does one clean propolis? Al Crouch. (No address)

A. Propolis is apt to be contaminated with either beeswax or dirt. It is extremely difficult to rid it of either. To get clean propolis, one should gather it clean, which is usually quite easy, especially with heavy propolizers, such as the grey or Caucasian bees. Richard Taylor

Q. Do bees sleep? G. Hartke, Middletown, CT

A. Not in our sense, certainly. Bees in an observation hive are active at any hour of the day or night. Bees, being cold blooded, are reduced to a sleeplike stupor by cold. Richard Taylor

Q. Why are there such variations of honey yields in colonies of similar strength in the same aplary? John R. Jackson, Grand Rapids, MI

A. Often low-producing colonies have swarmed, unbeknown to the beekeeper. This is often not apparent, even to experienced beekeepers, inasmuch as a recently swarmed colony sometimes seems as populous as any other, except in the supers. Apart from that, there are inexplicable variations. For example, I have seen one colony fill three supers, while the equally strong colony next to it, headed by a queen from the same breeder, has filled none. I have seen one instance where only one colony in the apiary gathered buckwheat honey. One would suppose that if that could find it others could too; but apparently not. Not all bees, and not all colonies of bees, are alike. Richard Taylor

I am a beginner. I read about "nucs" O. in Gleanings. What does this mean? David Hough, Connellsville, PA

A. A nuc is a nucleus colony, that is, a small colony of bees consisting of from three to five combs of brood and bees and a queen. Nucs are created by simply removing combs of brood and bees from normal hives, and placing them in "nuc boxes," that is, tiny hive bodies of the appropriate size. They are used for starting new colonies. **Richard Taylor**

Q. I'm interested in growing Vitex trees. I am located in the lower half of Hardiness Zone #5. Will they grow here? Donald H. Cox, Lima, OH

A. My seed catalog shows that we are in the same hardiness zone, and I have two Vitex trees that thrive. Our first frost is usually the first or second week of October. My trees are, however, very sheltered, and I doubt they would have lived in the open. Richard Taylor 640

Research Review

By DR. ROGER A. MORSE Department of Entomology Comstock Hall Cornell University Ithaca, NY 14853



A New Farm Bill

In 1985 there will be a new farm legislation. In preparation for the conferences and committee meetings that will be held in Washington the Economic Research Service of the U.S. Department of Agriculture has prepared a 30 page brochure entitled. Honey, Background for 1985 Farm Legislation". It is a factual document but reading between the lines one finds support for thoughts expressed by some to the effect that the present price support program should be discontinued or at least extensively modified. This report, in many ways, is similar to the report a few years ago that helped do away with the Pesticide Indemnification Program

Over half of the paper is devoted to two sections entitled. "The Structure of the Beekeeping Industry and History of Honey Programs". The data show that the number of colonies of bees in the country has declined from a high of nearly six million in 1947 to just a few over four million in 1970; the figures have been more or less stable since that time. Over three pages. including two tables, are devoted to pollination and the role the beekeeping industry plays in that regard.

It is stated that the "price-support program for honey is permanent legislation established by the Agricultural Act of 1949". Table 9 in the report shows that until 1981 the legislation served its purpose admirably. At that time the U.S. market became swamped with foreign honey that sold at less than parity.

A third part of the report is devoted to Program Effects. Four parts of this section discuss the effects of the program on the producers, taxpayers, consumers and the indirect effects. Included in this last is a statement from an earlier study by the Economic Research Service that "showed that pollination costs were a very small part of the total cost of producing crops requiring pollination service and could be increased to compensate those beekeepers who provide pollination service". The final page and a half summary of the report discusses four major policy issues, starting with, "Should the United States maintain a profitable honey industry, particularly when world honey prices are low?" This is followed by questions about whether there would be sufficient bees for pollination, should import quotas be established and what program costs are acceptable.

Reading this report carefully will be a must for every commerical beekeeper and those who are thinking about entering the industry. Pressures on the industry will be coming from many sides this spring. There is no question that the livelihoods of many families are at stake with people in government holding diverse opinions. It is obvious too that those who believe in free trade between nations have strong support; if this position wins many commericial beekeepers will be forced out of business.

Hoff, F.L. and F. Gray

Honey, background for 1985 farm legislation. USDA Economic Research Service. Agriculture Information Bulletin Number 465. (4)30 pages. September, 1984.

Cycloptic Bees

Philip Calzone from Glen Head. New York, sent me an unusual worker bee recently. It had only one eye. Such bees are called cyclops after the famous character in Greek mythology.

In cycloptic bees, in addition to having the single crescent-shaped eye, the ocelli, the three small eyes on top of a bee's head, are displaced and are often not seen though rudiments of them may be found in the head capsule. How cyclops is inherited is not clear, though it does appear to be a genetic phenomena.

The researchers whose paper is cited below reported that the cyloptic bees they saw at Davis, California were unable to fly. Even when it occurs in colonies, cyclops is infrequent. It is reported, however, that in one colony about two percent of the worker bees were cycloptic. Genetic anamolies can be extremely useful to researchers in their studies. Unfortunately, cyclops, because of its inability to fly and the low frequency with which it occurs, is not so useful. However, it is important to know that such bees occur.

Laidlaw, H.H. and K.W. Tucker Three mutant eye shapes in honey bees. Journal of Heredity. 61:190-192. 1965.

The Effects of Overpopulation Of Bees

Dr. L. Bailey of the Rothamsted Station in England advances the theory that when a bee foraging area is overpopulated the bees are underemployed; under these circumstances there is greater contact between the individuals in a hive and as a result contagious diseases "spread and multiply more than usual." There is suggestive evidence that may be true but obtaining statistical data is difficult. It might be possible to test his theory in some areas where the number of colonies is unusually high.

If Bailey is correct a thought that comes to mind immediately is that our having lost nearly one third of our colonies in this country since 1950 might be helpful as regards acarine disease. With fewer bees the effects of the disease might be much less.

Bailey, L

The effect of the number of honey bee colonies on their honey yields and diseases. Central Association of Beekeepers. 16 pages. May, 1984.



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Beekeeping Technology

By DR. JAMES TEW The Agricultural Technical Institute Wooster, Ohio 44691

Burning Bee Hives— Disagreeable Work

With all the current bee literature announcing new problems with the current mite situation in the United States, a problem with American Foulbrood is almost passe. It was my unfortunate academic experience to participate in burning colonies with American Foulbrood today. As the flames competently destroyed all traces of the disease. I was struck (again) with a sense of frustration at having to make small talk with a friend while we destroyed two of his hives - one with a decent honey crop. All the same old questionsquestions that are justified-are posed. Couldn't something have been done? Why is the disease (AFB) so deadly? Will my other hives get it? How do we disinfect the hive tools and other related equipment? People, it is a good time for feeling inadequate. Fortunately, the beekeeper was knowledgeable in honey bee disease problems and was supportive of the decision to destroy the hives. Even so, occasionally. I had a little tug somewhere inside as watched drawn comb being destroyed that only three years ago was new.

As we went through the burning procedure. I recalled several years ago a burn order that was moderately protested. The individual offered no real solution to the problem, but was still reluctant to burn. On the day of the burn, he elected not to attend. Even though everyone knows the ultimate results are achieved, they often seem less than satisfying.

Several years ago I gave (or rather tried to give) a short presentation on queen production to a small group. Try as I might to stay on queen rearing, the questions seemed to keep coming back to diseases specifically American Foulbrood. I recall the facade begin to break when one woman admitted to having some colonies recently destroyed, but, unfortunately, not before she had sold some to a friend. Having brought the original diseased hives from a member of the group (who was present, of course), the lady in question was angry, embarassed, and probably somewhat hurt. She wanted to know how long AFB took to develop, if hives recovered, and who, in my opinion, held the central blame in this case.

To say that I was uncomfortable would be a gross understatement. The colonies were not inspected before sale. The seller insisted he had never had AFB (which I confirmed later). and he did not have it in his remaining colonies. I felt I was in the center of some family argument. Since one scale (one dead. dried developing bee) is considered enough to produce considerable disease in a **susceptable** hive (White. 1920). I felt that all parties could be correct in their claims.

The incubation period for AFB is seven days. Additionally, AFB can be spread by robbing (most likely). drifting, the beekeeper, or a contaminated water source (White, 1920). When these characteristics are combined, it seems plausible that the disease could have started quite naturally, developed quickly, and consequently, caused the destruction of the hives. I relate this incident now only to show how involved the situation may become.

To many beekeepers. bees are pets, and their apparent whimsical destruction because of a disease problem may be difficult to accept. Can anything be done to treat a colony with a serious infection? Realistically—No. Many of the old texts reported methods that were said to clean everything and allow the beekeeper a second chance. I am atraid that time has shown these techniques to be undependable. Many of the procedures appear logical on paper. Consider the "Shaking Method" for instance. Essentially, the treatment consisted of the following steps:

 removing all infected material from the colony;

(2) controlled starvation of all bees shaken from the colony in order to force consumption of food stored internally;

(3) installing the hive on foundation in uncontaminated equipment.

Supposedly. AFB spores would be dissipated and the hive should recover (Phillips. 1916).

Such a procedure undoubtly worked occasionally, but re-infections were common. Re-infections resulted in addition equipment being contaminated. Time and expense were also wasted. Worst of all, while all this was going on, other colonies in the yard were being exposed to the malady.

Even the advent of antibiotics did not cure AFB. As long as the antibiotic is applied, things seem okay. But if anything disrupts the schedule (eg, vacation, sickness, loss of interest), the symptoms may re-occur as quickly as seven days later.

All this time. work. and frustration only to say that the best procedure to **control** AFB still seems to be colony destruction. Ethylene oxide fumigation has potential but is still in the approval process and is not totally effective at best.

The usual burning techniques (ABC & XYZ of Bee Culture, 1975) is as follows:

1. Employ the procedure at night or early in the morning to get all the field bees that would otherwise be flying.

2. Bees should be killed inside the hive. Resmethrin is a commonly used aerosol insecticide.

3. Dig a pit 18" deep and long enough to accomodate the equipment to be destroyed.

4. Build a roaring fire and **totally** burn all combs. honey. and other equipment of questionable value (eg. rotted bottom boards).

5. Supers and hive bodies may be scorched with a torch. Alternatively they may be stacked 6-7 high on a bottom board. A pint of some flammable material (I don't recommend gasoline) is dribbled on the inner sides. Ignite the liquid and allow the fire

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to go for about 20-30 seconds. Put a top on the stack, suffocate the fire, and check the equipment to be sure it is charred approximately 1/16¹¹ deep.

6. Clean all hive tools. smokers, etc. with soap and water.

Burning will be somewhat controversial for the foreseeable future. I truly hope it is a controversy that will not involve any of you.

References

Phillips, E.F. 1916. The treatment of bee diseases. USDA Farm. Bul. 442. White, G.F. 1920. American Foulbrood. USDA Bul. 809.

Obituaries Former Beekeeper of the Year Dies at Dalton

Harold W. Knight, 82, of Dalton died August 1, 1984, at his home.

Funeral services were held August 15th at the Dalton Bible Church. Burial was in the Kingston Cemetery.

He was born July 19, 1902 in Kingston, Wisconsin to Gilbert and Mary Alice (Foss) Knight. He was married to Helen Jane Craigen in Chicago, Illinois on November 1, 1930. They have lived in Dalton since 1931. Mr. Knight was a beekeeper and a member of the Wisconsin Honey Producers Association, the Wisconsin Phenological Society, The Columbia-Sauk County Beekeepers Association and a 50 year member of the Dalton Bible Church. In 1970 he was given the "Beekeeper of the Year Award" by the Wisconsin Beekeepers Association. He also was a deputy bee inspector for the State of Wisconsin

He is survived by his wife, Helen; three sons, David and (Shirley) Knight, St. Charles, Missouri, Kenneth and (Lois) Knight and Wesley and (Mary) Knight, both of Dalton; two daughters, Marie Alyce (Tunis) Parsons of Tucson, Arizona and Nadine (Stanley) Rice of Prescott, Arizona; a daughter-in-law; Carolyn Knight of Fresno, California; a brother, Charles and (Alice) Knight, Dalton; a sister-in-law, Mrs. Walter Knight, Kingston; 23 grandchildren; 3 great grandchildren; nieces; nephews; cousins and a host of friends. He was preceded in death by one son, Dr. Curtis Knight, Fresno, California on April 28th of this year.

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GLEANINGS IN BEE CULTURE

ACARINE REPORT

Continued from page 627

Guadalajara.

The role of the Canadians was of undeniable importance. Without their organized guidance it seems far less likely that trilateral cooperation would have been as forthcoming. U.S. leadership has not been as strong as perhaps it should be in this situation; in fact, some key U.S. representatives, present at the Guadalajara seminar, did not attend or participate in the meetings specifically called to discuss the acarine situation. This is not to say, however, that the U.S. is not pulling its own weight in other matters. Obviously, the brunt of research activity, surveying and project funding will be guided by extremely capable persons and organizations within the U.S. It should be hoped though, that the U.S. beekeeping world, which has had the tendency in recent years to head off in many directions at once, will pull together at this important time. With a Mexican willingness to help when possible, a Canadian sense of urgency to progress and the U.S. potential ability to provide resources, a shared, concerted effort can be made to understand Acarapis woodi, to minimize its harmful effects, and to learn from this situation in a way that will serve us well in future preperations for the work against varroa mite and African bee.

> THE EDITORS GLEANINGS IN BEE CULTURE



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A BARREL HIVE!!

by PHIL DELUCCHI 3436 W. Biddson

Ft. Worth, TX 76109



You may recall G.W. Hayes Jr.'s *Gleanings* article in October. 1983 with additional comments by Charles Mraz in the December. 1983 issue. I would like to change the title by removing the question mark and replacing it with a couple of excitement (exclamation) marks.

In Fort Worth. barrels are plentiful and scrap wood is just as easy to find. Tim Hackbart and Joel McNelly used a barrel hive in their 4-H beekeeping projects and had an extremely successful and rewarding experience.

Aside from the initial cost of protective clothing, smoker and hive tool, both produced about 20 pounds of spring honey at little to no expense for materials.

The boys found out about bees and harvested enough honey for their families and relatives.

A minor problem resulted when removing the comb attached to the (Kenya) top bars. The bees built comb under the horizontal support bar along each side of the barrel. The problem was easily solved by vertically cutting the comb directly under the support bar leaving it attached to the barrel wall. A wedge shaped horizontal support bar could be made to fill this void but the small amount of comb left would not be worth the trouble.

Tim and Joel got their bees early from mid-April swarms. Each had their names added to the fire department, animal control and Tarrant County Cooperative Extension Serivce lists. Both are enthusiastic about next year now that the barrels are well established.

A 22 inch long top bar can hold about two quarts of honey. With 25 top bars one barrel hive could produce 150 pounds minus the brood area of course. That's a lot of comb honey on a very small investment!





Every species must reproduce itself in some manner else vanish from the face of the earth.

Most reproduction in the plant world is by the sexual method which consists of the union of the male element of the flower, the microscopic pollen grain, with the female element, the ovule. The first step in this fertilization process is pollination.

Pollination consists of the transfer by some agency of pollen from the anther of a flower to the stigma of the same, or another flower. When the transfer is between different flowers of the same species, cross pollination is said to occur. Nature employs two basic agencies to bring about pollination: wind, and insects, chiefly the honey bee.

Wind is a particularly effective pollinating agent in grains and grasses. In the majority of other plants, insects, are the predominant agents. One reason, probably, that Nature uses insects in most plants other than grains and grasses is that if wind were the agent, the quantity of pollen necessary to be present would be so great as would likely make the air uncomfortable to breathe for man and most of the animals.

There are several reasons why honeybees tend usually to be the most effective pollinating agents among insects. One is that their bodies are covered with plumose (feather-like) hairs which tend to retain pollen grains temporarily, whereas most other insects lack such bodily coverage. A second reason is that the honeybee is the only insect available that man may transport in large numbers to areas where there are concentrations of food producing plants such as apples, onions, cranberries, blueberries, almonds, etc. The third reason is that honeybee colonies, even in the wild, tend to have large populations of members capable of acting as pollinating agents. Along with these three causes may be listed the fact that honeybees are universally industrious. Their impulse to gather nectar and pollen in such large quantities brings them into contact with more flowers than any other known insect.

Most biologists believe that plants and pollinating insects, particularly the honeybees, grew up together. The flowers provided attractive coloration to draw attention of the bee. Then as the insect approached the plant's flowers, drawn by the brilliant colors, they usually gave off an aroma that signalled the presence of nectar and pollen. These two are the bee's only food.

As the bee gathered pollen in her baskets, and nectar in her honey sac, the numerous hairs on her body attracted and held extra pollen, the sperm of the flower, so that when she visited another flower of the same species, some of that pollen adhered to the sticky surface of the stigma of the second flower, thereby accomplishing the initial step in the fertilization process.

Once a particle of pollen makes contact with the stigma of a flower, the sticky covering of the stigma tends to hold it in place. Soon it normally begins to germinate and send forth pollen tubes down the style to form contact with the ovules. Thereupon, germination normally takes place and as a result one or more seeds are formed.

Nature sometimes provides the inhabitants of the world with a fruit to accompany the seed or seeds, such fruit, as citrus, apple, a berry, a vegetable such as a pepper, or a curcurbit such as a melon. Our human society is often more concerned with the fruit than the seed.

Some 250,000 beekeepers in the United States operate about five million colonies of honeybees. These bees annually produce more than five hundred million dollars worth of honey and wax. While they are doing this, they pollinate approximately 10-19 billion dollars worth of agricultural products.

In fact, approximately one third of our food comes to us in large part through the pollination activities of the honeybees. At the present time there is no agency (or agencies) capable of completely replacing honeybees as pollinators. Without honeybees many of the crops they now pollinate would be in short supply.

The crops pollinated also include those which form substanial parts of the diet of animals which eventually constitute meat on our menus. Some of the crops are alfalfa, the clovers, vetch, and trefoil.

The fruit crops pollinated by bees include apple, peach, some citrus. (particularly the tangelo); berries, including raspberry, blackberry, blueberry and cranberry.

The nut crops benefited by bee pollination cover almond and chestnut.

Vegetable crops include the melons, cucumbers, squashes, pumpkins, asparagus, broccoli, brussel sprouts, cabbage, carrot, cauliflower, celery, bean, onion, and so on.

Other members of the wildlife kingdom benefit from the pollination efforts of the honeybee. Such members include the squirrels, the birds and grazing animals such as the deer.

Pollination by honeybees makes the wild flowers more successful and hence a greater attraction to man in his environment. It is seldom noticed that the efforts by honeybees contribute to reducing soil erosion by helping maintain soil retaining plants. A few such plants are dandelions, white sweet clover, golden rod, astor, sumac, and basswood. There are many, many more.

Today many of the plants of the world are threatened in varying degrees by destructive insects. Man has resorted to the intensive use of insecticides to keep these pests under control. Unfortunately, the honeybee often falls victim to these insecticides.

If humankind is to have the service of the honeybee — often essential, and often free — it must awaken to this threat and find ways to control the insects that cause crop destruction without at the same time wiping out the bee that is its indispensible ally.

Earlier in this article when we were writing about pollination, we noted that it is when pollen from one plant of a species is transferred to another plant of the same species that we secure cross pollination. Cross pollination is highly desirable in the plant world. It normally increases plant vigor.

The honeybee follows one practice that tends to promote cross pollination to an extreme degree: She visits only flowers of one species on any given day. This is known as flower faithfulness. Exceptions to this practice are rare, though they do occur.

Continued on next page

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Any one honeybee may be almost exclusively a gatherer of nectar. or of pollen. Many bees collect both. Some vary their practice. The attractiveness of any plant's flowers to a honeybee may be on the basis of the concentration of sugar in its nectar. or in the quality and accessibility of its pollen.

A honeybee usually identifies a flower by its color, then by its aroma. The stronger the aroma, the richer the concentration of sugar in the nectar tends to be.

It's interesting to note that a bee whose primary interest at any one time is in gathering pollen. comes to a flower armed with a small quantity of honey in her honey sac. In most instances she took some from an open cell in the hive before setting out on her gathering trip. Other bees in the hive never seem to restrict any bee from doing this. She brings along the honey for the purpose of moistening any pollen that she may gather. She is thus better able to pack it into her baskets which are located on the outside of her two hind legs. These baskets consist of curly hairs which nature seems to have provided for the purpose.

The quantity of pollen that a colony of honeybees gathers at any given time depends largely on the number of young bees in the nest, chiefly in the larval stage, all of which need liberal quantities of this food. An abundance of pollen in the field, as for example when dandelion or corn is in blossom, also encourages bees to gather and store it for future use.

As each bee returns to the hive she hastily unloads her accumulation into a cell and leaves to the house bees the task of tamping it down, covering it with a bit of honey to help keep it moist, then sealing it over with wax. Bees seldom place pollen from two different species of flowers in the same cell. One seldom sees white and yellow pollen in the same cell.

There are many thousands of insects that accomplish some pollination, but of them all the honey bee is generally the most efficient and most effective.



Business is Bad

by RICHARD J. NIKLAS, M.B.A. Assistant Professor of Food Marketing Agricultural Technical Institute Wooster, OH 44691-4099

In recent years when one woud ask another business owner the question. "How are things going?", a comment often heard was, "Business is bad." I imagine many beekeepers have also made this or a similar comment. If this comment were made to the chairman of the board of a large corporation by one of his managers. he would surely ask the speaker. "What are you doing about it?" In a small business, the owner is the one who must ask himself that question. As an owner of a small business. I know only too well how hard it is at times to discover new approaches to a problem such as poor sales because we are creatures of habit and sometimes cannot see the forest for the trees. We often operate with tunnel vision.

This first step any good sales representatives take is that of prospecting. The aggresively set out to find potential customers for their product. Let's explore where there may be some new prospects for honey that you may not be reaching. Listed below are some prospective retail locations that could be potential sites for honey for your consideration.

Roadside Markets

Apple Orchards

Fresh Fruit & Vegetable Stands (local farmer's markets)

Independent Supermarkets

Gift Shops

Drug Stores

Family Style Restaurants

Gourmet Food Stores (fruit baskets)

Health Food Stores

Bulk Food Stores

Flower Shops (Sweetest Day and Valentine's Day Floral Arrangements)

Flea Markets/Fairs

Department Stores (Fancy Food Section or Gift Departments)

Hardware Stores

Sporting Goods Stores

Bulk Chocolate Candy Shops

College Bookstores (OSU has used campus bookstores successfully)

Bakery Shops

In most of the locations such as restaurants, drug stores, sporting goods stores, and bakery shops, the ideal location would be at or near the cash register. To secure distribution in some locations, it may also be necessary to sell on a consignment basis. However, if you have the product packaged and in storage waiting for a customer, there is nothing to lose and everything to gain if sales can be made.

Another area that should be looked at carefully in the pursuit of increased sales is merchadising. Are you merchandising honey in the same fashon as when you started business? A logical place to start is with your label. Is your label modern and up to date? Does it project the image you want to convey? If your answers to the last two questions are yes, maybe you would like to consider the merchandising ideas listed below.

Gift Package (Gift Boxes at Christmas)

Premium (Free Serving Spoon Attached To Jar)

Recipes (Gummed Label Attached to Rear of Jar or with Flexible String to Neck of Jar)

Cents Off Label (Separate Gummed Label Attached to Jar)

Coupons (Separate Gummed Label Attached to Jar)

Free Gifts (Free Recipe or T-Shirt with X number of Labels)

Re-usable Container (Jars that Could be Used as Drinking Glasses)

Fund Raising (Local Schools or Youth Organizations)

I may have missed a few locations or ideas; however, if I did, why not send your ideas to the editor so others can benefit from your success. I hope that the next time someone asks the question, "How are things going?", your answer will be, "Great, business is booming!"



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Barberries And Their Relatives As A Nectar Source

Among the plants of the barberry family, the Berberidaceae, a considerable number of species of the type genus *Berberis* and the closely related genus *Mahonia* (formerly classified as *Berberis* species have been noted in the world's apicultural literature as sources of nectar for honeybees.

Barberries and their close relatives have never appeared to be major sources of nectar, but something like 175 different species of these interesting plants are natives of North and South America. Europe. North Africa, and Asia. Among such a wealth of species, observant beekeepers may very possibly discover many additional wild species or cultivated varieties that have not yet been listed as useful to honeybees.



The fruits of barberries serve as food for birds and their closely interlaced spiny branches are safe locations for nest building.

The European barberry. Berberis vulgaris L., is a very variable species, usually bearing scarlet but sometimes yellow or white fruits. It has been reported by many authorities as furnishing nectar and pollen to honeybees, as have also the Japanese barberry (*B. Thunbergii* D.C.) and the California barberry (*B. pinnata* **DECEMBER 1984**

Lag.). The closely related Mahonia Aquifolium Nutt. also attracts honeybees.

Barberries can usually be propagated with ease by planting their seeds in autumn. It is not even necesary to remove the flesh of the fruits, although this may help to reduce seedling rots. Propagation by the rooting of cuttings is also practiced.

Before beekeepers can advance from the present primitive state of their art, which is still dependent on Nature's bountiful supply of wild plants as nectar sources and the more or less accidental cultivated crops that are specialized for other than apicultural purposes, they must select nectar plants worth cultivating for nectar alone, or for pollen and nectar.

Among the many species of barberries and related plants, beekeepers may be able to find individual plants that yield more, or more attractive nectar than normal. Such exceptional plants may serve as foundations for improved seed-propagated or vegetatively-propagated cultivated varieties for use in the future apicultural farming operations.

Unifloral Honey Samples

Have you ever produced a sample of green honey? If so, do you know what the source of nectar may have been?

Recently I speculated about the possibility of obtaining a unifloral sample of honey from the red maple (*Acer rubrum* L.) if some beekeeper could extract a sample of early spring honey from a beehive located in an area where red maple was common but where early-blossoming willows were relatively uncommon.

Then I remembered an almost forgotten incident that fitted this specification exactly. About 1948 I was living in the vicinity of Princeton. New Jersey, where red maple trees in wet areas usually began to blossom, and to attract honeybees, as early as the last few days of February each year but began to blossom in drier areas at intervals for about another month, thus greatly lengthening the red maple nectar flow. Willows were present nearby but were not especially abundant or early in blossoming. My honeybees prospered so well in early springtime that I at once divided some colonies for increase, and in doing so I observed fresh stores of honey that looked tempting. When some of the freshlymade honey was extracted. I was much surprised to find that it was an attractive light green color and had a mild and pleasant taste. At the time I was convinced that the green honey must have been made from red maple nectar, no other substantial source being apparent so early in the season.

I had never seen a greenish sample of honey before that time, and I have never seen a comparable sample of extracted honey since that. I wonder whether any other beekeeper has had such an experience.

Some years later I moved from the Princeton area of New Jersey to the east side of New York City. There I was pleased to find a little honey shop where unifloral samples of honey were regularly displayed for sale.

My widened experience in tasting the world's favorite varieties of honey allowed me to learn at first hand the virtues of many of the well publicized kinds, such as sage honey. citrus honey, sourwood honey, gallberry honey, clover honey, buckwheat honey, thyme honey, and clethra honey. Of all these, the honey from Clethra (*Clethra alnifolia* L.) was my personal favorite, but it was only occasionally available.

I used to wonder also about the flavor of coffee honey, which has been claimed by some to have the best of all honey flavors, but I never saw a sample of it on sale in New York. Later I bought samples of local honey in coffee-producing areas of Puerto Rico. but it was obvious to me that the samples that I obtained there could not have been unifloral samples of coffee honey, because competent judges would never have concluded that coffee honey has the world's best flavor if these samples from local beekeepers were truly representative of pure coffee honey. My samples were presumably mixtures with less favorable kinds of honey.

I often wonder now what the products of our less known nectar sources would look like, and taste like, if they could be obtained without a mixture of other nectars.





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MONTHLY HONEY REPORT

Continued from page 630

with little demand from packers. They are offering 44 cents for dark and 54 for light.

REGION SEVEN

Honey reporters needed. Contact the editor.

REGION EIGHT

Colorado has had continual rains in latter Sept. and early Oct., making extracting touch and go. Quantity a little less than last year but good quality. Bees in good shape, but early snows made last minute winter checks impossible. Retail sales good with prices holding level. With cold weather and coming holidays the demand has been heavier for larger conatiners. Montana reports some feeding due to early snow. ly slow. Some trading at local farmer's market.

Honey reporters needed for this region. Contact the editor.



REGION NINE

Some small swarms under a pound reported in California. Some beekeepers on central coast looking for warmer overwintering locations. Honey sales general-

SIGNIFICANT NEW PUBLICATIONS

The Impact of Pest Management on Bees and Pollination, price including postage US \$24.00

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Here's What The Scottish Bee Journal Says About The A.I. Root Company Honeybee Slide Shows:

Now for a real treat. Really splendid beekeeping slides. This particular series is aimed at the general public and is designed to captivate its interest. The second part is designed to help the beginner to get properly started. How often have we longed for a really effective set of slides to show to the non-beekeeping audience — here it is par excellence. The photography is excellent and John Root has a rich round voice, with clear diction which makes it very easy to listen. This is only one of several sets issued by the A.I. Root Company, publishers of 'Gleanings In Bee Culture'.

Set 1 — Honeybees — (67 slides). An introduction to the honeybee: showing the development and describing the behavior and activities which is basic to the understanding of this amazing animal. For beginning beekeepers or anyone interested in learning more about the honeybee.

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"Confessions of a Hobby Beekeeper"

by BOLIVAR EDWIN SHAGNASTI

There was no doubt in my mind that I was a dead man.

The morning had been rather uneventful. It was a rare weekend day free from work. There were no committee meetings, no special projects, no field trips, and no special favors. I awoke early and headed immediately to the garden, which was my usual pride and joy, and the source of much irritation to my neighbors, since my garden was always better than theirs. But because of my schedule, I was behind. There was much work to be done here. and the weeds were already germinating in the areas set aside for the squash, cucumbers and melons pot-bound in the window greenhouse. It was time to get them planted.

The second fill of my coffee cup was about empty when I first heard the noise. It sounded like a faint lawn mower working a few blocks away, but then it grew louder, and then I realized that this was no Snapper mower, but something very much alive, buzzing, and moving my way.

Suddenly they broke through the edge of the property. There were thousands of them, darting in every direction, but pulled as if my magic in one direction toward me! After recognizing these roaring monsters as bees, I started to get up, pick up my coffee cup, and walk toward the house. But by the time I was upright they were between me and the door, forming an enormous mass of insect flesh.

They had violated my backyard and my morning. The hairs on the back of my neck tightened and stood upright; my stomach did a elevator ride to the top floor and then dropped suddenly to the basement. My hands were wet while my mouth was dry. I knew at that instant that I was a dead man.

The bees totally and completely engulfed me. I was surrounded. Several landed on my face, hands, and arms. One landed on my nose. No one needed to tell me to remain still, the fear and paralysis kept me from even breathing. But then each bee departed, and returned to the air. But while they were on me time stood still.

Were they poised for an attack? Did the queen bee need to sting me first? They seem to by flying in an ever tighter and tighter circle until their orbitals were forming a dark cloud over my dwarf fruit tree a few feet away. Surely they are waiting for me! Slowly I started to move, expecting the worst. I decided that I could run to the house and endure enough stings to dial the operator for emergency help. I continued to move toward the house. Step by step as I watched out of one eye, I walked toward the house. Gently I reached for the door. Quietly I closed the door. I was safe! I breathed again.

The black cloud had settled, and had formed a large football shaped mass on the branch of the apple tree. Only a few bees were flying. As the blood flow slowed throughout my body, I regained some clearness of thought. I was alive. They did not sting me. I was not a dead man.



Bolivar

But they were still there. OH! I thought — are they going to build their hive in my yard, in that tree? Would I ever be able to use my back yard again? What about the garden? Would the pigweed overtake it before the melons see full sunlight?

I rememberd that I entered the house to phone the operator. What would the operator know? Someone must know. But who?

HONEY, Wholesale and Retail N. Doogs, 31 Peach Orchard Drive — Rapidly I dialed the number. It rang, twice, then three times. I let it go a dozen rings and was ready to hang up when a voice answered.

"Yea Whadaya want?" the voice said.

"Ahhh, Hello. This is Mr. Shagnasti call-

ing. I've got an emergency. There is an enormous number of bees which just landed in my dwarf apple tree, and I don't know what to do. Can you help me?"

I heard laughter. I didn't see the humor in my comments. The voice said, "Look mister What-ever-your-name-is, I got a lot of work to do today. Are you sure they are bees?

"What else would they be?" I asked.

"Oh, right, can't be yellarjackets this time of year. How big is the bunch of bees in the tree?"

"It looks like one and a half footballs except for the few flying in the air." I said.

"And how long have they been asettin" around?"

"I guess it's been at least 5 minutes now since they settled. Maybe longer, what with the time it took for my heart to slow down."

"And how far off the ground?"

I looked. "It must be 5 or 6 feet off the ground. They are at my eye level — they looked right at me as I walked by."

"Wait a minute Sonny, you just slow yourself down some. Them bees aren't about to take off too soon, and I guess that I can find enough equipment laying out back, to pull together another hive. You just tell me what street you're on and I'll be over to put them bees into a box and you can go back to whatever it was that you were doing when they put you into apoplexy."

"I was in the garden getting ready to plant the squash and melons," I said. I told the voice my address. I was assured that no harm would befall me if I just relaxed.

I heard the truck before, it made the curve down the road. It looked like one of the trucks that the construction crews used to move pre-formed trusses for houses with a large flat bed. It pulled into the drive, and I was afraid it would never stop before it reached the end of the driveway.

"You Shagnasti?" the voice asked.

"Yes, I'm Bolivar Shagnasti."

The driver opened the door and slid down to the ground. I stared in amazement.

It was a woman, in her navy boots, twice patched denims and an old cotton flannel shirt over a faded blue turtle-neck tee-shirt.

Continued on next page

GLEANINGS IN BEE CULTURE

It had been some time since any of this had seen a washing machine.

"Oh. sonny. don't panic!" she said. I've been out nuking in the back yard and didn't have time to change. This bee stuff isn't exactly the easiest way to stay clean that I've ever found. Name's Doogs, Nannifred Doogs. But all my friends call me Nanny. Now where's them bees?"

"There in the back." I said.

And with that Nannifred Doogs grabbed a box off the bed of the truck and walked toward the back yard.

"Well, are you coming to show me or not?"

I stared in amazement. "But won't they sting? And are you going to go back there without a suit of armor on?"

"Oh sonny, you got a lot to learn." She walked back to the truck, opened the cab, and pulled a wire covered thing out from behind the seat. As she unrolled it she said "You will probably be better off with this thing on your head. After all, you may need to hold the box when I drop them bees into it."

Again I knew I was a dead man and I stopped all movement.

"Now you looky here Mr. Shagnasti, I've got lots of work to do today, and one little old swarm isn't about to slow me down. And from the sounds of it this one is like taking candy from a baby." She stared at me for a minute. "Now you have nothing to be afeard of — them bees are going to be as gentle as pussy cats after a big bowl of warm milk. Now get a moving."

I followed. In a turn, Nannifred Doogs had seen the swarm, opened her box, which she called a swarm-catcher, and was ready to hand it to me. "What I have to do here is to knock the bees into this box and to make sure the queen goes in with them. Do you mind if I cut this little branch off your apple tree?

At this time I just about had the veil on. She laughed. "You have that blasted thing on backwards sonny, you won't be able to see a blasted thing."

"I wasn't sure I really wanted to watch.

"What about the branch? May I cut it? she asked.

"Oh — sure, sure, cut the branch, cut the whole tree. Do whatever you have to do!" I said.

Then she stopped. She looked closely at the bees in swarm. Then she walked over to me grabbed my arm and slowly pulled me close to the bees. She pointed to them and said "These bees are probably Italians — see their light color. They look yellow or golden in color rather than dark grey or black. They should be good bees for your garden."

"My garden?" I said. I looked at her in disbelief.

"Didn't I hear you say you were setting out your melons and squash? And what about your dwarf apple tree — I'm sure there will be plenty of it left when I get through with it. In fact, I may not even have to cut it any."

"Yes.....but.."

"And I noticed a big patch of strawberries and raspberries over by the fence, and there were some blueberry bushes over by the side of the house. Buddy, you better keep these bees right here and use them for pollination in your garden."

"But I thought that, well, or, that is, well, what would I do with a colony of bees?"

"Simple — learn to take care of them. feed them if they get low on food, and take away their surplus honey in case they get busy. There's lots of good bee forage in these here parts and you can always eat the honey. You do eat honey don't you?"

"Sure, every time I get a sore throat, and on the corn flakes in the morning."

"Fine, it's settled. We'll knock these bees into this box, and after I get my nuking done I'll be back to move the bees into a regular hive. And you'll be number 57.

'Number 57?'' I said.

"Sure, you will be the 57th person I've started in bees since I got bee fever from the bee bug about 15 years ago. And I'm gonna' make sure it bites you real good — you got potential!"

With that Nannifred Doogs looked at the branch the swarm was resting upon, and held the box under the branch. Upon her instruction, I reluctantly held onto the box while she suddenly shook the branch, and knocked most of the bees into the box. She looked at the branch and seemed pleased. "Well, I don't see the queen, so maybe we got her on the first try."

Glancing around the yard, she walked over to one spot in the yard next to my compost pile which seemed more protected than most spots. She asked me if I ever tied a dog there, or sat there in the summer in the shade. When I said no, she walked behind my shed and came out carrying two old cement blocks. She positioned them in the protected spot, and then carried the swarm-catcher over to the blocks.

"I'll set this here, now that most of the bees have landed. Those still flying around in the yard will find the hive because of the scenting they are doing. With that she pointed to a few bees in the openings of the swarm-catcher with their tails up in the air and fanning their wings. "They are telling other bees where they are, and to come join them."

"I'll be back about 5:00 this afternoon with the rest of the stuff you'll need, and we will move the bees into regular equipment. Meanwhile, they should stay put with the foundation in the swarm-catcher. You just don't let any kids poke at them."

Then she was gone. The giant truck roared out of the driveway and down the road. I was still wearing the veil, as she called it. and I left it on. I walked out to the bees and watched them at the entrance. I checked the apple tree — there were only a few bees left on the branch — we didn't have to cut it! I pulled up a stump and sat next to the bees. As I stared at them, they flew in and out of the box. I wondered. "What in blue blazes is Bee Fever?"

BARBERRIES Continued from page 650

Here in New England we usually can obtain only pure "wild-flower honey", and the many randomly mixed wild flowers can confer almost any flavor that you can imagine.

Occasionally I have obtained a sample that tasted about the way our common milkweed flowers (Asclepias syriaca L.) smell in mid-summer. That is a very satisfactory flavor, but I suspect that my samples have not been truly unifloral but merely dominated by the flavor derived from milkweed nectar.

Some parts of the United States could perhaps produce unusual, and unifloral, samples of honey regularly. The region of Cape May in New Jersey would probably be able to produce unifloral samples of honey from poison ivy (*Rhus toxicodendron* L.), because honeybees almost everywhere assiduously visit the flowers of poison ivy each year, and Cape May has an almost pure stand of this plant along part of its coast line.

Some parts of northern New Hampshire have very few resident beekeepers because there are no substantial nectar sources locally except wild raspberry. The many raspberry plants that grow up following lumbering operations often attract migratory beekeepers from other parts of the state to harvest the nectar during the raspberry blossoming period.

I have never seen a sample of authentically pure raspberry honey, but it would be interesting to produce and put on sale such unifloral samples so that people could learn to appreciate the flavor of this type of honey in contrast to those that are commonly available.

Book Review

"Varroa jacobsoni oud. Affecting Honey Bees: Present Status and Needs" is the Proceedings of a Meeting of the European Communities Experts' Group. The conference was held on the 7-9 of February, 1983 at Wageningen Netherlands. The Proceedings were edited by R. Cavalloro, Commission of the European Communities Joint Research Center, Ispra, Italy,

The attractively bound, hard-back text is well organized into six areas that correspond with specific sessions that were conducted during the conference.

Session 1 The Extent of Varroa Infestations and Effects

In this session researchers report on spread of the mite throughout Europe. Consideration is also given to the problem of interaction between acute bee paralysis (APV) and Varroa infestations. After reading this section, one has a good grasp of exactly where the mites came from, where they currently are, and where they are expected to move within the European community.

Session 2 **Existing Rules & Regulations**

Examples are presented from the European communities to give an idea of what types of legislation have been enacted to control Varroa once it has entered an area. There is little new information presented in this section, but it does give a good idea as to the measures that are being (or will be) used.

Session 3 Biology

The four papers presented to serve to acquaint the reader with the basic biology and anatomy of Varroa. Electron microscopy is used to show some aspects of the chromosomal make-up of Varroa.

Session 4 Control

The efficacy of various control agents are described. Problems with mass control are addressed. Tobacco smoke, Dicofol Folbex VA, and malathion are some of the materials that were discussed.

Session 5 The View of Acarologists

Three acarologists presented some interesting questions in a combined paper. All Varroa identified as such may not all be of the same "strain" even though they look alike to apiculturists. They also stated commensals or pathogens carried by the mite may be causing secondary infections in the bees. Cooperative projects were encouraged between acarologists and apiculturists alike.

Session 6 **Present and Future Research and Coordination**

After reviewing the body of the information presented, suggestions were made concerning future routes of investigation. An excellent bibliography is also included.

All things considered, the text is an excellent synopsis of the current Varroa problem in Western Europe. No miracle control measures are offered, but none were expected. I and some of my peers think the text is quite timely and worthy of review.

> Dr. James E. Tew ATI/OSU Wooster, OH 44691

1985 A.H.P.A. Convention Highlights --**Biloxi, Mississippi**

Wednesday — January 9, 1985

Registration — all day. Executive Committee. Set · 9:00 a.m. up exhibits Thursday — January 10 President's Address - Glen Gibson, President, 9:30 a.m. Minco, Oklahoma Charles Engle, A.H.P.A. Director, Wolfe City. 10:00 a.m. ' Texas "Political Action Committee-Is It Effective?" Berna Johnston, Past President, A.H.P.A., 10:45 a.m. Socorro, New Mexico "Pollination Ecosystms-What are They?' Dr. Joe Moffett, Research Entomologist, A.R.S.-11:00 a.m. U.S.D.A., Stillwater. Oklahoma "The Role of Honey Bees in the Ecosystem' Dr. Jack Barclay, Visiting Associate Professor, 11:30 a.m. Dept. of Renewable Natural Resources, University of Connecticut, Storrs, Conn. "Relationships Between Honey Bees and Wildlife" Dr. Richard Cowden, Acarine Mite Program 1:00 p.m. Director, A.P.H.I.S., U.S.D.A., Hyattsville, Maryland "The Acarine Mite - Eradication Program" Dr. Robert Jackson, National Program Leader -1:30 p.m. Entomology, A.R.S., U.S.D.A., Beltsville, Maryland "Apiculture Research - Priorities, Chain of Command, Etc." 657

2:00 p.m.	Dr. H. Shimanuki, Director — Bioenvironmental Bee Lab, Beltsville, Maryland, "The Role of A.R.S. in Combating Carapis Woodi"
2:30 p.m.	Dr. Bill Wilson, Director Bee Disease and Pesticide Research Lab. A.R.S. — U.S.D.A., Lar- mie Wyoming, "Developing a Research Program for Acarine Mite"
3:30 p.m.	Dr. Basil Furgala, National Leader, Extension Apiculture Program, U.S.D.A. University of Min- nesota, St. Paul, Minnesota "A Perspective on the Bee Industry"
4:00 p.m.	Bill Lord, Extension Entomologist, University of North Carolina, Raleigh, N.C. "What Happens to the Environment After Beekeepers are Bankrupt"
4:30 p.m.	Dr. Don Peer, Beekeeper, Nipawin, Sask. "Cana- dian's Reaction to Acarine Mite"
7:30 p.m.	Dr. Roger Morse, Professor of Apiculture, Cor- nell University, Ithaca, New York, "An Evening with Dr. Morse"
Friday — Ja	inuary 11
9:00 a.m.	Dr. Tom Rinderer, Director Bee Breeding & Stock Center Laboratory, Baton Rouge, Louisiana, "African Bee Research In Venezuala"
9:30 a.m.	Dr. Bill Wilson, Director, Bee Diseases & Pesticide Research Lab, Laramie, Wyoming, "Pesticides — Is there an Answer?"
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	GLEANINGS IN BEE CULTURE



Most beekeepers now know the honey market is in a bad way, a big surplus and poor demand. Imported honey seems to get all the blame. Actually most beekeepers seem to ignore the real reason for the poor honey market.

Some 20 years ago beekeepers may remember the peak of the honey demand in the 60's and early 70's when honey was considered to be the No. 1 Health Food with the growing interest in health foods. In those days there wasn't enough honey to supply the demand and prices rose dramatically.

Many beekeepers at this time did not realize the reason for this big increase in the demand for honey was the result of a book written by my friend, Dr. D.C. Jarvis of Barre. Vermont. "Folk Medicine". The folk medicine. one of which was vinegar and honey. is still just as wonderful a "medicine" as it was then.

The book. "Folk Medicine" was on the Times best seller list for 2½ years and sold over 3.000.000 copies. At the same time it was translated into Japanese, became a great seller there with the result Japan is now a honey, consuming nation. I remember at the time taking a Japanese beekeeper to see Dr. Jarvis. Dr. Jarvis asked Ko Watanabe "why is it my book is a best seller in Japan?" "Simple". Ko replied. "Our folk medicine is just like yours". This should give you something to think about.

Now in 1980 we see a complete switch. Even health food stores that honey

helped build up, are now printing warnings not to feed honey to infants under one year old. It doesn't stop there, some mothers conclude honey must also be bad for children. Even nutritionists who know nothing about honey are saying it is worse than sugar in the diet. One food writer even stated, if you open a jar of honey, don't eat it, throw it away. It is full of botulism. It is a classical illustration how a little lie can grow into a big lie.

DECEMBER 1984

A recent study in California concluded that of 20 infants ill with botulism poisoning, eight were exposed to honey. It did not state that any were on a honey milk formula, but honey was applied on pacifiers and other casual ingestion of honey. It does not state if it was pure honey or some sweet syrup called honey. Corn syrup is supposed to contain more botulism spores than honey. I have seen no warnings not to feed corn syrup to infants. What about the 12 infants who developed botulism poisoning not exposed to honey? What caused their problem? If it was some other food, why no warning for these other causes of infant botulism?

Siftings

Middlebury, VT 05753

Box 127

Most readers know my feelings on this subject. In my 65 years of beekeeping experience. I have seen many babies raised on honey milk formulas that did not agree with them; vomiting, diarreah, gas, sour stomach and in great distress. In all cases, these sick infants when put on a honey milk formula became well, usually on the first bottle of honey and milk. As Dr. John Clark, the pediatrician of our boys said. 50 years ago. "When you put a baby on a honey milk formula, you have a new baby."

Dr. Clark specialized in "Premies", premature babies. He said a premie put on a honey milk formula will be normal weight in four months". He was known as the "honey doctor" and had excellent results for years.

What we beekeepers need is "scientific proof" that honey is indeed a superior food, a protective food as most natural foods are. Recent developments in the "new" medical science of Immunology I believe will give us good grounds to do such research. All living organisms, animals, plants, fungus, etc., everything that lives is constantly being attacked by pathogenic agents, bacteria, virus, poisons, stress of all kinds, that want to destroy it. The only reason life manages to survive at all, is because every organism has developed complex immune protective systems of many kinds. It was learned 200 years ago that fresh fruit and their juices, even cider vinegar, would protect seaman on long voyages from deadly scurvy. Rice bran protected against beri-beri. In addition to vitamin C, other vitamins were found to be essential to health in codliver oil, wheat germ oil, yeast, etc. Recently the medical profession stated there was evidence that bran in the diet would help prevent colon cancer. Not only because of its bulk, but it appeared to contain a protector factor against cancer. There are many protective foods in many forms.

Innoculations, anti-toxins, anti-biotics, etc., are some other forms of the complex Immune System Functions, to protect the body. Recently in the new interest in the field of Immunology, another protective system has created much interest. Certain cells of the body protect the body against bacteria. toxins. etc., by producing superoxides and free'radicals that effectively destroy all forms of these pathogens. Another reason for the great interest in these super oxides and free radicals is that they are implicated in the three main degenerative diseases: rheumatic diseases, cardio-vascular diseases, and malignant diseases with all its forms of cancer, that cause almost 80 percent of the all deaths in the U.S. today.

A common super oxide is hydrogen peroxide. H₂O₂. The excess single atom oxygen, called Nacent oxygen. is extremely reactive with bacteria. toxins and other organic material and can destroy it almost instantly. The residue left is H₂O, common water.

It is interesting to note with honey bees, this super oxide production even extends to the honey bees collect from blossoms. All beekeepers know that honey, pollen, brood, etc., within the hive are perfect mediums for all sorts of bacteria, fungus, etc., to grow vigorously, but it doesn't perhaps because of this super oxide⁸ activity.

Natural honey contains an enzyme. glucose oxidase. When the honey is diluted, as when it is eaten and goes through the digestive system, this enzyme with energy from the glucose in the honey, produces and maintains 30 parts per million of H_2O_2 up to an optimum level. If this can be proven with research, it is obvious the super oxide, H_2O_2 , if it does reach the intestines of a person of any age it will quickly destroy the botulism toxins almost instantly, better than any anti-biotic which actually is not of much value for this counteracting type of toxin.

It should not be too difficult to prove the existence of superoxide production in natural honey with a simple test for nacent oxygen, in diluted natural honey. Such a

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Gleanings Mail Box

ABF Committee To Restock Acarine Mite Infested Colonies

Dear Beekeeper:

I am sure by now you are aware that the acarine mite has been found in Texas and Louisiana . All known infestations originated from the original source in the Rio Grande Valley. It is believed that the mite entered Texas from Mexico, and normal migratory movement of bees spread the mite to other areas.

It is believed, the mite was discovered. in early stages, by APHIS (Animal & Plant Health Inspection Service) and Texas Bee Inspection Service. Regulatory authorities and beekeepers have established a goal of eradication of the mite in the United States and creating a buffer zone along the Mexican border to prevent reintroduction of the mite.

To reach this goal, regulatory authorities are killing all colonies within one half mile of those locations. After gassing the bees, all equipment can be reused, as the mite cannot survive outside the host bee for more than six hours.

Loss of these colonies by a few commercial and hobby beekeepers is a severe blow, however, and it is necessary to protect the rest of the beekeeping industry in the U.S. It is estimated that as many as 4000 colonies will be gassed. There is no government indemnity to be paid to the beekeepers affected.

The ABF (American Beekeeping Federation) has appointed a committee to help the affected beekeepers re-establish these colonies. President Gunter has asked me to be the chairman of this committee.

If you are a northern beekeeper who would normally gas colonies in the fall, we are asking you to consider donating a portion of the bees and queens you would gas. If you could move extra live colonies to the south in late September or early October, the bees and queens could be shaken out of the equipment on arrival. If you have extra bees to donate, contact Dewey Robson, 338 Joal Drive, Carrington, N.D. 58421, phone (701) 652-3360.

If you are a queen producers, we are asking for a donation of queens. There will probably be a need of at least two thousand queens, in addition to the ones received from the northern colonies.

If you have queens, and or bees to donate, please contact Morris Weaver. Route #1, Box 24, Navasota, TX 77868. phone (409) 825-7714.

Perhaps you would like to help, but do not have either of the above to donate. Make your check payable to the A.B.F. and send it to them at 13637 N.W. Ave., Gainesville, FL 32606. Indicate it is for the Exotic Parasite Fund. The ABF executive committee will use the money in the best manner they see to resolve the problem.

Remember, this is not just a problem of those directly affected, but it is an industry wide problem.

Morris Weaver/Chairman

Painting with Beeswax

Dear Editor:

Many thanks to Mary Lou and Roger Morse for their excellent article on encaustic painting in the ancient world. (October, 1984).

I would like to add, however, that their form of painting is very much a part of today's art scene. Jasper Johns (6.1930), the well-known American painter, for example, has been using encaustics for many years.

His work can be seen in many public and private collections around the world. In fact, the Whitney Museum in New York City recently paid a seven figure amount for one of his encaustic paintings!

Once again we can see that apiculture and the history of art have strong parallels.

I hope that someone might write a book on the subject. If not, I may have to do it myself. Bryan I. Lorber, Larch Tree Lane, Westport, CT 06880

Eclipse

Dear Editor:

In relation to: "Questions and Answers", page 545 in the October issue of Gleanings In Bee Culture.

Question by R. Lee Beam, address Winovah, N.J.



On May 30, 1984, there was a total eclipse in my apiary here in Northeast Georgia. (Cleveland, GA), and I observed with intensity my bees one hour before the eclipse and thirty minutes after the eclipse. Being a clear day there was no flight whatsoever, only confusion at the hive entrance. Neal L. Black, Cleveland, GA 30528

Robbing

Dear Editor:

The article by Mrs. Velma Clinton "Learning About Robbing the Hard Way" in the September issue of Gleanings prompts me to tell your readers a method of squelching robbing as told to me by a state inspector of Apiaries in California.

The method taught me. was, when robbing was noticed while inspecting individuals colonies in an apiary - was to immediately remove all the covers from all colonies in the apiary.

Guarding their own store becomes the dominant response to this maneuver and the robbing of the single colony with diminish and stop.

Then while inspecting the balance of the colonies - place the covers to one side of all the weak colonies to be replaced first when all the inspection was completed lastly replace all the covers. The robbing will not be resumed after you leave

This treatment will work even with only a couple of colonies, though a wise precaution would be to reduce the entrace on a weak one.

I have used this process many times while on inspection and while working my own bees. Edwin L. Tate/ former apiary inspector, Killbuck, OH 44637

Beaverhead Honey Company

Dear Editor:

It is fashionable nowadays to give awards for outstanding service where someone or group goes above and beyond the normall expectations. Senator William Proximire gives a "golden fleece" award to the government agencies that seem bent toward wasting money on projects that should have never have seen the light of day.

Continued on page 662

GLEANINGS IN BEE CULTURE

James Huie Johnson: Beebeard King of the Universe

by J. IANNUZZI RD 4, Ellicott City, MD 21043

A glimpse at the Terra Alta, West Virginia beeman who achieved world-wide fame by crashing the "Guiness Book of World Records".

World's Biggest Beebeard

On December 7, 1982, in the National Enquirer (I don't read it—honestly—a friend sent me a copy), on page 46, there was a massive color photo of a man covered with honeybees from his forehead down to below his waist. Only his nose and mouth were visible. Alongside was this article.

Better bee-ware this beard. It's the world's biggest "bee beard" ever, made up of 35,000. Jim Johnson of Terra Alta, W.Va., the beekeeper under those ten pounds of stingers, set the world's record with the beard. He created it by affixing a queen bee in a tiny cage to his neck, then having the worker bees, which were drawn to the queen, released. Johnson's beard was much bigger than the previous record holder, listed in The Guinness Book of World Records as having worn a beard of 21,000 bees. Johnson's feat will appear on ABC-TV's "That's Incredible!" an Alan Lansburg production.

I was there. I was one of the three judges. Let me tell you about the recordholder and the man he dethroned: Don Cooke of Ohio.

What the Record Book Says

Anybody checking the 1984 edition of Guinness will find two (surprisingly) entries under "Beard of Bees" which did not appear in any previous issue. On page 325, one reads:

Beard of Bees: Don Cooke of Ohio (left) has "grown" a beard like this more than 100 times [I saw him do his 142nd on September 8, 1984 at the Seventeenth Ohio Honey Festival in Lebanon—near Cinncinnati] with 21,000 bees his greatest. A new record was set by James Johnson of W.Va. in 1982.

The picture referred to in the above quote shows the Terrace Park, Ohio denizen seated on a bench between two standing men, with an unidentified applicator on the left grooming Cooke's wiggly growth and another such on the right looking on, ready to pitch in?

On the preceding page, there is this entry:

Beard of bees. The heaviest recorded "beard" of bees was one estimated at not less than 35,000 which swarmed around a queen bee on the chest and throat of James Johnson of Terra Alta, WVA on October 17, 1982. The bees weighed 10 pounds. Don Cooke of Ohio, a previous record holder, has "grown" a beard of bees more than 100 times.

Cooke of Ohio

The quotations resurrect fond memories since I am personally acquainted with both these fine gentlemen.

The Buckeye State beeman of 731 Miami Avenue, Terrace Park, 45714, I first met at the August 1978 Eastern Apicultural Society (EAS) annual meeting in Wooster, Ohio when John Root, associate editor of Gleanings In Bee Culture and vice president of the company bearing his grandfather's name (A[mos] I[ves] Root Company), was the EAS prexy, the year before Cooke entered the record books. The latter was applying bees to first-timer John Caulk, the Maryland native on the staff of the Agricultural Technical Institute (ATI) in Wooster where the confab was in progress and then performed the stunt himself-his 86th in nine years. There I made his acquaintance and questioned him closely about proper procedure, leading to my becoming the chief applicator the following year for Donald Pierpont Kolpack's first insect growth. This man from Columbia, known as the Beebeard King of Maryland, now has ten such feats. "under his belt."

At Wooster, I soon learned that Cooke's beebeard marvel was the featured attraction at the annual September Ohio Honey Festival, thirty miles northeast of Cincinnati. In fact, that event, now drawing at least 25,000 each year, was held for the 17th time this year, September 6-8 (Thursday-Saturday), with the program listing ten bearded performances, alternating (?) bet-

ween Cooke and his applicator, Lou Kessen, Hamilton, who has more than 75 to his credit.

It is interesting to note that the florist's son's very first was at the Second Ohio Honey Festival in 1969 at the age of 58, where he replaced the reluctant Harry Vandenberg, La Grange, Ohio, the artiste at the first festival, who incidentally was present to admire and comment on Cooke's 86th. (One may inspect Vandenberg's beebeard on page 243 of ABC & XYZ of Bee Culture, 35th edition- that Root publication [along with Dadant's The Hive and the Honeybee] which should be in the library of every serious apiarist.) [Both books are available from any Dadant or Root dealer and were selling for \$13.95 each plus shipping in 1984.]

Today (September 1984), I surmise that the Ohio native must have at least 143 beards to his credit, one more than the man who replaced him as the beebearded king; however, that number must surely be a world's record in itself!!!

Johnson of West Virginia

The equally modest man from the Coal Bin of the World who stole Cooke's throne is James Huie Johnson, owner of Preston County Honey, 107 State Street, Terra Alta, West Virginia 26764 (phone: 304-798-6011). His very last performance, number 142, was with 35,000 honeybees, the event in which I was one of the three witnessing judges on Sunday, October 17, 1982, ATI, Wooster, Ohio— the sterling feat that earned for himself a place in history.

I first met the rare bee-book collector at EAS, Rutgers University, New Brunswick, New Jersey on August 5, 1981. It was there that I witnessed his 101st performance the following day. It was there that I elicited the admission, shyly made in response to a direct query, that his ultimate goal was to go for the record.

A Recent Interview

But it was not until July 13, 1984 (my lucky Friday) when he agreed to be interviewed for this article that I had learned for the first time the genesis of the dethronement idea. He had beebearded at least 100 times at so many festivals that there

Continued on next page

only one logical step left. It all actually began with his very first living facial fuzz farm at the Kingwood Buckwheat Festival, Preston County, West Virginia, when state apiarist Earl Cochran applied the bees in 1979, an event that proved to both of them that this was a natural for the state fair the following year. There it became the premier attractant, jamming the agricultural building and replacing the main attraction of inspecting a live hive. It was pandemonium ever since at that annual agricultural fair and Johnson was the star there as elsewhere. Amazingly, he and Cochran had no previous experience in this type of stunt. had consulted no one, but had done their research through the printed word (for example, from an old Gleanings, they had discovered that an early Root disoriented bees by shaking them in a closed newspaper before attempting the feat-a procedure resurrected by Johnson and aped by a few others today).



Don Cooke, former World Beebeard King, and his 142nd "beard" at 17th Ohio Honey Festival, Lebanon, 8th Sept. '82.

Sprouting insect beards came naturally from him in connection with the shows where he maintained an extensive display to buttress his honey sales. His usual creation, taking three hours to assemble, consisted of nine levels forming a four-sided pyramid containing more than a hundred one-pound jars of honey, topped off with half as many plastic bears, of various colors. He recalled that at one such event, the Ripley Festival, his sales topped several thousand dollars in just one week.

His Dealership

Today he operates a Dadant dealership full time, working through George Kelly, the Lynchburg, Virginia distributor, said to be the largest in the nation. The Arkansas native's store itself, located in his backyard. was the largest such I had ever seen in more than two decades of keeping bees and it was well stocked with all the necessities.

To increase his percentage, he was doing what many other dealers do: manufacturing some of the woodenware himself. For example, he was making all his own outer covers (the metal came from Dadant in lots of 100), inner covers and bottom boards while the hive bodies came from Strauser and certain specialty items from the Walter T. Kelley Company of Clarkson. Kentucky.

Queens, nuclei (nucs) and complete used one-story beenives were also being offered for sale in 1984 on a regular basis.

The Johnson Pollen Trap

His latest cogitation for boosting his income has been the "Dr. J. Pollen Harvester." the bottom trap he publicly introduced at the summer meeting of the North Carolina State Beekeepers' Association in Asheville, on July 19-21, 1984. In the incubation and research stage for several months, it underwent field tests in April, 1984, at first six and then a maximum of 12 at one time. It is being offered for sale today for \$24.95 postpaid (a special introductory offer). Coming completely assembled, it is treated with copper naphthanate as a preservative. He feels that it is superior to any other on the market. barring none (he has copies of most of his competitor's traps on hand-including some from Canada) because, he opines. it is of higher quality (better built), observes scrupuously the bee-space principle, is easier to use, and carries features rarely seen on any other collector: an original free- flight device for minimal honeybee disorientation; a trap entrance featuring a projecting landing strip of its own; and a recessed pollen drawer. flush with the trap. thus increasing rain resistance.

To satisfy those not happy with bottom traps (these rest beneath the brood chamber, either with or without a bottom board— Johnson's can be used either way), he was designing and preparing to manufacture an entrance-mounted one, perhaps at half price. This would attach to the bottom board, at the entrance. There would be no need to dismantle the hive either for insulation or removal, as is the case (and nuisance!) with the bottom traps.

His Origins

This new pollen-trap manufacturer opened his eyes for the first time at the foot of the Ozarks in Clinton. Arkansas, on August 5th, 45 years ago, the progeny of a man who maintained about a half dozen col-

onies himself for nearly a decade. Retiring from the United States Navy in 1967 after ten years of service, because of a physical disability, he settled in Terra Alta (Latin for "high land" - it is in the mountains west of Morgantown, near the Maryland border) in 1973-his spouse Bonnie's hometown... The very first year he started off with an apian bang: 300 stocks solely for extracted honey production, hitting 40/50 pounds per bee domicile and selling through a cooperative in Morgantown, about two hours away. Within five years, the bee supply business was consuming so much time that he switched to selling, abandoning honey harvesting. Nuc sales took off. hitting 400 one year while his bee population naturally dwindled (to 75 in 1984). His ultimate goal is to 25/30 for pollen production only.

His current idea is to specialize in pollentra manufacturing and trapping. His ambi-



James Huie Johnson's record-breaking beebeard (10 pounds — 35,000 honeybees), Wooster, Ohio, 17 Oct. '82

tion is to control all aspects of production and sales without having to depend upon a bee maker (interferring, but not stating, that profits would be larger?).

His Other Ambitions

This modest man has two other goals which he specifically talked about, volunterring the topics himself.

The first was to conduct a series of pollen workshops, having on display the major American and Canadian traps for comparison and discussion, and then emphasizing the techniques of proper pollen trapping and the uses of the harvest.

The second — since he is now the Beebeard King of the Universe— was to Continued on next page

GLEANINGS IN BEE CULTURE



James H. Johnson with is "Dr. J Pollen Harvester." Free-flight device, in center, may be seen partly open.

"sprout a new growth extending to his toes, thereby exceeding his own world record and establishing a new one.

(I wonder if he knows that he has a challenger in Max Beck, the young man from the Philadelphia environs and nephew of Bob Harvey, Elmer, New Jersey, who did just that at the EAS annual meeting at the University of Rhode Island, Kingston campus, on August 9, 1984.

A Life-Threatening Situation

His starry ambitions. however, are being challenged by a life-death situation looming on his apiarin horizon. Because of diabetes mellitus (it is ironic that the second term is the Latin adectival form of "honey") and high blood pressure, this honeyman's diet and activities are somewhat restricted (free sugar, nectars and salt have already been banished from his pallet). His kidneys are now operating at only 20 percent capacity while the medical doctor says that within the next three to six months they will become completely inoperative. This will necessitate dialysis: a four-hour, thriceweekly machine operation to cleanse his blood since his kidneys will no longer be able to eliminate impurities in the natural way.

There remains at least one ray of hope for this worrisome condition: a transplant when the time is opportune. Already a thoughtful sister from the Sunshine State and a considerate brother in the Land of Opportunity have stepped forward as potential donors.

The world record holder, James Huie Johnson, however, is optimistic that Divin.e Providence will see him through any difficulty.



SIFTINGS Continued from page 658

test will also show if there is any super oxide activity, and if it has been reduced, or removed by adulteration, heat or filtering.

Honey with an active glucose oxide content should prove effective. not only against botulism toxins, but other toxins and drugs as well. Research in the past has shown its effectiveness against alcohol, and I have observed it in other drugs. Honey produces additional protection to the body against poisons by the levulose in honey building up a high glycogen level that also protects against poisons in the body.

Money spent on advertising honey without a good health reason, is money completely wasted. We must first prove that honey really is one of Mother Nature's best protective health foods, to help maintain good health. Only then can we expect our land to again flow with milk and honey. Instead of similac and sucrose. We cannot expect others to do this research, we beekeepers must do it and finance it. Such research could be cheaper than a lot of high powered, useless advertising that will not increase consumption of honey by even one pound. Like every good thing in this world, there must be a reason, and we must prove it.

MAIL BOX Continued from page 659

If we had a national organization of Nit Pickers, and I was responsible for awards. I would give the Department of Agriculture a blue ribbon or an appropriate plaque for the ridiculous handling of the honey loan program — especially the inspection and grading of the takeover honey. Subject award might include the following word—

"First prize for nit picking and mishandling the honey loan program."

In our own case, we were penalized 8 cents per pound on 1982 crop honey because of "account defects." Oh, there was absolutely nothing wrong with our honey! Rather, the dockage resulted from usage of Processed honey grading standards: a fact readily admitted by AMS (Agriculture Marketing Services), and by some employees of ASCS.

How is it possible that mouse pellets in wheat are acceptable while. on the other hand, beekeepers are severely penalized for the presence of wood, bee parts, chips of barrel liner, etc. None of these are hazardous to health, nor do they present a problem in processing. Perhaps the name of the game here is to reduce the poundage of takeover honey. There is a crying need for the Department of Agriculture to give our problem serious attention and recommend a program that will not bankrupt the commercial beekeeper. **Robert V. Barnes, Director, AHPA from Montana.**





There is considerable panic these days about the acarine mite. I first read about its being in Texas, and a week or two later learned that it has been discovered within a hundred miles from here. For all I know, my own bees might have it. By now we have all seen the much enlarged pictures of this ugly little animal which, they say, crawls into the breathing tubes of bees and makes life miserable for them, so that they lose interest in making honey.

I'm not about to panic. I know lifelong beekeepers overseas, where the mite has existed since before I was born, and I don't recall ever hearing them mention it. I've written to one of them, soliciting information on his own experiences. I'll pass along what I hear from him and others. This is what matters: Just what has been the actual effect on beekeeping, where this pest is well known? I hope soon to find out.

Meanwhile, let's talk about something else, called bee fever- a malady, not of bees, but of some of their owners. There was something of an epidemic of it a few years ago, lasting several seasons, but it seems to have tapered off. Everyone wanted to keep bees. That's the basic symptom: You want to keep bees. Then before long you get a hive or two and find yourself thinking of nothing except bees. You even get up at night, when it's warm. and wander out to the apiary to hear the low hum of the bees in the hive. In spring you drive along, your eyes fixed on the bushes and trees by the roadside that might contain swarms. only half aware of the stop signs or dangers that rise up ahead. Every flower is inspected to see whether there is a bee on it. You see every plant as a possible nectar source. You scrutinize every piece of junk for possible use in the honey house. At social gatherings you hold forth about bees. At the end of the day you fall off to sleep thinking about bees. Then, having dreamt of them, you wake up still thinking about bees. That's bee fever, in its advanced stage. You never really recover from it. It is quite incurable. But you eventually learn to live with it, and to organize the less important aspects of your life, such as making a living, around this basic affliction. Serious as it is, however, it does have this positive side: It is a joyful state. Sometimes it seems even to give meaning to what otherwise might seem, at times, a dreary experience.

As one can tell. I speak from experience. I picked up a mild case of this disorder nearly fifteen years ago. It smoldered for several years, while the fates took me off to college, war, marriage and family, my thoughts constantly going back across the years to my two hives of bees under the plum tree. Then after about fifteen years the bee fever erupted into what must have been the most severe case on record, after I had bought a single package and hive, from a mail order catalog I never recovered. I'm sure I never wil.

I mention all this in order to make three points that might be of value to others who may not have picked up this strange malady.

The first is, that one should take care not to yield to what is perhaps its most characteristic symptom, and that is, the impulse to build a better bee hive. It is a powerful urge, challenging the inventive streak in even the least imaginative of beekeepers. I have seen every imaginable hive -- great long ones, tandem, multiplequeen hives, everything. Every one of them has been tried before, by our fevered and inventive predecessors. Not one of them matches our standard Langstroth hives and none ever will. I don't mean that this is the best hive, but it is the standard. Improved results of beekeeping are not going to come from any radical modifications of this hive, but rather, from better management of the bees themselves. Get strong colonies and you'll get good honey crops, and it won't make much difference what hive you use.

The second point is to resist another common symptom, and that is, the impulse to write a book about bees. That is, if what you have in mind is the standard sort of manual, with the standard chapters on getting started, spring management. harvesting the crop, diseases of bees, etc., then don't do it. There are dozens of such books. with new ones every year. Few have more than one printing, and their authors are rewarded with nothing but frustration for all their efforts. By this I don't mean to suggest that you should not, if you have something genuinely new or different to say, write it down and publish it, but consider the possibility of an informative article before getting carried away with the idea of a book.

This. I must admit, is a piece of advice I have not followed myself. I have put together several books about bees, and I do not at all regret it. Whatever success they have had, though, is probably due to something else I began doing when my bee fever reached its peak. I began keeping a notebook, in which I recorded all my blunders and mistakes. It got very large, and I went on to fill two more. So it was from the stupid things I had done, and not from any great wisdom, that my books emerged, and I have always been thankful for that

And the third point is, that not everyone is suceptible to this bee fever. I have started many, many people on the path to becoming beekeepers. For a few it has become, as in my own case, an allconsuming interest. But not for most. Many. I have found, never did a thing with their bees after setting up the first hive. Others lost interest after the first year. Many, it seems are called, but few chosen. So I no longer try to interest people in bees. I wait until the bee fever nips them real good, and then help them: I do not try to infect them with the fever itself. To do otherwise is merely to contribute to the growing number of derelict apiaries.

[Readers are encouraged to send questions, short and to the point, enclosing stamped envelope.]

Be Immortal.

If you could look into the eyes of generations yet to come, you would be there. You can make a difference. By including the American Cancer Society in your will you can have a powerful effect on those who come after you. And leaving a legacy of life for others is a beautiful way of living forever yourself.

ICAN CANCER SOCIETY

Testing Your Beekeeping Knowledge

by CLARENCE H. COLLISON Extension Entomologist, The Pennsylvania State University, University Park, PA 16802

From a taxonomic standpoint, the bee fauna of the world is very large with 15 to 20,000 different species. The most recent catalogues list about 3500 species and subspecies in North America, north of Mexico. Of these about 400 species are social or semisocial, about 400 species are parasitic and the remaining species are solitary nesting bees. Common examples of bees include: honey bees, bumble bees, stingless honey bees, carpenter bees, leaf-cutting bees, etc.

A second large group, closely related to the bees are the social vespids or paper wasps. Yellow jackets, bald— or white-faced hornets and **Polistes** wasps comprise this group.

While beekeepers are most interested in learning more about the honey bee, it is important for them to also become familiar with other kinds of bees, wasps and hornets. Being able to recognize some of the common species, the types of nests they build and an understanding of their basic biology will indirectly help the public's image of the beekeeping industry. Several surveys and personal experiences as an extension entomologist and beekeeper have convinced me that the general public has trouble differentiating between the various types of stinging insects. Just having colonies of honey bees present in the neighborhood means that you are likely to be blamed for all stinging incidents that may occur in the area. Not only will you find yourself tyring to defend your beekeeping operation but also will be asked to destroy hornet and wasp nests in the area and answer many questions.

How much do you know about honey bees and their relatives? Take a few minutes to answer the following questions to find out how well you understand this important topic.

The first five questions are true and false. Place a T in front of the statement if entirely true and an F if any part of the statement is incorrect. (Each question is worth 1 point).

- 1 ____ The social wasps and hornets depend on pollen for the rearing of their young
- 2. ____ In temperate regions, bumble bee colonies are annual with only young fertilized queens overwintering.
- 3. ____ Female leaf-cutter bees pack pollen on the ventral surface of the abdomen rather than on the hind legs.
- 4. ____ Stingless honey bees are common in the tropical regions of Central and South America.
- Carniolan honey bees have a strong tendency for swarming.

Authorities generally recognize four species of true honey bees in the world.

- A. Apis dorsata Giant honey bee or rock bee
- B. Apis cerana* Eastern honey bee
- C. Apis mellifera Western honey bee
- D. Apis florea Dwarf or tiny honey bee

Listed below are several characteristics of honey bees. Please indicate which specie(s) belong to each category. 'Apis cerana is synonymous with Apis indica which is often seen in the literature. (Question is worth 8 points, one answer per blank).

- 6. ____ Honey bee found in the United States.
- Nest is composed of multiple combs.
- 8._____ Nest is built in the open rather than in enclosed cavities.
 - _____ Believed to be of Asian origin.

Listed below are several different species of bees and social wasps. Please match the insect with the appropriate type of nest. (Question is worth 7 points).

A. Bald-or White-faced hornets, Vespula maculata

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- B. Honey bees
- C. Carpenter bees
- D. Polistes wasps
- E. Yellow jackets
- F. Bumble bees
- G. Giant or European hornets, Vespa crabo
- H. Leaf-cutter bees
- Nests are often built underground in abandoned mouse dens or in straw, chaff, old rags or any material that provides some insulation.
- 11. ____ Nests are constructed by tunneling in dried seasoned wood, especially soft woods such as pine, redwood and fir.
- Large, brown paper nests usually found in hollow trees and occasionally in outside walls of buildings.
- 13. Small, exposed paper nest built in trees, shrubs, under eaves, or behind shutters of homes. A single layer of brood cells face downward and look like honey comb.
- 14._____ Large, gray strawberry-shaped paper nests built in trees, shrubbery and occasionally under eaves. Brood cells are arranged on a series of horizontal combs with a paper envelope surrounding the entire nest, and a small circular entrance is in the ground.
- Typically nest in hollow stems and occasionally in the ground.
- 16._____ Build gray paper nests in underground cavitites, hollow logs, under stones, in shrubs and in walls of buildings. Several horizontal brood combs are surrouned with a gray paper envelope.

Continued on next page

ANSWERS TO TESTING YOUR BEEKEEPING KNOWLEDGE

(Continued from page

1. False The social wasps and hornets are different than most bees since they feed their young insects and spiders. As a result, the have no special strutures for collecting and carrying pollen. Their bodies are relatively smooth and shiny, without the plumose (branched) hairs that are so characteristic of the bees.

2. True Upon emerging from hibernation in the spring, bumble bee queens begin foraging for nectar and pollen, as well as searching for a suitable nesting site. Upon successfuly raising her first generation of worker brood, colony strength continues to increase throughout the summer. In late summer a generation of males and queens are produced. These mate and the queens overwinter away from the nest. Colony inhabitants are killed by the autumn frosts.

3. True Leaf-cutter bees differ from other bees since they carry their pollen loads on the ventral side of the abdomen rather than on the hind legs.

4. True Stingless honey bees are common in many of the tropical regions of the world. These social bees build nests in tree trunks, crevices in buildings, and in the ground. Brood is reared in a series of horizontal wax combs with the cells opening upward. Surplus honey and pollen are stored in separate containers similar to the honey pots of bumble bees. While these bees cannot sting, they defend their nests vigorously, swarming over an intruder and biting. Some species also secrete a fluid which is irritating to the skin.

5. True Carniolan honey bee colonies increase rapidly in the spring after the first pollen becomes available. As a result, the major disadvantage of this race is a strong tendency for swarming.

6. C	
7. B, C	
8. A, D	
9. A, B, D	
10. F	
11. C	
12. G	
13. D	
14. A	
15. H	
16. E	

There was a possible 20 points in the test today. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying, you will do better in the future.

> Number of Points Correct * 20-18 Excellent

Good		
Fair		

9:00 a.m.

AHPA HIGHLIGHTS

Continued from page 657

Jimmy Pendergrass, Product Development resentative, Zoecon Corporation, Collierville, hessee, "Spur — A New Bee Safe Insecticide Zoecon Corporation" k Bruner, Editor, Gleanings In Bee Culture, dina, Ohio, "Letters to the Editor" Roger Morse, Professor of Apiculture, Cor- University, Ithaca, New York, "The Political ects of Research Funding" t Reading of Resolutions Joe Moffett — "How to Handle an Overturn- Semi Load of Bees" hice of Tours! r 1 — National Space Technology Laboratory , St. Louis, Mississippi. Testing of Shuttle ines. Dinner at Mrs. Mitch's Round Table. r 2 — Ingall's Ship Building Yards, Builder of clear Submarines, Aircraft Carriers, Etc., cagoula, Mississippi. Dinner — Seafood let. ry 12 n Grigg, Beekeeper — Honey Packer, Silver- v Honey Company, Vale, Oregon, "The reket Place as Seen by the Producer-Packer"
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ey Co., Inc., Edgewater, Florida, "Packing hey for Export"
Parkhill, Honeyologist, Country Bazaar, Ber- Ile, Arkansas ''Health—Beauty—Happiness''
Erick Erickson, Director A.R.S. – U.S.D.A. Research Lab, University of Wisconsin, dison, Wisconsin, "Wintering Bees – Latest search Finding"
Hayward Spangler, Research Entomologist, R.S. — U.S.D.A., Carl Hayden Bee Research Inter, Tucson, Arizona, "Acoustical Behavior Wax Moth"
ve Forrest, Brushy Mountain Bee Farm, Inc., ravian Falls, North Carolina, ''Save The Bees''
rry Sullivan, Agriculture Economics Specialist, pt., of A.S.C.S., Washington, D.C., "The Price oport Program — Are We Going to Lose It?"
hard Adee, Vice-President, A.H.P.A, Bruce, uth Dakota "Legislative Report"
nquet — Jack Meyer, Jr., Past President H.P.A., Director A.H.P.A., A.H. Meyer & Sons, , Winfred, South Dakota ''Master of remonies''

GLEANINGS IN BEE CULTURE

Executive Board Meeting

CANADIAN HONEY MARKETING

By ALAN HARMAN Apt. 408 13 Rose Ave. Toronto, Ont. CANADA M4X 1P1

The newly-chartered Canadian Honey Marketing Co-operative has set itself a target of increasing national production by 40%.

In a first step the co-op is looking to establish a blending and packing plant at a port in either eastern Ontario or Quebec.

"We're only producing a small fraction of our capabilities," said co-op president Ernie McEwen of Ottawa.

McEwen sees the way to increased sales as concentrating on exports and imposing controls on cheap honey from such producers as Mexico. Argentina and China.

Increasing Canadian sales is a tough job. The country's one-kilogram per capita consumption already is the highest in the world. The answer, McEwen says, is increased exports.

The blending plant is seen as an important step.

"Canada has a great variety of classes of honey," McEwen said. "We can produce good honeys right from our southern borders right up into the Arctic.

"The variety of flowers we have is tremendous, but when we come to market there is no systematic way of representing it.

"Western honeys are presented rather efficiently by the Manitoba Bea Maid, Co., the co-operative there.

"But in the west it's pretty well white honey, there is very little golden honey produced there.

"But when it comes to Ontario, Quebec and the Atlantic provinces where we have such a greater variety of excellent honey, it's hard to market in that it's not systematically presented to buyers abroad."

McEwen said the blending and packing plant would feature honey of the various floral sauces — extra white, golden, light amber and dark.

"We want to classify these honeys and present them on a consistent quality basis — importers would be assured of quality and supply," he said.

"We are right now preparing the

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samples of honey I've just mentioned and we will put samples in our Canadian trade commissioners' offices around the world.

Buyers can go there, sample, place and order and know that we ship it will be just that grade and quality...

"With a blending and packing plant, grading system, classification devices and so on the honey would have a consistency. That's been the great drawback in marketing Canadian honey until now."

Last year Canada's honey exports were worth \$14.396,000. Of this, 72% or \$9,876,000. were exported to the U.S.



Ernie McEwen

America's subsidized beekeepers are already worried about the amount of lowerpriced Canadian honey entering the U.S., but McEwen believes any increased sales in the U.S. will not affect domestic producers because they will be of specialized honey types.

The co-op's formation was a triumph for the 74-year-old McEwen, a former Manitoba commercial producer who now runs two hives as a hobby.

In 1983 McEwen called a meeting of beekeepers in Ontario's Ottawa Valley. The 25 beekeepers who attended the meeting formed the co-op.

Its federal charter, granted under the Canada Co-operative Associations Act on Feb. 8th this year, lists among the co-op's objectives:

*Establishment of the blending and packing plant.

*Provision of a vehicle through which honey producers and their agents can promote marketing of honey in Canada and abroad.

*Provision of a system for discussions among Canadian honey producers and marketers to come up with new policies and services needed to meet changing world marketing conditions.

** Promotion of any activity seen as necessary for the development of the industry.

The interum board of directors plans its first annual general meeting in January next year.

McEwen says what he'd like to see next is the formation of provincial consortiums. Each consortium would be autonomous and would either deal through the co-op, paying a contribution — he mentioned a quarter of a cent a pound on a million pounds — or they could negotiate directly with buyers.

Three such consortiums have already been formed — in Manitoba, Quebec and Nova Scotia.

McEwen also wants the co-op to form a lobby group. One target would be what he calls dishonest advertising. This is a reference to the fact that at the moment packers can bring in honey from other countries, blend it with Canadian honey, and still sell it as pure Canadian honey.

This is particularly irksome when the country still has an 18-million pound surplus from the 1982 crop.

The co-op has an authorized capitalization at \$100 million. Any of Canada's 21,210 beekeepers can buy one common share for C\$100 which would allow him to participate in co-op sales.

McEwen said the capitalization is more than the co-op needs at the moment.

Thus far 100 beekeepers have joined as shareholders and the target is 500 by the end of the year.

What has surprised McEwen is that a number of hobbyists have joined.

Continued on next page

"They've joined on the basis that our objective is to export surplus honey and this would mean the honey they produce would be much more easily sold at the gate than if that surplus is hanging over them." he said.

McEwen sees a need for the co-op despite the existence of the Canadian Honey Council. He says the Council "keeps the industry on the rails, but its focus isn't on marketing."

He sees the council as providing a clearinghouse of industry information among various interests including beekeepers, brokers, provincial apiarists and makers of bee supplies.

Canadian commercial beekeepers have produced interesting statistics. The 116 pound average for a bee colony is double that of competing countries; the annual production of 35,000 tons makes Canada the sixth in world production with 3.9% of the output.

The biggest producer in the world, the Soviet Union, by comparison, averages only 61 pounds a bee colony.

McEwen says a Canadian commercial beekeeper can produce between 500,000 and 600,000 pounds of honey. Most recent prices for bulk western honey have been 55 cents to 58 cents F.O.B. Ontario honey has been selling for between 45 cents and 50 cents.

The co-op board is in the process of preparing a submission to the new federal Progressive Conservative government of Prime Minister Brian Mulroney. McEwen said the proposals will cover most aspects of the industry, including import controls.

"There are no controls at the moment." he said.

Asked if he saw controls in the form of percentage of Canadian production, McEwen emphasized: "There should be some form of controls over imports, but just what hasn't been decided."

The Saskatchewean honeybee industry has overcome drought and chemical sprays to produce the largest honey crop in the Canadian province's history.

Provincial apiculturist John Gruszka predicts the 1984 yield will likely reach 8.9 million kilograms for a provincial average of between 82 and 86 kilograms a colony.

The previous record, set in 1983, was 7.9 million kilograms with an average 79.5 kilograms a colony.

Gruszka said the 1984 performance

would have been even better if apiarists in the south hadn't been affected by a severe drought. He said colonies in the Maple Creek area of the province may be looking at production of only 4.5 kilograms a colony.

Gruszka said co-operation between farmers and apiarists on spraying avoided the potential of devastation to bee colonies.

Farmers sprayed against wheat midge in the evenings, when bees had returned to their colonies. and consulted with beekeepers before they sprayed.

Gruszka said officials have been successful in keeping acarine disease out of Canada. The mite has been found in colonies in Texas, which is a major exporter of bees to Canada.

But how long Canada can keep the disease out is another matter.

"We're safe for this year," Gruszka said. "If the U.S. can't contain the mites, it's just a matter of time before they reach here."



Why The Quilting "Bee"?

By ROLLIN MOSELEY P.O. Box 905 Scottsboro, Alabama 35768

Settlers along the Atlantic Coast of North America were delighted to find wild bees quite plentiful. When a family felt hungry for honey, the father or one of the older boys could almost always find a bee tree without much trouble. Frontiersmen soon noticed that the tiny bees always worked in groups and began to call any social gathering that combined work and pleasure a "bee." Ladies had their spinning bees and quilting bees, men their husking bees, and entire communities had spelling bees.

Money was scarce on the frontier; so when churches were organized, the congregations were seldom able to give a preacher a cash salary. Instead they organized "bees" for him. All members of the community, whether they attended church or not, were solicited for gifts or work, clothing, or food commodities. This practice prevailed until the early 19th century.

Zealous collectors sponsoring a bee were not slow to put pressure on reluctant contributors. The result was that any person who made a determined request for a gift was said to put the bee on his victim. Later the term expanded to include persistent demands for loans and personal favors as well as gifts.

The Observation Hive

By JAMES Y. VAN DYK South Lyon Community Schools 235 West Liberty St. South Lyon, MI 48178



Most students, when provided with an opportunity, are fascinated by the activities of honey bees. The steady stream of foragers returning from the field with yellow pollen on their legs, as well as the orientation flights of young bees, has mesmerized many an observer. However, the fear of an unforseen sting has deterred many a young naturalist from this curiousity. The following will provide information on the establishment of observation hives which will permit the viewing of honey bees with safety.

In addition to a casual use of observation hives, the honey bee merits greater educational use. The observation hive will permit groups of students to observe and study the nest as well as the complex habits of a highly developed social insect. The student can also use the observation hive to scientifically study the honey bee. This type of hive can also be a focal point at parks, fairs, and educational institutions.

Throughout the last two centuries, there has been a great deal of development in the construction of observation hives. Some hives were elaborate pieces of furniture while others were simple bell jars. While the modern observation hive does have a movable frame, its primary function is to study the honey bee and its nest from up close. Generally one does not manipulate these hives.

Some General Considerations

When designing or purchasing an observation hive, the length of time the hive will be stocked will be basic to its overall construction.

- A permanent observation hive must be large enough to permit the bees to overwinter in it during adverse weather. It should permit for the storage of excess honey and pollen to feed the colony during this period.
- A semi-permanent hive must allow the operator to move the frames to a more permanent location. For the purpose of short term exhibits of less than twenty-four hours, a colony may be placed in an observation hive which does not have access to the open air.
- The temperature around the observation hive should be watched closely. Low temperatures will affect the colony's ability to rear brood; while high temperatures can damage the comb, and the brood.
- The colony in an observation hive is confined. Consequently, the natural development of a hive will be limited. Frequently, colony build-up will result in preparation for swarming.
- Observation hives located inside buildings, with controlled bee access, will allow for the student to safely observe the colony. If this is not possible, then students should be provided with veils and other articles of bee proof wear.
- The observation hive should be placed on a stable base. Constant jarring would disturb the bees and possibly affect their temperament.
- It is a wise practice to review what course of action will be followed in the event someone experiences an allergic reaction to bee-venom.

To Buy or Build an Observation Hive?

Observation hives can be purchased from a bee supply house. The popular size is 15³4'' high (one standard frame and one shallow frame). These hives come complete with directions. Glass must be purchased locally.

For those who have access to woodworking equipment and are willing to take the time, an observation hive can be built. The advantage is that the builder can build it to suit local considerations. The number of frames in the hive is optional. Whether the hive is to be placed indoors or outdoors will determine the structure of the hive.

In planning an observation hive, it is essential that bee space be observed around all edges of the frames. It is extremely crucial to also maintain bee space between the frame and the glass. Bee space is defined as ¹/₄ inch (6 mm.). Bees will seal with propolis any opening less than 3/16 inch (5 mm.), while spaces larger than 4/16 (8 mm.) will be filled with burr comb. This will allow the beekeeper to remove the frames at will.

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DECEMBER 1984

THE OBSERVATION HIVE (Continued)

In planning to build an observation hive, the following considerations should be thought through.

Body

frames and glass. It should allow for an entrance hole, feeder, and ventilation holes.

Windows

It is optional whether glass or plexiglass is used. The later would be a safety factor. However, it scratches easily. If a hive is to be placed outside, double glazing should be considered.

Shutters

For protection from cold or accidental damage, it may be desirable to cover the glass with shutters. Bees will become accustomed to continuous light.

Position of Entrance

The entrance may be placed at the top or bottom. The latter would permit the bee colony to remove the dead bees. The diameter of the entrance tube should be in excess of 1" (20 mm.). Clear or plastic tubes may interfere with the proper functioning of the entrance tube. Experimentation may be in order here.

Feeder

It is most desirable to introduce the feeder directly into the hive. A feeder can also be connected directly to the entrance tube. A syrup bottle or a quart mason jar can be used.

A Lighting Board

A sloping flight board should be provided adjacent to the entrance tube. If the tube is located in a large area of uniform color, marking the entrance with blue paint may be desirable.

Painting of the Observation Hive

The interior of the hive should not be painted, stained, or treated in any fashion. Whether one wishes to stain, paint, or varnish the exterior is optional.

Locating the Observation Hive

As mentioned previously, there are situational factors that have a direct bearing on how successful the hive will be. Ventilation, temperature, and humidity are all important in considering a site. In selecting a site, one should consider the colony, the observers, and the nature of the experimental work.

The bees should be kept in a dry, sheltered, draft-free location. There should be an ample supply of natural bee pasture, i.e pollen and nectar. The flight path should be uninterrupted. It should be kept away from areas where there are regular pedestrians. The hive should be placed inside a building so that the observers are sheltered as well as protected from unwanted stings. It is important that great

care be excercised in locating the hive because the hive cannot be relocated unless it is in excess of one mile. Bees learn the precise location of the hive and will return to that spot.

Getting the Bees to Start an Observation Hive

The bee swarm can be obtained from an established The body should be strong and designed to support the hive or a package can be purchased directly from established beekeepers in some southern states. Addresses can be obtained from a number of bee periodicals. Unless one has had some experience manipulating hives, it is recommended that a two-pound package of bees be purchased. In order to have a good beginning, the bees should be supplied with honey and pollen reserves. These can be purchased directly from a beekeeper. After installation, the bees must be fed.

> While there are several races of bees common in the United States, the Italian bee is the most prevalent. This race is more resistant to some of the bee diseases, has less of a tendency to swarm, and winters well. However, hybrid bees also have several desirable characteristics, i.e. gentleness, non-swarming tendency, and the ability to winter. It is to be noted that with the darker races, as opposed to the Italians, the queens are difficult to find.

> If it is determined that package bees will be used to. stock the hive, then there is a matter of transferring the bees. Purchased observation hives come complete with a piece of plastic tubing and instructions that will be useful. If bee-proof clothing, veil, and gloves are available, the bees can be placed directly in the hive. This should be done in the evening and outside. Prior to opening the package and removing the queen cage and the can of sugar water, the bees should be fed a solution of sugar water (one part sugar to one part water).

> After some of the frames have been removed from the observation hive, the bees can be shaken directly into the hive. The queen can be released from her cage and added directly to the bees. Should the queen be dead, then the supplier should be notified immediately and a replacement secured. Unless one has had experience manipulating a hive, it is wise to find a beekeeper who can assist in introducing the new queen. The transfer should be done quickly and the hive should be secured. Until the bees are properly acclimated to the hive and site, a wad of fresh, loose grass should be placed in the entrance. Eventually, this will be removed by the bees after several days.

Maintenance and Care

A thin observation hive is difficult to cool or to heat, consequently it should be kept in the shade and out of the draft. Due to the limited size of the hive, and the absence of food reserves, the colony must be fed sugar water (one part sugar to one part water). The feed should be introduced internally so as to avoid robbing by bees from other hives. It is recommended that the swarm be watched carefully for any disease. Should manipulation be necessary, then move the hive outside and use a smoker. Burr comb and propolis may make it difficult to remove the frames.

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The Vertical Partition, Two Colony Hive, the first of two new and completely different beehives

by MICHAEL JOHNSTON 29354 Westmore Rd. Shingletown, CA

The Vertical Partition Two Colony Hive is the first of two new beehives which I will attempt to describe in this bee journal. It, as well as another hive. The Combination Queen Rearing Nucleus and Comb Honey Hive, were developed using the same principles. Both represent new approaches to beehives commonly used in the industry. This article will focus on the Two Colony Hive, the principles behind it, it's development, and my experiences with it so far. I will also discuss what I believe is the best way to manage this hive.

The Two Colony Hive and The Combination Hive both utilize vertical partitions (a.k.a. divider boards) which separate the hive bodies into different compartments, each of which has its own entrance. By using relatively thick divider boards and building them in the correct manner the separate compartments can occupy an unlimited number of hive bodies. With The Two Colony Hive, two different clusters of bees live in as many hive bodies as are necessary but are completely independent of each other and never mix. For this reason, it is not only a two queen hive but a two colony hive.

Using this system, there is an endless number of beehives which can be built. The question which I have tried to answer is "What is the optimum configuration for the particular frame which is being used?" In the case of the standard frame, I have consistently observed that a cluster of bees will do better occupying five frames across rather than four frames across. This was counter to my expectations since I thought. that the more a cluster was compressed. the guicker it would move upward. At this point I believe five is the optimum number for a standard frame even though I have not systematically compared five versus six standard frames. I have come to my conclusion based on observing swarms as well as spring buildup in standard hives. In any case, a two colony hive with six frames per side would be impractical since it would be too large and cumbersome.

As recently as January, '84, I thought that five frames across was a magic number for the honeybee. In the wild, bees have evolved in hollow trees; a space which very often would accomodate approximately five combs across. For this reason, the honeybee would probably exhibit a strong preference for this number of frames. I believe, though, that in the case

of the movable frame hive, certain departures from this general rule are possible. Unlike the wild hive, the brood combs in a movable frame are not continuous: the bees are limited by the size of the frame. It is my belief that the optimum number of frames depends upon the depth of the frame or the ratio between square inches of brood and cubic inches of space in the compartment. For a deeper frame, the optimum number is less. This is because the same amount of brood would occupy fewer frames. Ultimately, optimum population size with its correct proportions between field bees, house bees, and brood is the determining factor.

My experiences with the two colony hive have been limited by the locality in which I live. So far these hives have always been kept in the Sacramento Valley or foothills surrounding it. This area is not a honey producing region. Beekeepers make their money through the sale of queens and packages as well as pollination. Since '79. I have worked three queen and package seasons for Wenner Honey Farm of Glenn, California as well as three for Shannon Wooten of Palo Cedro. Both of these firms attempt to produce honey in the months following package season. Shannon does make a decent crop of manzinata honey at high elevations every other year, but in the off years it would not be unusual for both companies to make only a ten pound surplus of star thistle honey in the summer months. Because of the warm climate, both would feed approximately forty pounds of sugar to each hive during the rest of the year. This might sound bad to some but under these circumstances it takes a lot of skilled beekeeping to maintain the strong hives necessary for a successful package season. In judging my own two colony hives, I have not been able to use honey production as a standard for comparison so far. Using these hives has helped me to maintain good strong hives, skim enough honey for yard rent, and almost eliminate feeding sugar.

The one area in which I am able to compare the two colony hive with the standard hive is in the production of package bees. In the spring of '81, I was still experimenting with a version of the two colony hive which had four frames on one side and five frames on the other side of the partition. I had three of these hives and shook all of them on one occasion in May of '81. I was impressed that one of these hives was able





Continued on next page

to produce ten pounds. In contrast. Wenner's usually produces an average of ten pounds of bees per hive by shaking their hives three times. They also feed their hives a great deal of sugar syrup and pollen supplement: my hives were fed very little. Since June of '83. I have had 20 of the two colony hives with five frames on both sides of the divider. This past March I made a bet with Shannon Wooten that three of my best hives could outproduce three of his best hives. Though I did lose a bottle of whiskey in the process. my hives made a fair showing. Without the benefit of any feeding at all. these hives produced an average of 12 pounds of bees per hive by shaking them on two occasions. Shannon's best three hives averaged 16 pounds but the yard average was eight pounds and all had benefited from being fed sugar. He also admitted that the hives that yielded 16 pounds caught a certain amount of drift. Without drifting I might have lost anyway. : but I think it would have been closer.

In the course of my experimenting I have found that it is best to stock these hives with calm bees such as Carniolans or good Italians. In January of '82 I stocked three of my two colony hives with Curneen Blacks which I had obtained from Clarence Wenner the previous spring. This particular bee is a descendant of the original German Black and still occurs naturally in wild hives in the coastal redwood country near Eureka. California. Though these three hvies did make it through almond pollination. I moved all of the clusters back into standard equipment afterwards. I found that it was too difficult to work these bees in two colony hives since they tended to run and it was sometimes hard to keep the queens apart.

In the management of the two colony hive. I believe it is best to use two hive bodies for a brood chamber with a queen excluder above them. It is also important to continue the divider boards above the excluder. Otherwise, the bees tend to plug out the bottom with honey before filling the supers. This will eventually lead to a reduction in the field force and a loss of honey. It is best to have plenty of supers on hand to bottom super these hives just above the brood chamber.

Though the space afforded to each queen by using two hive bodies as a brood chamber might be below their egg laying capacity. I do not consider this a disadvantage. I have observed my boss, Shannon Wooten, and his in-laws, Homer, Jack, and Steve Park, use a single standard hive body as a brood chamber and obtain excellent results. In this situation, the queens tend to fill the frames with eggs soon after the bees hatch. The result is solid broods, less honey blocking the progress of the queen, and a steady growth in hive population.

Many of the ideas expressed in this article have yet to be conclusively proven and for this reason may or may not be true. I do believe, though, that I have arrived at, the best means of constructing and managing the two colony hive. During the development of this hive. I benefited from working with some excellent beekeepers. Much of what I learned from them was applied in this hive and I owe them all a great deal of gratitude.

Next Month: The Combination Queen Rearing Nucleus and Comb Honey Hive.

THE OBSERVATION HIVE

Continued from page 669

In the event the hive becomes overpopulated, some of the sealed brood can be removed and placed in a regular hive. Care must be taken not to allow it to be chilled. Be certain that the queen is not removed. Some beekeepers add sections to their observation hive in order to provide more space. Allowing the hive to swarm may be the most effective manner in which to deal with overpopulation.

Loose bees in a building can be distracting to the observers. Turning off the lights and opening the windows will remove most of the bees. The stragglers can be vacuumed.

Diseases

The treatment and discernment of diseases are beyond the scope of this article. All hives, including observation hives, can pick up a disease. Make sure that your frames and bees are initially free of adult or brood diseases. There are a number of excellent resource materials that deal extensively with bee diseases and their treatment. Also, beekeepers in your area would be more than happy to assist you in diagnosis and treatment.

The observation hive is an exciting way of introducing students to an extremely valuable insect. In addition, through the utilization of local beekeepers and related reading materials, much practical information can be gained. Also, students are exposed to new career opportunities.

James Van Dyk is the Director of Instruction for South Lyon Community Schools.

> *This Article is reprinted from The Michigan Science Teachers Journal.



NEWS and EVENTS

The 1985 American Honey Show January 14-17, 1985 American Beekeeping Federation Convention Hyatt-Regency Hotel Tampa, Florida

The Honey Show for the 1985 American Beekeeping Federation Convention is scheduled for January 15-17 at the Hyatt Regency Hotel in Tampa, Florida. For a copy of the rules write to Frank Robinson. Secretary-Treasurer. American Beekeeping Federation. 13637 NW 39th Avenue. Gainesville. FL 32606 or to Larry Cutts. 909 W. Hwy. 90. Chipley. FL 32428.

Exhibitors should be aware that trophies will be awarded in seven classes of extracted honey; three classes of comb honey; creamed honey; natural unbleached beeswax and molded beeswax. In addition a Best of Show award will be presented.

ONLY THE MEMBERS OF THE AMERICAN BEEKEEPING FEDERATION MAY PARTICIPATE

Each entry must be accompanied by four of the exhibitor's labels to identify the exhibitor and floral source. The entries will be sold at auction with the proceeds going to the American Honey Queen Program. This is a great way to help the Honey Queen Program. so please participate!

A completed entry form and the entry fee(s) must be mailed to reach the Honey Show Committee by January 7, 1985. Mail to:

American Honey Show c/o Larry Cutts 909 W. Hwy. 90 Chipley, FL 32428

If the entries are to be shipped instead of being brought with you, send to:

Gene Copeland 2014 E. Robson Street Tampa, FL 33610

Shipments must be received no later than Friday. January 11. 1985.

Bees For Fun & Profit Offered on Seen

Interested in beekeeping? New enthusiast or old hand, you can learn beekeeping skills through a University of Wisconsin-Extension course.

Walter Gojmerac. UW Cooperative Extension Service entomologist, will teach "Bees For Fun And Profit." (S070) on the Statewide Extension Education Network (SEEN).

Gojmerac says his course will help hobbyists who account for 90 percent of beekeepers, as well as professionals and beginners. Lectures will cover the importance of bees to society, the insect's life cycle and behavior. Wisconsin colony manipulation, honey handling, disease control and the insecticide controversy.

The SEEN network involves sending a still black and white picture over a telephone line to the 26 sites in Wisconsin, says Mavis Monson. Instructional Design Coordinator of Instructional Communication Systems (ICS).



The instructor, who controls what the others see, may converse with participants all over the state, says Monson. He may show pictures of himself or objects in a series of 35-second-freeze-frame stills. The instructor also can use a slide projector built into the transmitting table.

The SEEN network is perfect for clientele with similar interests who are in many locations, says Gojmerac. Beekeepers are in every Wisconsin county, and they have basically the same problems, so the SEEN network is ideal for teaching them.

Gojmerac's course qualifies students for 0.8 continuing education units.

The course will be taught Wednesdays. Jan. 23 and 30 and Feb. 6 and 13. from 8 p.m. to 9:50 p.m. The registration fee is \$12 and the registration deadline is Jan. 11.

To enroll. select a location from the list of SEEN sites. indicate your choice on the Extension enrollment form. and send the form and a check, payable to the UW-Extension. to the Agricultural Conference Office. Jorns Hall. 650 Babcock Drive. Madison. Wis 53706.

Participants will be sent registration confirmation. a course outline and reference materials.

For more information, contact your county Extension office or call Gojmerac at (608) 262-1762.

Manitoba by ALAN HARMAN, Apt. 408, 135 Rose Ave. Toronto, Ont. CANADA M4X 1P1

Manitoba beekeepers have reported an exceptional summer despite problems with bears and drought in some areas.

They increased production over the previous year by just under a million kilograms to 8.2 kilograms.

Manitoba government apiarist Don Dixon attributes a rainy spring and a dry summer combining for an almost ideal season.

Continued on next page

The wet spring helped nectar quantities in rapseed clover and alfalfa and dry conditions in July and Augut made it easy for the bees to harvest.

An exception was the southwest where drought was a problem. "Because of the drought, yields southwest of Brandon were generally terrible — substantially less than average," Dixon said. "When we get into other parts of the province honey crops improve — the northwest is having a good crop."

In September beekeepers finished extracting their crop and some have begun feeding sugar to their colonies to keep them through the winter.

Herb Isaac. co-owner of Westman Honey Producers, said his yields are about half the average this year because the drought hurt the nectar-carrying plants.

Manitoba Agriculture crop report estimated the average production was 72 kilograms a colony. Isaac said he will be lucky to get 35 to 45 kilograms a colony. He said another problem was that spraying for grasshoppers and sunflower beetles killed some of the bees from his 1,500 hives.

For other beekeepers bears were a problem. They did an unusual amount of damage to hives around the Porcupine and Duck Mountain provincial parks.

"It just got way out of hand," said Ted Romak who has 600 hives in the Swan River area.

He trapped nine bears after catching them raiding his hives. A number of the bears smashed colonies and he has placed claims totalling C\$4,100 under the department of natural resources compensation plan.

The plan pays for 75 percent of losses and C\$100 towards a C\$250 electric fence.

Romak says this is inadequate. "Either the province should control the bears or if they want them as big game — why should we have to pay for it," Romak said. He said he wants full compensation.

Romak and other Swann River area beekeepers plan to meet provincial Natural Resources Minister Al Mackling and his officials to seek extra help. But Dixon says the Manitoba Beekeepers Association is generally satisfied with the compensation program.

Despite the bear problem, Romak said his crop was better than average. He had yields as high as 125 kilograms in areas where the pastureland was covered with wild dutch clover.

The Manitoba Agriculture crop report says honey quality is excellent with an abundance of white honey. But it says the market continued to be soft and wholesale prices are about the same as last year.

The Directory of Important World Honey Sources

IBRA was successful in obtaining funds from the International Development Research Center, Ottawa, for the compilation and publication of a *Directory of Important World Honey Sources*. IBRA's Annual Report for 1980 (*Bee World* 1981, p. 80), gave brief details of earlier attempts to obtain funds for a Survey of World Honey Sources, and also of work done under a small grant awarded by International Union of Biological Sciences to its International Commission for Bee Botany in 1979.

The increasing international trade in honey has led to a great need to identify the plants in different countries that are the main sources of honey. The flavor and aroma of fresh honey are determined by its plant sources, and this should also be true of honey purchased by the consumer. In large honey bottling plants, honey is usually blended to a standard, reproducible product, and classification is likely to be by colour - or rather by degree of lightness or darkness measured by the proportion of light transmitted through a certain thickness of the honey. this in itself is not an indication of quality except insofar as light honeys are in general less likely to have been overheated; honeys become darker on overheating.

In writing the chapter in *Honey: a comprehensive survey* on the plants honey came from, it became clear to Dr. Eva Crane that knowledge was lacking as to the identity of the important honey sources in the world. Honey sources of certain regions, especially some in Europe and North America, have been well studied, and at various levels: from beekeepers' observations, from the experience of honey traders, from the identification of the pollens in the honeys, and so on. Two-hundred and eleven plants were finally listed, with the following information where available:

(1) Botanical name, common name; type of plant; (briefly) world distribution and importance; estimated honey potential (kg honey obtainable per hectare).

(2) Characteristics of the honey in liquid form: colour, density, viscosity (body), flavor and aroma, natural granulation, and any special features.

Apart from this, all that could be done

was to quote the best available published source of information for each country, on its honey plants.

In A Book of Honey, Dr. Crane included a slightly enlarged list of plants, and tabulated their presence or absence in the temperate zones and tropics/subtropics of the different continents. No further progress seemed possible without a systematic investigation and compilation from available published and unpublished sources of information.

The work done under the ICBB grant resulted in a card index of 2569 plants reported as honey sources in the countries for which records were searched; many of the plants occurred in more than one country. Plants were grouped as major, medium and minor sources and where possible they were similarly evaluated as pollen sources.

In 1982 Dr. Crane and her colleagues on the staff at Hill House, Penelope Walker and Rosemary Day commenced on the compilation of what became known as *The Directory of Important World Honey Sources*. This work was funded by the International Development Research Center, Canada, to facilitate development of honey production in third world countries. On completion in 1984 it was distributed at the Canadians expense, to over 500 apiculture centers world-wide.

The 384 page Directory is new in concept, in contents and in method of preparation. It identifies 467 plants — from a preliminary selection list of 2569 that are reported, somewhere in the world, to be a major source of the honey produced there. Some of the honey sources are geographically widespread, such as lucerne (alfalfa) and many of the eucalypts; others are confined to a single area, such as plectranthus which grows only on certain slopes of the western Himalayas.

The major part of the Directory consists of the main entries for the honey sources selected for inclusion: 452 nectarproducing plants and 15 honeydewproducing plants. For each honey source, details are given (as far as is known, and quantified where possible) of the plant, its economic uses, flowering period, and necgtar or honeydew flow, its honey and pollen production, and the honey's chemical composition and physical properties including flavor, aroma and granulation.

The Directory also contains a list of "candidate plants", which might have been eligible for inclusion if more information were available about them.

Main entries have been printed from

master sheets typed on a BDP word processor. Certain components of each entry were coded in such a way that programmed searches can be made for plants with particular characteristics. There are 51 search fields altogether, and the Directory includes lists made by using some of them — for instance drought tolerant plants, and honeys that granulate rapidly or slowly.

This new reference book will be of international value to honey producers. traders and dealers; beekeepers; nutritionists and sugar chemists; and scientists and other specialists in applied biology, horticulture, agriculture agroforestry, and environmental sciences.

The large amount of useful information presented in an accessible form in the Directory should be especially effective in improving honey production in developing countries. It is hoped also that scientists and beekeeping specialists will be prompted to obtain data that the Directory shows is still lacking.

From the date available IBRA will run further search programs to compile Satellite Directories containing relevant information on special groups of plants. Practical ways are discussed in which additional material can be added to the data bank, and made available to those who need it.

The Directory, as well as the two other books mentioned above are obtainable direct from IBRA or from Bee Book dealers and regular book shops at the following prices:

The retail book room is open at IBRA headquarters. Hill House, Gravel Hill, Chalfont St. Peter, Gerrards Cross, Bucks, SL9 ONR, UK, between 9 and 5 Monday to Friday.

The Ohio Honey Festival

Begun in 1968, the Ohio Honey Festival, thought to be the oldest in the country, is now 17 years old. It is held annually in Lebanon, near Cinncinnati, the weekend after Labor Day, beginning on Thursday morning and ending on Saturday night. In 1984, it ran September 6-7-8, attracting more than 25,000 souls.

The first vice-president of the affair is Don Cooke, the chief attraction at the event, since he is featured in the "world famous



Photos and article by J. lannuzzi

living bee beard" (as so stated in the program) and was formerly the world record holder for the largest such, before being dislodged by James Huie Johnson of Terra Alta, West Virginia in October 1982.

The festival covers two blocks and two adjoining streets. The photo essay shows some of the more than 30 booths on the main street which is converted into a pedestrian mall and closed to all vehicular traffic for the events which run from 11:00 a.m. - 11:00 p.m. There is also a stage for nightly entertainment (a magic show, gospel music, honeybee square dancing, and a band) along with a parade, a marathon and the crowning of the new Ohio honey queen.

Forsyth County Honey Queen

Miss Tammy Sue Templeton, daughter of Authur and Ann Templeton, of Winston-Salem, North Carolina. was crowned the 1985 Forsyth County Honey queen on September 8th at our yearly Honey Queen crowning..

She is a senior at Curwin Christian School and plans to enter college at U.N.C.G. to major in medicine.

She loves nature and hopes to promote the beekeeping industry with her beauty and talent. She plans to attend Pesticide school this spring to help preserve the honeybee.

She has presently been in two fairs and will attend the North Carolina State Fair at the request of Jimmy Green head of our Pesticide and Plant Protection Division of North Carolina.



Chattanooga



Pictured are Carl Johnson, past president; Voron Baughan, president (Chris Schwartz, president-Northgate Merchants Assoc.) Donn Benefield, past president.

The Chattanooga Area Beekeepers Association sponsored a beekeeping exhibit at "Northgate Mall" in Chattanooga. Tennessee, the 28th & 29th of September. 1984.

This exhibit was maintained during the "mall" shopping hours by local beekeepers. The Tennessee State Honey Queen. Michelle Presley: and princess, Kim Kinsey: also participated.

Hoosier Finds Beekeeping Profitable, Enjoyable by Simon Schwartz Box 183, Berne, IN 46711

Some people see beekeeping as a hobby, others do it to earn some extra cash on the side.

Phil Juengel of Adams County. Indiana is raising bees for both of these reasons, plus a third, a little recreation. Employed in a large industrial plant a few miles from his home. Juengel keeps 30 hives of bees and he has them scattered over an area of 40 miles but no hives more than four miles apart. Four miles, Juengel says, is the farthest difference that hives should be apart because a bees usually don't carry the nectar they gather for more than the four-mile distance.

Juengel said his hives have about 85.000 bees in the summer but this drops off to between 15,000 and 20,000 by spring. Some of this is due to just natural dying off of bees, some is attributed to weather conditions.

Juengel got his start in beekeeping 30 years ago when his mother bought him two packages of the bees. A package in those days included a queen and approximately three pounds of bees. All of these bees died during the first winter but the next year Juengel received two swarms from an uncle and he has been a beekeeper since.

The Indiana beekeeper goes out in the spring of the year and places supers in each hive. Supers are sections that provide a base for the bees to build their honeycombs on and store the honey. He then returns in the fall to remove the supers and extract the honey. Juengel cuts the caps off trhe honeycomb and places 20 supers in the exterior. After being extracted, the honey is collected and packaged.

Juengel and his wife, Carolyn, have a wide variety of bee-related products that can be purchased at their home. These include pure beeswax candles, beeswax hand cream, and spun honey. They also have the regular honey that can be purchased in containers ranging from one pound to five gallons.

Continued on page 678

Classified rates: 49 cents per word, each insertion, payable in cash in advance. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it) count as one word. Not less than 10 words accepted. Copy or cancellation orders MUST be in by the 1st of the month preceding publication. Send classified ads to the A.I. Root Company, Advertising Dept., GLEANINGS IN BEE CULTURE. Box 706, Medina, Ohio 44258-0706 Note: BLIND ADS: Any ad sent in that does not contain the seller's Name and Address within the ad, will be charged an additional \$6.50 per month.

MAGAZINES

THE AMERICAN BEEKEEPING FEDERATION needs your support! Join in supporting efforts to stop adulteration. to improve marketing conditions and to encourage the continued research on African Bees and Varroa and Acarne Mites. Send for information membership application and sample copy of bimonthly News Letter! Write To: THE AMERICAN BEEKEEPING FEDERATION, INC., 13637 N.W. 39th Avenue, Gainesville, FL 32606. TF

THE SCOTTISH BEEKEEPER — Magazine of The Scottish Beekeepers' Association. International in appeal. Scottish in character. Membership terms from A. J. Davidson, 19 Drumblair Crescent. Inverness. Scotland, Sample copy sent, price 20 pence or equivalent. TF

The INTERNATIONAL BEE RESEARCH ASSOCIA TION urgently needs your membership and support to continue its work of publishing informatin on bees beekeeping and hive products. Write for details about publications and the benefits of membership to USA Representative, H. Kolb, P.O. Box 183, 737 West Main. Edmond, OK 73034 (phone (405) 341-0984), or to IBRA. Hill House. Gerrards Cross. Bucks SL9 ONR. UK. regularly publishes new information on bees beekeeping, and hive products, for beekeepers and scientists all over the world. Mail inquiries from USA: H. Kolb. P O. Box 183, 737 West Main, Edmond, OK 73034. Phone: (405) 314-0984. IBRA PUBLISHES. Bee World, a quarterly journal for the progressive beekeeper. Apicultural Abstracts, a survey of scien tific literature from all languages. Journal of Apiculture Research, for original bee research papers. Books and pamphlets on all beekeeping topics. Catalogues of publications and details of journals and membership \$1. Specimen copies of Bee World: Journal of Apicultural Research or Apicultural Abstracts from INTERNATIONAL BEE RESEARCH ASSOCIATION. Hill House. Gerrards Cross. Bucks. SL9 ONR, England. TF

DAIRY GOATS—for milk, pleasure and profit, Excellent for children, women and family! Monthly magazine \$11.00 per year (\$13.50 outside U.S.A.). DAIRY GOAT JOURNAL, Box 1808 T-3, Scottsdale, Arizona 85252. TF

BEEKEEPING. A West Country Journal—written by beekeepers—for beekeepers. 1.50p inland or 1.80p (\$4.00 Overseas). 10 issues yearly. Editor, R. H. Brown, 20 Parkhurst Rd., Torquay, Devon, U.K. Advertising Secretary, C. J. T. Willoughby, Henderbarrow House, Halwill, Beaworthy, Devon, U.K. TF

SCOTTISH BEE JOURNAL. Packed with practical beekeeping. Sample copy from Robert NH Skilling, FRSA, 34 Rennie St., Kilmarnock, Scotland, Published Monthly, \$4.00 per annum, TF

BEE CRAFT — Official (monthly) magazine of the British Beekeepers Association. Contains interesting and informative articles. Annual Subscription \$5.10 (Surface mail) and \$7.10 (Airmail). The Secretary. 15 West Way, Copthorne Bank, Crawley, Sussex, RH10 3DS

INDIAN BEE JOURNAL Official organ of the All India Beekeepers' Association, 817, Sadashiv Peth, Poona 411030. The only bee journal of India Published in English, issued quarterly. Furnishes information on Indian bees and articles of interest to beekeepers and bee scientists.

Annual subscription postpaid in foreign countries: For individuals US \$7.00 for institutions, companies and corporate bodies US \$10.00 or it's equivilent, to be received in advance by IMO or bank draft, payable in Poona (India). TF

WANTED

WANTED—All varieties bee gathered pollen. Must be clean and dry. Pollen traps available Hubbard Apiaries. Onsted, Mich. 49265. Phone: 517-467-2151 TF.

. WANTED — Old Beekeeping Books and Bee Journals, James Johnson, 107 State Ave., Terra Alta, W V 26764. TF

Wanted — New or used cyanide dust pump also fan & housing only from Kelly bee blower. Tegart Apiaries. Fairview. Alberta Canada. 12/84

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FOR SALE

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For Sale: clean. fresh. dry, Bee Pollen. \$6.50/pound. You pay shipping. Honeycomb Apiaries. R.R. 3, Box 74. Wrightstown (Kaukauna), Wi. 54130. Ph: (414) 532-4314. TF

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ROYAL JELLY

Note: Due to an error in typesetting, the October and November issues of *Gleanings* show the price of Royal Jelly to be \$19. This price is incorrect and should have read \$22.00.

OUR APOLOGIES

PURE FRESH Royal Jelly, 2 oz. bottle, \$22 pp.; 1 lb. \$120. Prairie View Honey, 12303 12th St., Detroit, MI 48206 TF

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COLLECTORS ITEM: A few books available BET-TER QUEENS" by the late Jay Smith \$25.00 postpaid. Write Manly Smith, 2431 Wabash Ave., Vincennes, Ind. 47591. 12/84

HONEY WANTED

BEEKEEPERS TAKE NOTICE — We cannot guarantee honey buyer's financial responsibility and advice all beekeepers to sell for CASH only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

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All Grades of Honey. Any quantity drums or cans Call Toll Free 800-248-0334 Hubbard Apianes. Inc. Box 160 Onsted Michigan 49265 TF

WANTED — All grades of extracted honey. Send sam ple and price. Deer Creek Honey Farms, London, OH TF

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WANTED — All grades of extracted honey. Send sample and price to MacDonald Honey Co., Sauquoit, New York 13456, Area Code 313, 315-737-5662. TF

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HONEY IN 60's FOR SALE. Bedford Food Products Co. 209 Hewes St. Brooklyn. New York 11211 Phone: 212-EV4-5165.



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SEEDS & PLANTS

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> Bee plants catalog — FREE COASTAL GARDENS Rte. 3, Box 40 Myrtle Beach, S.C. 29577

4/85

NEWS & EVENTS

Continued

Mrs. Juengel explained that beeswax hand cream is especially good for your hands when they dry out and for cuts and burns.

Juengel has no problems in selling his honey and other bee products. The Juengel honey is of extra good quality and usualy brings a little more than average market price. Juengel said he tries to provide his bees with as much clover as possible as in his mind, honey from clover blossoms is the best there is. This is not always possible but he said the bees find a dozen other blossoms or flowers where they gather their nectar.

As far as getting stung by the bees, this is no longer a problem for this beekeeper. In the early years he was stung frequently, without any disastrous results. In recent years the stings have been much fewer because Juengel has learned how to master the bees and he says he has also developed immunity to the stings.

Juengel is a member of the Northeast Indiana Beekeepers Association, Indiana Beekeeping Association, and National Beekeeping Federation. Beekeeping also gives Juengel something to do on weekends in spring, summer and fall as well as evenings after work.

Michigan

Schoolcraft College celebrated it's 10th vear of providing beekeeping education and beekeeping services for Southeastern Michigan by dedicating a newly remodeled Honey House located on the college campus in Livonia. The remodeling has been a year long cooperative project of the "Honey House Club" with members providing all the labor and materials for the project. At the dedication ceremony, held on September 27, 55 members of the Schoolcraft College Beekeeping Club and Honey House Club honored two of it's members, David Nairn and Richard Ford, by naming the building the "Ford-Nairn Honey House." Dick and Dave have been very active as officers of the Beekeeping Club and have assisted the program in many ways for the last ten years.

The Beekeeping Education Program at Schoolcraft began in 1975 with a "Beginning Beekeeping Class" of 31 students. The first instructor was Jack Englehardt. The classes and the program have been coordinated since it's inception by Schoolcraft College biology instructor Roger Sutherland. After the retirement of Mr. Englehardt the course has been conducted by Sutherland, Rocco Garritano, Schoolcraft College math instructor and several experienced area beekeepers. Throughout the decade the course has focused on the hobby beekeeper in the metropolitan area. Because many of the student live on small urban lots the college established an apiary on campus in 1976. Students are allowed to keep up to three colonies in the apiary and agree to let the college use the colonies for educational demonstrations for the beekeeping course and biology class. Beginning beekeepers not only have a location for their bees but can obtain help and advice from the college beekeeping instructors or any of the other 25 beekeepers who have colonies in the apiary.

In 1977 the college formed a Beekeeper's Club consisting of college students, graduates of the course and area beekeepers. Monthly programs feature speakers, laboratory and demonstration sessions in social events. In addition, the club and the college are developing a library of beekeeping books, periodicals and journals. A "Honey Plant" nursery is also being maintained on campus. Each spring the club co-sponsors the annual Bee School with the Southeastern Michigan Beekeepers Association, attracting an average of over 200 participants.

Schoolcraft College is pleased with our first decade and looks forward to an even more vigorous program in the decade to come.

The next beekeeping class will begin in February 1985. If interested contact

> Roger Sutherland Biology Department Schoolcraft College 18600 Haggerty Rd. Livonia, Mich. 48152





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