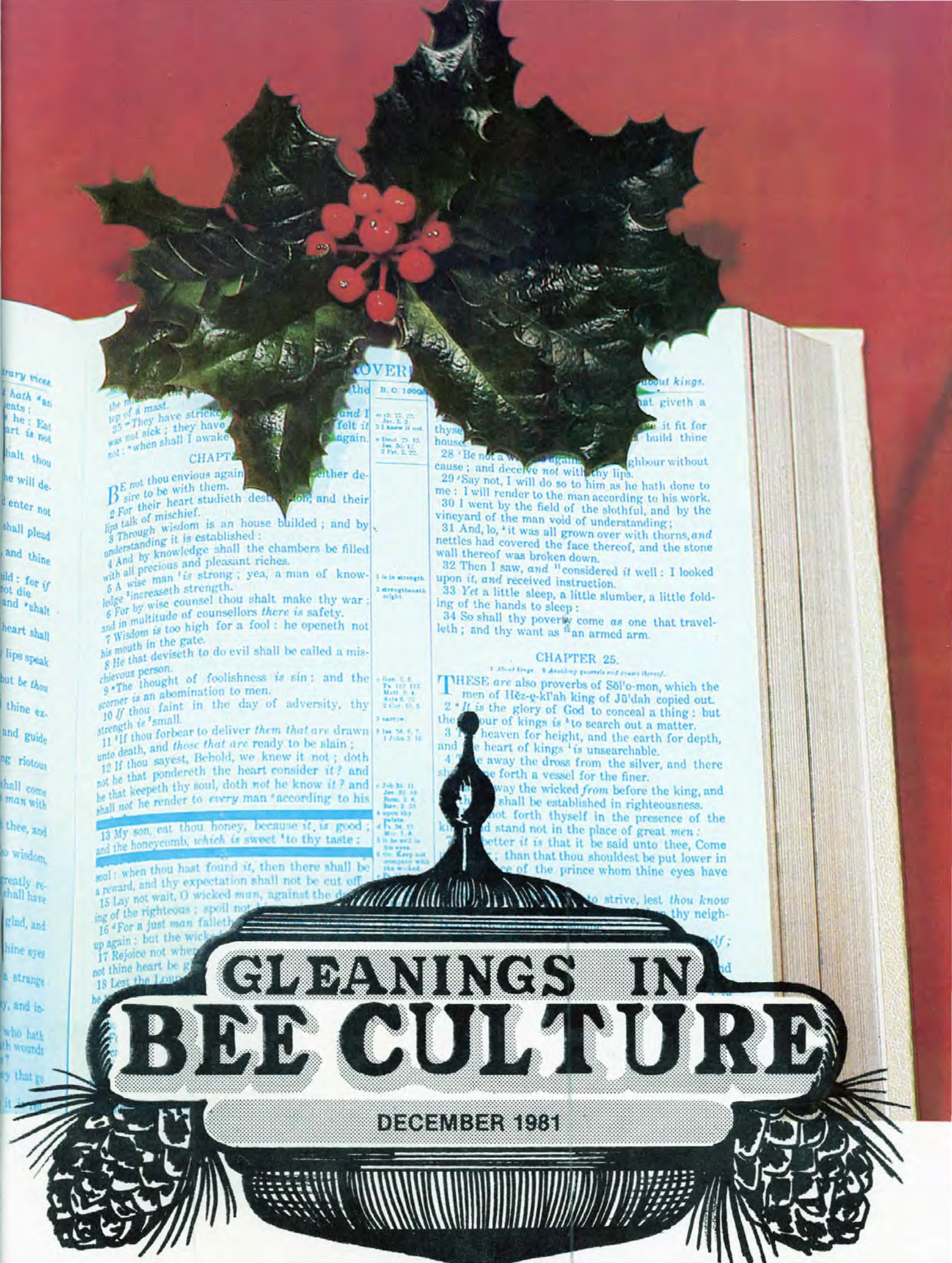
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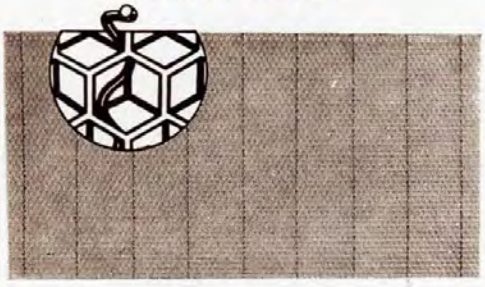

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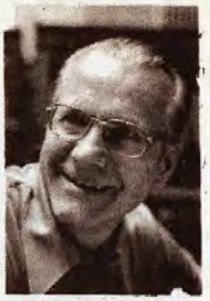

Lawrence Goltz

MERRY CHRISTMAS

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THE A.I. ROOT CO., PUBLISHERS
P.O. BOX 706
MEDINA, OHIO 44258-0706

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Subscription Rates; United States subscribers, one year, $9.85; two years, $19.50. Single copy $1.20. Other countries including Canada, Pan American countries and Spain (U.S. Currency only). $3.25 per year additional for postage. Published monthly. Discontinuance: Subscription stopped on expiration. Change of Address: Give your old as well as the new and print the name to which the journal has heretofore been addressed. Remittance should be sent by post office money order, bank draft, express money order or check.

Articles are solicited. Stamps should be enclosed to insure return of manuscript to author if not printed.

Opinions expressed by the writers in these columns are not necessarily the opinions of the editors.

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December 1981 (ISSN 0017-114X) Vol. 109, No. 12
Created to Help Beekeepers Succeed
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CONTENTS

As The Twig

By THE OLD TIMER

THIS YEAR DRIPPING skies greeted my four year old grandson, fifteen colonies of honeybees and myself as we began the ascent into the mountain proper. In fact, it had rained most of the time since, and including the loading yesterday morning. Young John, excited at the prospects of another "holiday" outdoors (earlier on this year he had accompanied his father on a trip through the mountains to a friend's place, a distance of about sixty miles, partly by canoe). He seemed to be continually underfoot during preparations on the day of departure, afraid I might leave without him. All the assurances to the contrary failed to convince him otherwise. However, this all worked out for the best later on when we did "hit the road", after being forced to stuff ourselves with all kinds of goodies, say several goodbyes and hear warnings (the latter mostly in my direction). The exhausted youngster quickly drifted off to dreamland in the warm, overstuffed cab, lulled still deeper into the land of nod by the monotonous thump, thump, thump of windshield wipers. He moved not at all, even during the one time I stopped to take on fuel, and again to stretch, drink tea from a thermos and munch a sandwich while checking the humming load. All up through the dark, windy canyon country with its ever present rain swollen river and storm tossed trees, the hours and miles reeled out behind us. Sometime after midnight we reached the Caribou plateau where we left the main road for a dirt one heading west. We hadn't been able to shake the rain, but subtlety the solid drumming was replaced by a lighter, mist-like patter. In the high semi-arid regions rainfall is not as heavy nor as frequent, and when occasionally a summer cloudburst does occur, it is of short duration. The sun comes out with renewed force and the wilderness steams dry with astonishing rapidity. Dawn broke as the old truck negotiated the first steep grade and ground its way slowly between lofty, straight-sided rocky walls. Minutes later, flatter, more open country lay ahead, with the slopes falling away and affording magnificant views through the haze of green forests and distant white peaks.

Young John awakened and I said, "We're almost there. We'll soon unload the bees and then we'll get a fire going and put on a big mess of porridge. Your mother has a couple of gallon jugs of creamy milk stashed away in the back somewhere". This milk will last at least two weeks in an ice cold mountain stream. Even when it eventually thickens it is even more delicious with porridge. I've been here several times, the last about six years ago, so features generally are familiar, excepting of course the tremendous new growth. We've been climbing again and now there is a high sandstone bank on our left while the off side falls away dramatically to foaming white waters. A little later the road curves away from the gorge and we proceed through park-like grandeur. Suddenly, two coyotes flash out of a side trail and with hardly a glance in our direction, bound playfully up the road ahead of us to disappear around a bend.

Excitedly the boy began to chatter, and half listening I think, this is only the beginning of a summer he will remember all of his life. He doesn't realize yet how fortunate he is and I wish every boy could begin life with even half as much. There'll be partridges with their captivating offspring, rabbits, foxes, porcupines, weasels, marmots all in their own natural setting and full of curiosity; especially unafraid in this case for they will be able to "sense" youngness in the boy. Stake drivers, with their peculiar cries will mystify the twilight hours. Perhaps a moose feeds down in the flats and no doubt a bear, or several. Dark shadows flitting over rocks, grass and woodlands will bring our eyes aloft to watch with unceasing wonder as majestic eagles, kings of the high country, soar gracefully on thermal updrafts. Deer and fawns browse around misty morning-enveloped pastures. We are held spellbound as dipper birds (Ouzels) "fly" in the rushing creek and through waterfalls. Dawns and twilights will resound to the clamour of birds calls and I have a feeling a certain old squirrel will be easy to tame. The wilderness wouldn't be complete without at least a pair of cheeky bluejays strutting disdainfully about the camp searching for scraps and always a source of enjoyment. There'll be fish to catch and eat with our fingers off a spruce board. We brought no cutlery other than my jackknife; it takes but a few minutes to whittle wooden spoons, which is all we shall need. If we're lucky we'll encounter a thunderstorm, always an

"About midmorning we reached our destination, the most beautiful, the most peaceful place I know of."

Is Bent

awesome experience in the mountains. There are wild greens to eat and berries of all kinds; pure delicious water and of course, honey, warm and fragrant from the hive. Bull frogs, half the size of a cat, chug-a-lug and a great white mystical moon floods the night with elusive radiance as we lay snug and warm on our bed of fragrant green fir tips. Unseen tendrils of smoke from the dying fire lends its pungent aroma to the other delicious scents as we drift off to sleep.

Before sleep, visions of the days to come steal slowly by in my mind's eye. Every day there'll be bee colonies to tend and be studied and sometimes we'll just simply sit in the apiary, watching enthralled at such dedication and self sacrifice. We'll hike over trails that have probably never seen a human footprint before and climb to the vast eternal snowfield above us. There, from this roof of the world, we may fill our very beings with the breathtaking immensity and beauty of this garden of Eden around us. Oh yes, and always a highlight of lasting value is the pond. Like his father and grandfather before him, he'll spend many happy hours on his belly staring facinated at the teeming life therein. Yes, there'll be all this and much, much more to fill a little boy's head and heart so that back home again he will not know where to begin in the telling. More importantly, the lessons learned will stand him in good stead down through the years. How very fortunate I am!

Splashing through a frothing creek we reached our objective, a little field ringed by stately conifers. A beautiful place, remote, peaceful and quiet. In fact, I've known it so quiet here at times that you can hear your heart beat. We alight into dew-like drizzle and while I stamp and stretch the boy runs and jumps in sheer animation. I watch a moment and then, without further ado, prepare to unload the bees. It is a simple operation, just a plank ramp down which I wheel the hives on my little home made cart. In fifteen or twenty minutes (assisted by the energetic youngster) our colonies have been transferred to a rocky bench bordered on two sides by a spectacular eight foot high fireweed hedge. I pause to look around. A multitude of damp wilderness smells prevade, prompting me to fill my lungs several times. It was warm enough to induce a stream of bees to leave the hives in search of water, or to reconnoiter. Anxious to get started, their little bodies pulse on leaves, rocks, and our clothing. Calling the boy I take up an axe and go in search of dry wood, although, in this respect, "search" is the wrong word because having been here before I merely make my way over to a collection of huge cedar and fir logs which bear marks of my previous axe strokes. With the fire going and the tea pail suspended on a suitable willow bough-voila-in no time at all we're tucking hungrily into heaping bowls of porridge, liberally laced with, what else, but honey, and gobs of cream.

While we were so pleasantly engaged, the clouds and rain disperse and the sun crested a peak downrange and flooded the land with molten gold. Day one had begun for young John.

Our first and second days were spent in a state of blissfully hectic euphoria as we endeavored to settle in. We worked the bees, added supers, leveled hives, built an outhouse, took walks, visited the pond and even began selecting logs for a small cabin. Once, while we languished on thick pine needles during the midday heat, a hawk occupied a branch above, oblivious to us. We studied it with great interest while we snapped pictures. To add spice to our wilderness tutoring we came across bear droppings here and there on our meanderings. With a feeling of exhilaration we pored over footprints and other signs. There's a mystique about this legendary creature which captivates — sends one's imagination flying. Knowing it was only a question of time, the anticipated confrontation, when it did come, was really no surprise. The timing, however, was a trifle disturbing. Deeply ensconced in the land of nod on night three, a shower of stones and dirt, although not loud during the small hours, brought me awake with a start. Bright starlight afforded me a clear view as I carefully turned my head to the right where there was a long ten foot high mini-plateau topped by a veritable jungle of alder and willow thickets. At the foot of this unique little table land, and about ten paces from our bed stood a huge black form, swaying gently and pawing the air. Dust from his slithering passage down the bank floated across the intervening space as "old slewfoot" lingered, confused and sniffling like mad. Obviously very puzzled and also, I suspect, frightened by our presence, he actually began to tremble. Now, bears are not a problem in my neck of the woods unless molested. I started to rise, but in so doing inadvertantly knocked over the tea pail which was perched on a rock beside me. The resulting clatter caused our overwrought visitor to give an alarmed "whoof" and bolt up the draw; but not before young John, who had awakened, could take in, goggle eyed, most of the wild scene. Accompanied by the querying and now wide awake youngster, I took a turn around the apiary, always an impressive spectacle on such nights. To feast one's eyes on the hives, washed in celestial silver, while around us stretched thousands of square miles wilderness leaves one exceedingly humble. Big Jim, as we called our shy bruin, never again used the campsite for his nocturnal or any other wandering. Instead, we found his new and very private route some distance to the east. However, about once a week we would catch sight of him as a dark blob far up the canyon, steadfastly plodding uprange to the weird, stony region where literally hordes of his favorite rodent delicacy, marmonts, dwelled.

We had been there about a week when we undertook our first real hike. Wreathes of mist drifted across the slopes above us as we breakfasted in cool, green shadow. We were prodded into action by the sight of a granite colossus uprange which just then flamed golden sunlight.

The path chosen, which I had used before, was very steep in places, mostly rocky but devoid of brush. However, there were stretches in between when my heart would go out to the little four year old as I watched him struggle mightily with matted bracken fern, clawing desperately for a foothold on the detritus slopes. Sometimes, against his will, I would

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As The Twig Is Bent

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hoist him on my back for a few yards; in other places, with a rope fastened around his waist, I merely helped out. More often he would refuse my offer of assistance by redoubling his efforts and saying, "It's all right Grandpa, I can make it on my own." It was on these occasions that a lump would come to my throat at the sight of him, shirt dark with sweat, attacking some obstacle and again those brave words, "It's all right Grandpa, I can make it on my own."

About midmorning we reached our destination; the most beautiful, the most restful place I know of. Here were rocks covered with thick moss and a few gnarled, wind twisted pines. A crystal waterfall emptied into a pool, while the overflow cascaded over the rim. We drank copiously then tucked into grandmother's goodies. Refreshed, we began exploring. Young John stuffed his pockets with colored pebbles, a feather, fossil wood, bits of moss, a pine cone or two (for Mum). Several times we climbed to high points to view the panorama spread before us and, although we were very high, we were no where near the top of this mountain. Yet, one could see for miles and miles. We scrambled up the leading edge of a snow field which encroached on a dwarf pine forest. Our boot prints seemed obscenely alien, lending to the realization that my human recognition of wilderness values had not changed. A cloud drifted across, engulfing us in cottony silver and we sat in primitive solitude to await its passing, man and boy alone in the universe. Fifteen minutes later we were again walking in the blazing sunlight. Peace and contentment here on the roof of our world cannot be expressed in mere words. I feel I am a boy again as we lie on the warm earth or gallop up grassy hummocks amid the roar of startled bumblebees.

Time passes all too quickly, however, and we must go. Before we leave, and in keeping with the etheral spell cast by such remote surroundings, we select a niche above a rocky ledge to place a small jar of comb honey, sealing the entrance with a suitable ganite slab. We mark the spot with a cairn. On the way down we came across clusters of delicate flowers growing from rocky fissures which were seemingly devoid of all soil. Hardy little plants grew everywhere. We reached "home" tired, but our sense of adventure fulfilled. In my log for that day the last entry reads thusly: "--- a huge golden moon behind the trees on a nearby ridge appears scraggly, prompting the boy to exclaim excitedly, 'Oh, look, Grandpa, the moon has crashed' --- and so to bed."

Each eventful day was followed by another just as memorable and for young John there just weren't enough hours in his adventure filled life. After breakfast he would scamper up the draw to check on a nest of five baby rabbits, encountering a regular spate of early morning denizens in the process. At this hour, our corner of the wilderness seemed filled with feathered creatures; with partridges, I suppose, being the more conspicuous. Deer, too, were quite a common sight until midmorning, browsing along grassy terraces undisturbed by the occasional fox or coyote zigzagging through "our" premises. Then, of course, one never failed to come upon at least some of our "regulars": squirrels, marmots, rabbits and porecupines. Once, the boy acturally tripped over a rabbit hunched and sleeping in the grass. I don't know who was the more surprised. Apparently, we have been accepted by one and all, for seemingly none, including Big Jim, have moved away. On the contrary, we now see an increasing complement of their young. While I dawdled over my second and third cup of breakfast tea the energetic youngster would range afield gathering fagots of firewood, piling them nearby. Next would come a walk among the colonies of bees. Usually, before we had time to complete this most satisfying janunt a big, grey whiskered squirrel would be shattering the early morning quiet with his noisy chatter, begging for tidbits. Yes, the boy did in fact make friends with this big, tame old fellow like the one who used to scold me regularly when I was here the last time, several years ago. Then perhaps we'd go fishing or hiking and for a dip in the creek. Seemingly, an ever greater portion of our time was spent (as I thought it would) down by the pond. We would lower ourselves carefully to its mossy edge (young John exaggeratingly so, for he knows he must be considerate of the delicate balance therein) and peer hypnotized into those cold, green depths, where all manner of fascinating creatures go about their exotic business. Shaded by tall mature hemlocks this world within a world, complete even to rushes and lily pads was always there in the back of our minds, luring us. The pond is an enigna. Each of these microcosms are so necessary in the overall scheme of things that to destroy this basic life force would be catastrophic to this pond. Man has not the intelligence or the right to interfere in things of this nature. We have created too much havoc already with our bungling ways. Undisturbed, this pond, this wilderness, will be the source of enjoyment and learning to young John's family and in turn, theirs and others. Left alone, nature's is the only fool-proof system for maintaining our environment.

Time became nearly meaningless in our happy adventures. Lords of all we surveyed, prowling far and wide, the hours between dawn and sunset, and even beyond, we were swallowed up with our active quests. The sight and sound of a mighty cataract held us spellbound in a remote fastness until shadows came creeping across the slopes, calling us "home". A side trip up a green-tinged glacier-fed creek lures us on and on. We did, in fact, spend three days and two nights exploring one such tributary flowing through multi-hued rock walls and high roofed caverns. Alpine meadows, staggering crevasses; one could spend forever here and not become the slightest bit bored.

Finally there came a day when, with a pang. I realized the end of another growing season was upon us. It was time to leave. Putting down my breakfast tea cup I rose to survey one more summer's last verdure. All around stretched stands of once beautiful fireweed, now bedraggled and forlorn with ragged tops and frost-scorched leaves. Flattened grass cracked underfoot. Seeds, progeny of all this flora, literally covered the earth, sailing on light wings up the canyon in a veritable snowstorm, covering trees, grass rocks, ponds and sticking to our clothing, hair, and food. Scattered by the winds and covered by snows they will germinate, set down roots and like a

(Continued on page 646)

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As The Twig Is Bent

(Continued from page 644)

miracle turn the earth green when the growing cycle begins again in the spring.

Thinking we'll leave Wednesday and be home before the weekend traffic, I pensively wound my way over to the truck where I clambered aboard to begin taking stock of our honey. I estimated the weight while I apprehensively eyed the springs. Turning, with the intention of calling the boy, my gaze spanned the campsite, searching. A sunlit area above the field's rim drew my attention for some unexplainable reason. My mouth opened, but the summons remained unuttered as the drama being enacted there took a shocking instant to register in my conciousness. On the trail four hundred yards above me, and just before it rounds the mountain wall, stood young John and a bear. A narrow, jutting rock formation and perhaps a dozen steps separated the two, who motionless, seemed oblivious to their surroundings. Vaulting to the ground and grabbing an axe I high tailed it up over the ridge to my right. Plunging frantically through a belt of alders and out onto the trail I slowed to a fast walk so as not to agitate the bear. Moving quickly, but not unduly so, I was about half way when my foot dislodged a stone. The clatter, as it rolled back a ways, caused the bear to fidget uneasily but its head was still cocked sideways staring inquisitively at the boy. Suddenly Big Jim came down on all fours, head rolling, and the boy, who had not moved until now, swung around as though from a trance. I blurted out, "face the bear, John — look him straight in the eye and don't move". As the boy turned back obediently, I closed the distance as much as I dared, my heart pounding. From past experience I had found it wise to wait and let the bear move off in its own good time, which was usually within a few minutes. It came to me, as I spoke softly to the boy, cautioning him, that of the three of us I was the most distressed. Certainly our massive adversary, long blue-black hair shimmering, muscles rippling like quicksilver, must have had a glimmering that we were no match for his sheer raw power and lightning speed. The boy, too, seemed not so much frightened as awed by the mighty mountain creature confronting him. The heat bore down on us in a golden flood and after what seemed several years Big Jim decided he wanted no more of this over crowded environment. With a start and a slight rumble deep in his chest, a half ton of furred energy fairly melted behind the granite projection in a fluid motion peculiar to his kind. There remained only the odd odor, like stale cabbage, and the settling dust, the only evidence that we perhaps were not having only a bad nightmare.

Sauntering back down the rocky, sunny path, the youngster chattered excitedly about his newfound friend. I, half listening, pensively chewed on a dried stem of fireweed. We shall be leaving soon, I think, watching the sturdy boy run ahead of me, shirt tails flapping, touseled hair laced with grass and twigs, and my heart goes out to him. This little boy had run barefoot, laughing, in the sun, wind and rain. He had stroked a baby rabbit, marveled at a nest of wild mallard duck eggs hatching and cried when his friend "Cheep-Cheep", a captivating, downy gosling rejoined its mother the next day. He struggled with me to the snow line and above, picked out and expertly named the cargo on pollen-carrying bees and bare handed, unafraid, inspected frames with his grandfather. He stood awe-struck, hands over ears, in the midst of a thunderstorm as vivid lightning in jagged sheets lit up our world and mighty detonations reverberated down canyons and between mountain peaks; and afterwards the deluge. This same gyrating, forty pound (soaking wet) youngster who, only minutes before, stood unwavering, unafraid, a few short steps before Big Jim, an eight hundred pound shaggy, black colossus, will soon be thrust rudely back into civilization's clutches. The transition may require a period of readjustment, I am thinking.

One thing I am sure of. The memory of this wilderness summer, back o' beyond, will live with him, and me, for the rest of our lives.

Merry Christmas and Happy New Year from the Missis and me.

Epilogue: by "Missis" Frances Thurston. Our two "wild ones" are back at last. They drove in about 5:00 a.m. and although young John wanted to give us an account of their sojurn right then he was instead plied with goodies and bundled off to bed while the men unloaded. However, his chance did come after breakfast and a highly entertaining account of his adventures kept us in smiles until he reached that part about his friend Big Jim the bear and how he wanted to play — whereupon silence decended and all eyes settled on Grandpa who sputtered over the last of his tea, rose and beat a hasty retreat, mumbling something about his bees. Evidently the last was the magic word because the boy suddenly blurted out "please Mum, I've got to go with Grandpa to check the pollen on our bees". A reluctant nod from his mother and the screen door banged again. Came the patter of running feet and Anne and I stepped to the window to watch as the two stalked across the yard just as the boy's father joined them from the garden, wiping dirt from a handfull of carrots. As they turned the corner of the barn, munching contentedly, Anne, lashes wet and with a catch in throat said, "There they go, peas in a pod, like Grandfather, like Father, like Son. As the twig is bent, so grows the tree."□

Information Wanted

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A publication which will include as much information as possible about bee venom is planned.□

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Monthly HONEY Report

LAWRENCE GOLTZ

November 10, 1981

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 — **Reporting Regions**

Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	9
60 lbs. (per can) White	45.00	53.00	36.00	34.25		38.50	31.80	36.20	34.50
60 lbs. (per can) Amber	45.00	46.00	35.00		45.00	36.00	27.00	36.00	33.60
55 gal. drum (per lb.) White		.56	.59			.60	.53	.57	.53
55 gal. drum (per lb.) Amber		.48	.57			.57	.46	.54	.50
Caselots — Wholesale									
1 lb. jar (case of 24)	27.50	24.50	26.50	25.50	34.80	23.50		22.50	24.00
2 lb. jar (case of 12)	26.00	23.50	23.25	23.25	33.60	22.50		20.75	23.30
5 lb. jar (case of 6)	30.00	26.95	26.15	26.50		26.00		24.00	25.40
Retail Honey Prices									
½ lb.	.90		.87	.80		.85		.85	.97
12 oz. Squeeze Bottle	1.45	1.35	1.30	1.25	1.75	1.30		1.35	1.43
1 lb.	1.45	1.48	1.42	1.35	1.75	1.43	1.49	1.36	1.75
2 lb.	2.70	2.70	2.65	2.49	3.45	2.60	2.59	2.46	2.99
2½ lb.	3.35					3.15		3.49	
3 lb.	4.00	4.10	3.49		4.88	3.75		3.65	3.39
4 lb.	5.30	4.80		4.89	6.80	4.80	4.69	4.95	
5 lb.	6.00		5.75		8.50	5.50		5.89	6.15
1 lb. Creamed			1.45					1.55	1.69
1 lb. Comb	2.25		2.15		1.87	1.75		1.75	
Round Plastic Comb	1.75		1.50		1.75	1.95	1.90		
Beeswax (Light)	2.00	1.90	2.00		1.85	1.90	1.85	1.90	1.80
Beeswax (Dark)	2.00	1.80	1.95		1.75			1.85	1.75
Pollination Fee (Ave. Per Colony)	30.00		22.50						

Misc. Comments

Region 1

Retail honey prices have gone up again and will probably go up again before next seasons crop. Some bee yards, produced nothing over the needs of the bees while others produced 100 pound averages. In connecticut 40 pounds, while parts of Vermont gave 100 pounds. Little feeding needed. Many beekeepers wish to sell out at this time of year but buyers with cash hard to find. Borrowing funds prohibitive.

Region 2

Fall honey flow was poor in New York and colonies had to be fed. Much high moisture honey due to rainy weather. Most colonies are in good condition for winter in Maryland, but are hoping for a mild winter. Honey sales in Maryland are very good. Some beekeepers holding honey for higher prices. The public's

awareness of the availability of local honey has increased. Fall honey was below average and many colonies needed feeding in Pennsylvania. Some beekeepers had a total crop failure, others did well. Honey sales spotty overall rather slow in Pennsylvania. Bees going into winter light in weight in West Virginia. Some adulterated honey turning up in stores. Honey prices up slightly.

Region 3

Wisconsin Averaged about 50-60 pounds per colony. Too much rain during late season. A poor crop in Illinois. No honey in beekeeper's hands. Bees had to be fed. Bee loss may be heavy where colonies are neglected, if winter is severe. Bees going into winter in good condition in Indiana with some exceptions. Fifteen to twenty percent will have to be fed through the winter. Honey sales generally good, with some price cutting. Indiana honey crop, in general, was poor or none at all. Ohio honey crop was below average with a near failure in many nothern counties.

Region 4

Many beekeepers in S.E. Minnesota and other areas of state have ended up with the worst crop in their experience. Crops of 30-35 pound were common. There are bee outfits for sale but few buyers. More beekeepers will run another season hoping for improvement. Honey sales are fair. Some feeding. Some bees be-

(Continued on page 652)

Notes From The Straw Skep

By BESS CLARKE
50 Lycoming Street
Canton, PA. 17724

OUR TOWN IS going to have a performance of "The Messiah" this Christmas season. Sponsored by the local ministerium, the oratorio will be sung by a choir of 75 voices. Rehearsals began in October when the soloists were selected, and enthusiasm grows as the participants spread the good word. There will be two performances in early December, with admittance by reservation (free tickets) and the affair will be taped so it can be played over the local radio station on Christmas Eve and again on the afternoon of Christmas Day.

"The Messiah", the best known and most successful of the music written by George Frederick Handel, was composed in the year 1741 in a period of twenty four days while the musician was visiting in Ireland. It was first performed at a concert in Dublin with Handel conducting.

After that it was performed in London each year during Lent. I hadn't known before I looked up some information for this article, that Handel's oratorios were designed to be performed during Lent when theatrical performances were forbidden by law.

The words for "The Messiah" were taken from the Scriptures and its three parts, covering all the phases of the Saviour's life, encompass the liturgical year. The Christmas Section, however, is the part most often performed, and the mighty Hallelujah Chorus is universally loved.

The first time the work was performed in London, in March of 1743 King George II was so moved by the Hallelujah Chorus that he arose to his feet as a means of paying tribute. Of course, the entire audience stood with him, beginning a tradition that endures to the present time.

I wish that I were singing in this production but my voice doesn't lend itself to such an endeavor, so I shall have to be content with being part of the appreciative audience. There are two occasions in my past when I did sing in the chorus. The first time I was a member of the youth choir at my church. They had to take anyone who came, and the choir was a large part of my social life. I never missed a rehearsal. That poor director earned her pay. Come to think of it, she probably was a volunteer.

My second experience was during a session a couple years ago when the music department at Penn State organized a public performance for the entire community. The auditorium was filled with people who wanted to sing-along and I was among them.

Many other memories come to my mind as I think about times and places where I have heard the beautiful words and music. I'm certain that you have your own highlights to remember. It really is a universal experience.

There are so many holiday foods that are prepared with honey that it's difficult to select a recipe. You know that cookies made with honey keep well, maintaining a fresh taste and texture, so that they are good for packing Christmas boxes. The same is true of fruit cake and breads. Cranberry sauces and relishes are definitely better with honey in them. And don't forget to give honey to family and friends. We find that it's always an appreciated gift.

I finally decided on popcorn balls because they are fun to hang on the tree for presentation to young visitors

RECIPE

PEANUT-HONEY POPCORN BALLS: 4 quarts popped corn, 1 cup sugar, 1 cup honey, 1 cup peanut butter. Combine sugar and honey in a heavy saucepan and bring to a boil. Cook for one minute, stirring to prevent burning. Blend in the peanut butter. Let cool slightly, and pour over the popped corn. Toss to cover each kernel and allow to cool. Grease hands with butter and shape mixture into three inch balls. Wrap in plastic wrap or cellophane.□

Monthly Honey Report

(Continued from page 650)

ing taken to Texas because of short stores.

Region 5

October was very dry in North Carolina and fall flowers did not produce as much as normal. Bees subsisting in honey gathered early in the season. County and State Fairs have been good sales locations for honey. Sourwood honey in short supply and is selling for $4.00 per pound at fairs.

Region 6

No significant fall honey crop in Kentucky. Winter stores range from poor to adequate, mostly only fair. Feeding will be necessary by spring in many apiaries. Honey sales are good where light honey has been brought in from out of state. Sales are fair for tulip poplar honey. Fall honey flow fair to good in Tennessee. Most colonies have sufficient stores for winter. Honey prices steady but price increase in the making. Very little honey left in the hands of producers in Tennessee.

Region 7

Arkansas had a good year with

(Continued on page 663)

From America's Land of Milk and Honey

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The XXVIII International Congress of Apimondia at Acapulco, Mexico distinguished our new "Nectronic" family of extracting equipment for being the single most remarkable *innovative* invention to be used in the beekeeping profession. Our second gold medal of honor was awarded for having had the finest commercial exhibit of any of the more than 40 companies displaying products from all over the world.

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- Compact lowest entry tank design with tank, covers, and bridge constructed from massive 14 gauge type 304 Stainless steel
- Narrow double channel bridge provides for 35% larger reel access opening
- Available in 100, 60, 24 deep from capacity models
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We've been working over 14 months to combine the latest developments in research in beekeeping management, drug and sweetener chemistry, Tru-core winter-wrap, plastic technology and packaging, mixed with over 30 new products never before offered to beekeepers, to insure our first catalogue becoming a collectors item in years to come. Available after January 15, 1982. Write now to reserve your copy, regular price $2.00 per copy — mention this ad and save $1.00. All catalogues include a coupon worth $2.00 off your next purchase on $25.00 or more.

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Moving Bees

"Careening around a corner to make a light, he tipped over one of his hives inside the wagon and it crashed into the other."

By E. Y. LEVIN
Potomac, MD 20854

MOVING BEES, I suppose, must be something which commercial beekeepers do as a matter of routine. It's true that occasionally things go wrong, like when a semi-trailer carrying bees tipped over going up Sideling Hill last spring, and dozens of hives were smashed, terrifying motorists on Interstate 70. But commercial beekeepers have their stapling guns, and their forklifts, and their flatbed trucks, and they probably don't worry much about moving bees. When amateurs like us move bees, however, it's an adventure; the feeling is something between ski jumping and Russian roulette. Only the weight of the upper story holds the two boxes together, with maybe a little help from the propolis and some masking tape. Moving hives is fun to do, but it's more fun to be finished doing.

There's a young beekeeper nearby, whom I will call Harry, who recently had an exciting experience moving bees. Harry is an enthusiast, excited about violin playing, body building, junior college, gardening, golf, and anything else he takes up. He's a dedicated beekeeper, too, but from my way of thinking kind of a slob — heedless of stings, hard on bees and equipment, and careless about honey. His hives are unpainted or peeling, and a half-built one has been standing in his dooryard for six months now. He once left his wet extracted supers out by his driveway, and although his hives are mostly elsewhere, so that Harry didn't have to concern himself about stimulating robbing, still enough bees were foraging from his bedroom observation hive to make starting up the car pretty hazardous. Traffic was disrupted, the UPS refused to deliver anywhere on the block just when Harry was expecting some beekeeping equipment, and even Harry's father went in and out by a basement window for three days.

Harry once led me back in the woods to see his big hive. It was spectacular, at least for our area, six deep boxes and a super, all filled with bees and nectar and balanced precariously on some uneven ground. It eventually gave him several hundred pounds of honey. The only trouble was, the three adjacent hives were storing nothing.

I mentioned casually that there might be some drifting going on, but then asked about a more urgent-looking problem: the critical tilt of this towering structure. I had never seen an unmolested hive fall over, but come one of our typical July thunderstorms, that hive of Harry's could have been the first. I never found out, because Harry propped it up with two-by-fours, but it gives you an idea of how he approaches life: He keeps his eyes fixed on his destination, and gives no attention to the bumps in the road.

All of this is to explain how it happened that Harry could have a certain experience moving bees. One spring he decided to expand his bee operation from four hives to forty (I told you he was enthusiastic). He started by picking up three two-story hives for a pretty good price, and borrowed a station wagon to bring them home. He chose to move them on a warm afternoon, something I wouldn't dare try. Careening around a corner to make a light, he tipped over one of his hives inside the wagon, and it crashed into the others. Boxes were all jumbled and bees were everywhere, whirring like so many smoke detectors.

Well, Harry may be a slob, but he's no coward, and he wanted to save his bees. He leaped from behind the wheel and began putting things back together, without benefit of veil or coveralls. Of course, the bees were already in a foul mood, and it didn't help at all that Harry couldn't tell which box went with which, and undoubtedly mixed up some colonies. Maybe he even got two queens in the same stack. Pretty soon he was covered with stinging bees. To add to Harry's troubles, while he was wrestling with his boxes and ducking bees, some well-meaning passers-by called the nearest firehouse. The volunteers arrived in a few moments — they're enthusiasts, too — and rigged their hoses to the hydrant. Now Harry was in a panic; it was bad enough to get stung for a good reason, but he was about to be knocked down by a high pressure stream of water, surrounded by a pool of drowned bees. He waved his arms frantically, and in the nick of time convinced the firemen not to douse him.

Harry told me this story with his usual enthusiasm, exhibiting his hundred or so stings. He thought it was about the funniest experience he ever had. I laughed, too, because I was glad it wasn't me.

It was my turn another time, though. I don't usually move bees without my thirteen-year-old son Daniel, who likes bees and likes to use his muscles. He doesn't like to get up early, though, so he groaned and whimpered when I shook him awake at 4:30 to help me retrieve a hive of bees we had trapped out of a big bee tree (see previous article).

"Don't even bother to get dressed," I assured him. "Just throw a shirt over your pajamas. This will only take a few minutes."

Dan was dozing when we reached the bee tree. He was still half asleep when we tacked a screen over the entrance, picked up the two boxes, and walked fifteen yards or so through the dim dawn to put the awkward but not-too-heavy load in the back of the Suburban. I wasn't suprised to see a few bees scurry out from under the cover when we first picked up the hive, but I was shocked when the few grew to many. Soon we could see a growing mass of crawling black specks all over the upper box. In the half-light a few bees arced into the air, looking for something to sting. It was then I remembered the hole I had cut in the rim of the inner cover to provide an upper entrance.

"Dan," I said, "This isn't going to work. We're going to have to put it back."

Dan's eyes narrowed; he was wide awake now. "We, paleface?"

This I believe was a reference to an old joke about the Lone Ranger. Surrounded by hostile Indians (who don't like him from another picture), he addresses his faithful companion:

"Tonto, I think we're in trouble with these Indians".

Tonto edges away, like Daniel. "We, paleface?".

"Okay, Tonto," I told Daniel. "I'll do it. Stay in the car."

Lacking a veil, smoker, or even street clothes, I took a beating from the bees when I juggled the hive back to the tree. I wasn't as amused about my experience as Harry had been about his, but it cured me of moving bees in my pajamas.

Later that day I repaired the lid, and next morning we moved the hive uneventfully. Since then, however, I aways take my equipment along, even if I don't expect to use it.□

A sting is worth a thousand "don'ts".

Strictly Backlot

By CARL CALLENBACH
135 College Avenue
Elizabethtown, PA 17022

EVERY BACKLOTTER should buy a friend a couple packs of wildflower seeds for Christmas. A trip up Innerstate 81 to the Western Adirondacks in August — my daughter attended a two-week college nature workshop near Star Lake — convinced me of that! There's a bittersweet naturalization process going on in part of upstate New York — farmers are bailing out of the business and absolutely gorgeous wildflowers are coming on in field after field, oblivious to the brush and trees beginning to crowd in. My bees here in Lancaster County — where corn and chickens are cultivated and worshiped, where sinful wildflowers are sickled and sprayed — are absolutely deprived!

Deprived despite the vitex and mountain mint (See photos), pussy willows, honeysuckle, garden hyssop and amur maple trees (all except the maples were purchased from Pellett Gardens; Atlantic, Iowa 50022) I planted in the backyard two years ago. This past spring I stood with open winter coat beside the willows and watched honeybees strip the flowers of pollen. Bees from where? Which is why I've replaced the Italian bees in my observation hive with dark Carniolans, although I doubt if I'll shoo away any neighborly yellow Italian bees from my trees come spring. In August the mountain mint was covered with bees, but it was the vitex that put on the longest and best show. From June until frost the row of vitex featured lavender blue flowers, honeybees and bumblebees (Some mornings I found bumblebees clinging to the vitex blossoms waiting for the sun.) and, most spectacularly ten or fifteen different wasps — with blue, red, orange, black or gray abdomens and in all sizes and shapes. (Dear Santa, please bring me a good entomology book, one that I can understand. . .)

A year ago I sent for several packets of wildflower seeds intending to plant a mix of prairie grass and wildflowers along the vegetable garden. This was going to be the initial step toward independence from lawn mowing. Somehow sweet corn subsumed the space! I planted a packet of wildflower seeds in the backyard beneath some Russian olives and honeysuckle plants. And promptly forgot about them. In September and October wild strawflowers, poppies, an assortment of daisies, and a couple of flowers I didn't recognize bloomed, and I understood what I too have been missing. (Dear Santa, please bring me Rickett's *Wild Flowers of the United States, Volume 1 — The Northeastern States.)*

The following seed companies will send you free catalogs or brochures listing available wildflower mixes. Some of the flowers included in each will be ignored by your honeybees. So, what? I had never seen or touched a wild poppy before.

Give yourself and a friend a pack of wildflower seeds.

Merry Christmas! □

From Geo. W. Park Seed Co., Inc., S.C. Hwy 254 N., Greenwood, SC 29647

Their mixture No. 1 for the Eastern United States, features: poppies, nemophila, gaillardia, alyssum, baby's breath, candytuft, Chinese forget-me-not, portulaca, phlox, dianthus, godetia, bolsam and coreopsis.

Mixture No. 2 for the Central United States, includes lanceleaved coreopsis, purple coneflower, Missouri primrose, upright prairie coneflower, blackeyed Susan, plains aster, blue flax, catchfly, plains coreopsis, fire wheels, phlox and bluebonnet.

Mixture No. 3, for the western United States contains African daisy, blazing star, blue bells, golden tuft, farewell-to-spring, perennial sweet

(Continued on page 658)

Vitex

Mountain Mint

Candles For Christmas

By H. C. MATHEWS
Midlothian, VA

CANDLES HAVE BEEN used in many religions to remind their followers of certain teachings. In Christianity they symbolize Christ as the Light of the world. As a practical help in everyday living they have been in use for thousands of years, ever since people began to take honey from the bees. They found that the wax left in the comb would melt slowly when exposed to heat. It is unknown when they discovered that a bit of cloth left in the cooling wax would, when burned, take the place of the first crude lamps. However, apparently the first candles evolved from this discovery, had a thick strand of thread to take the place of a piece of cloth.

Over the past ten years I have accumulated about twenty pounds of cappings and broken combs. I stored this in a small keg with moth balls to prevent damage from the wax moth. My brother, John Mathews of Amelia County, has a solar wax extractor, so I had him melt it down for me. He poured it into pint-sized containers with sides that sloped a little outward. The resulting chunk of wax slipped out readily.

I had not made any candles for over fifty years, but now that I am retired, I decided to make some to give friends at Christmas. I have a little electric one-unit stove, but being of a frugal nature, I first melted the wax over a wood fire out-of-doors, then set it on the electric stove in my shop so it would stay hot while I dipped the candles.

I held the melted wax at 72°F. by turning off the heat for about five minutes whenever I noticed vapor beginning to rise from it, then switching it back on after about ten minutes.

There are two ways of making candles — using a mold, or dipping the wicks into hot wax. Although the first method is simpler and a more uniform product results, I chose the latter, even though the candles are not as smooth. I reasoned that the first candles were probably made by dipping a piece of thick string into melted wax.

However, unless you have plenty to time, don't follow my example. To produce the first twelve candles took me two and onehalf hours. Of course, this included remelting the wax my brother brought me. The pieces of wick I tied top and bottom to a circle of wire, crimped to keep the ends of the wicks apart.

Believe it or not, these wicks had to be dipped forty-five times for enough wax to stick to them to form candles about three-fourths of an inch thick. For the first few times they are dipped, you will wonder if you will ever finish the job, but the candles slowly begin to take shape. I dip them quickly in and out, then hang them to one side on a support about one minute until the wax has begun to harden. If left in the melted wax longer, you will find that you will lose what has already stuck to the wick. Then I repeat the process until the candles reach the desired thickness.

When I was about half way through, I began to wonder if this thing was going to take all day. But as the candles took on more wax, they became thicker and thicker, and I was soon through the job. Most of the time consumed was in getting ready and melting the wax.

After they hardened thoroughly, I cut both ends from the supporting circles of wire, and smoothed off rough spots. Some candle makers use various scents added to the melted wax, but I prefer the natural fragrance of the beeswax.

Wicks may be bought from your beeware supplier. □

Strictly Backlot

(Continued from page 657)

pea, mustang clover, mountain garland, scarlet larkspar, California poppy, tidy tips, succulent lupine and baby blue eyes.

Mixture No. 4, prairie grasses and wildflowers, excites me the most, and the growers promise that the mixture will thrive under East Coast conditions. Includes: Trailway side oats, blaze little bluestem, pawness big bluestem, pathfinder switch grass, holt indian grass, Nebraska 27 sand lovegrass, kaneb purple prairie clover, nekan pitchers sage, prairie gold maximilian sunflower, eureka thickspike gayfeather, sun glow prairie coneflower, upright prairie coneflower, dame's rocket, butterfly milkweed and lead plant.

Mixture No. 5, for the Southeastern United States, features: poor man's weather glass, Rocky Mountain columbine, dwarf coneflower, lance-leaved coreopsis, sulphur cosmos, rocket larkspur, foxglove, indian blanket, spiked gayfeather, shale evening primrose, Missouri primrose, Mexican hat, clasping coneflower, black-eyed Susan and many others.

Go back and read each mixture slowly and outloud: Instant poetry!

From Stokes Seeds, Inc., 737 Main St., Box 548, Buffalo, NY 14240.

The Rocky Mountain Wildflower Mix contains sixteen varieties or more. Stokes doesn't identify specific flowers; instead they list the colors: red, white, blue, yellow, purple, orange and gold.

Their Eastern Canadian Mix features: red, white, blue, yellow, pink, and lavender flowers.

The Midwestern Mix includes red, white, blue, yellow, purple, and pink.

Additional sources for prairie grasses and flowers:

Prairie Associates
6328 Piping Rock Road
Madison, WI 53711

Prairie Nursery
Rt. 1, Box 116
Westfield, WI 53964

Prairie Ridge Nursery
Rural Route 2
9737 Overland Road
Mt. Horeb, WI 53581

Some places to write for meadow grasses and flowers:

Gardens of the Blueridge
(Plants only)
P.O. Box 10
Pineola, NC 28662

Herbst Bros. Seedmans
1000 North Main Street
Brewster, NY 10905

Lofts Pedigreed Seed, Inc.
Chimney Rock Road
P.O. Box 146
Bound Brook, NJ 08805

Bee Talk

By RICHARD TAYLOR
Route #3
Trumansburg, NY 14886

I ALMOST never quote from correspondence in this column, but last summer I got a letter from Mr. Charles Gibson, in Ohio, which summarized in just a couple of paragraphs the central point of my method of keeping bees, so I hung on to it. Here is what he said:

"I produce comb honey only in shallow supers with nine frames per super. The summer of 1979 was my best year, having produced over six hundred pounds of excellent honey from three hives. I have never averaged less than one hundred pounds per colony. Swarming has never been a problem for me. I have learned not to bother my bees any more than is absolutely necessary. I have not checked into my brood chambers for years. I always leave two full shallow supers of honey for the winter, and I have found that the nine frame spacing gives the bees more room to form a cluster in severe weather. Then, in the spring, usually the early part of April when the temperature reaches at least 70 for the first time, I slap a super on each hive, to give them plenty of room to get started and to prevent swarming to a great degree. I do not believe much is gained by requeening and constant manipulation. Bees do better if left alone."

I think you would have to go through a lot of bee books to find more beekeeping wisdom in as few words as that. Note the three basic principles: Plenty of winter stores, not just to get the bees through, but to get them built up fast in the spring; early supering; and let alone.

Lots of beekeepers, especially when they are just getting started, fuss and fret with their bees, constantly opening the hives to check this and check that, and meanwhile, quite often, neglecting the things they really should be doing, like getting the supers on early enough.

I'm afraid I am not able to be quite as indifferent to swarming as Mr. Gibson manages to be, but I come fairly close. Maybe this is because I have lots more bees. In any case, like him, I don't go opening up brood chambers unless I have a very good reason to, which is rather seldom. But when a colony is so strong, at about the swarming season, that I think it is likely to throw a swarm, then without any fooling around I split a nuc out of it, and that usually works pretty well.

I was much impressed years ago when I read, in C. C. Miller's *Fifty Years Among the Bees*, how he never painted his hives. He said they didn't look especially good, but he wasn't interested in that. His interest was in seeing how much honey he could produce with them. And he also said he didn't care how much honey he got from this or that individual colony, except, occasionally, to boast about it. He was interested, instead, in how much honey he got altogether, from all his bees, since he was trying to make a living raising honey.

I've always kept that in mind. It has been years since I have painted a hive, and if you were to see one of my apiaries, you'd say that some of the hives could certainly use a coat of paint. And I would agree, but of course, the bees don't care; they were storing honey in the hollows of unpainted trees before we human beings even appeared on the earth. And I don't get upset, either, if the bees find some crack or hole in the side or back of the hive which they prefer to the regular entrance. Lots of my hives are like that. They are weather-worn, and have developed a few cracks and holes here and there, and the bees think that's just fine. I suspect that improves ventilation in winter, too. In any case, I have better things to do than be constantly repairing things that are just as well left as they are.

Now this "let alone" approach to beekeeping is not the same as neglectful beekeeping. Some things really matter, and you do have to do them right, and do them on time. But usually this just means doing things right in the first place. For instance, you should have the frames spaced correctly when you get the hive going, then after that, you can pretty much leave them alone. And you should get the hive set up right, in a good spot, and kept up off the ground so the bottom will not rot out, and then you're all set. It is surprising how many things have to be done only once and then, provided they were done right, all sorts of problems are simply avoided.

I love bees, but what I love most is strolling around the bee yard, watching the stream of bees coming and going during a honey flow, and seeing the supers fill up with honey. It can all be quite simple, and totally joyous, if you don't get bogged down in lots of unnecessary things. In this respect it is something like gardening. Some gardeners do spend lots of time in their gardens, getting every last weed out, and dealing with bugs. Well, I use lots and lots of mulch in my garden, early on, to keep the weeds down. From time to time I pull a weed here and there, and I don't worry too much about bugs. I try to have an extra tomato vine, so that the tomato worms will have something to eat without cutting into my tomato crop very much, and I get all the vegetables I want, with plently left over for my friends. That way I harvest a great deal of joy, along with the beans and squash and everything, and without any risk of breaking my back or overdoing things. □

Gleanings Mail Box

What The "L"?

Dear Editor:

It was interesting to read about the Snelgrove swarm control method (*Gleanings*, May 1981), but you might have spelled the guy's name right: there's only one "L"!

Readers may be interested to know that a new edition of L. E. Snelgrove's book, *Swarming, Its Control and Prevention* has just been published by Snelgrove & Smith, Pleasant View, Bleadon Hill, Weston-supree-Mare, Avon, England, BS24 9JT. Price three pounds plus postage. About nine dollars should cover it. The book is well established as a standard testbook in the British Isles.

Ray Williamson
40 newbery Rd.
Lytham, St. Annes
England, FY8 1DG.

(Continued on page 662)

Beekeeping Technology

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

Thermoregulation Of Honeybee Colonies

HONEYBEES HAVE developed temperature regulation to the highest degree found in any insect community. Behavioral procedures enable honeybees to produce heat during cold months while other behaviors allow heat to be dissipated during summer months.

To date, there is no evidence to indicate that heat production of individual honeybees is abnormally high either in flight or at rest abnormal as compared to other insect body temperature values). The temperature of a single honeybee at rest approaches that of the environment. During muscular activity, heat production rises significantly. Herein lies the solution to heat production — muscular activity. At an ambient temperature of about 18 C, clusters begin to be formed. Basically, the cluster consists of an outer shell of insulating bees around the remaining bees and brood. By the time the outside temperature is 13 C, an obvious cluster has been formed with an internal temperature of 20-30 C. During periods of brood production, internal temperature usually approaches 35 C. By internal flexing of flight muscles, bees inside the cluster produce heat. Latter instar larvae and capped brood produce about the same amount of heat as resting workers.

As the temperature drops, the outer shell becomes tighter with individual bee heads pointing inward. Circular abdominal motions by insulating bees may be observed at low temperatures. This movement or motion encourages internal bees to produce more heat to prevent the insulating shell temperature from dropping below 10 C. The notion that chilled insulating bees move inward while warmer bees move outward is unsubstantiated. As ambient temperature rises, the cluster begins to loosen to allow internal heat to escape. In order to maintain heat production, the cluster must constantly be in touch with food stores. During cold weather the cluster does not move slowly to new stores, but rather must have warm days to re-locate at new sites within the colony.

On the opposite extreme, cooling the hive interior may be required during summer months. At temperatures between 30-34 C, fanning bee are located at strategic sites in the colony in such a manner that a draft of air is pulled from the outside through the colony and usually exits through another hive opening. If another opening is not available, the air will be exhausted on the opposite side of the air intake. Around temperatures of 35 C, water (evaporation) is used inside the hive to lower temperature. Water collection is intiated by nurse bees in the brood area, normally the warmest area of the colony. The behavior sequence is complicated but may be broadly outline as follows. As the temperature rises above 35 C, nurse bees deposit the contents of their crop (60% water) in nearby cells to produce the initial cooling effect. To facilitate evaporation, the crop contents are constantly stirred with the proboscis of the nurse bee. In this manner the sugar concentration of nurse bees' crop contents are greatly increased. These bees move to the periphery of the nest and demand a crop content exchange with other bees. In this way, all available moisture in the colony moves toward the brood nests while high sugar concentration moves away. As this source is depleted, attention turns to incoming foragers with lowest or poorest sugar concentration (ones with greatest water content). Bees with rich loads have difficulty in finding house bees to accept their load. Emphasis is placed on collection of "low quality" nectar, preferably near 100% water. As the temperature begins to fall, enthusiasm for low quality foods declines and once again highly concentrated sources become more in demand. Water cannot be stored in a colony, but for purposes of brood rearing and possibly temperature control, some bees may be used as "storage tanks" for water. These bees are usually found around edges of the brood nest.

An effort was made here to briefly discuss thermoreglulation of bee colonies. Many other important points that would have some effect on temperature regulation such as propolization, comb construction and exterior clustering were not discussed due to length limitations. □

Gleanings Mail Box

(Continued from page 660)

Timely Tips

Dear Editor:

I read in the letters section of *Gleanings*, a man states he can not use lye to clean and sterilize frames. I too have that problem. I find Sal Soda, or as it is sometimes called washing soda, to be a very satisfactory agent for that purpose. It leaves the frames looking like new and is as safe as soap.

Another thing I would like to mention. I have seen many plans for building a (hot box) for liquifying granulated honey. A worn out deep freeze is perfect. No alterations are necessary. Just provide a way to get an electric cord to the inside to connect an electric heater. In my case it happens to be an old milk cooler. They are already insulated better than anything one could build. Anyone who has one would be glad to have it hauled away. So there is no cost.

T. M. Thomas
Ft. Scott, Kansas

Monthly Honey Report

Continued from page 652)

some beekeepers reporting a 100 pound average per colony. Bees going into winter in good condition. Rainfall is normal. Sales slow due to slow down of economy in state.

Region 8

In Montana fall rain and snows improved moisture conditions and pastures are in excellent condition going into winter. About 50% of bees being carried over winter by trucking to California and making splits in the spring. Crop was average or better in most areas of Colorado. Retail honey sales are strong. Packers have adequate honey on hand to meet demand. Large amount of honey still in producers hands. Price to producer fluctuates with area as most producers are awaiting outcome of loan program and final analysis of honey on hand.

Region 9

Honey is moving slow at retail but expected to pick up after the first of the year. Bulk Mexican honey being offered at very competitive prices in California. Some beekeepers have withdrawn their honey from the open market due to current prices. Bees in fair condition with adequate honey. Beekeepers optimistic about citrus honey crop in spring. Are hoping to maintain last years almond pollination fee rate.□

Future of New Sugar Substitute Looks Sweet

Its commercial viability is probably at least five years away. Nonetheless, researchers are excited over the marketing possibilities of "left-handed" sugar, a chemical mirror image of normal sugar. Left-handed sugar, notes Research Institute of America Inc. (RIA), is mostly fructose, but it can't be broken down by enzymes. It's non-fattening, doesn't decay teeth, and is not a cancer agent. In addition to soft-drink, candy and gum possibilities, it's a good baking candidate because it'll brown, adds RIA.□

Green Honey

"The harvest of green honey is a delicacy that appears in fine shops about late May or early June."

By FANNY KRAISS DEVINE
Wooster, Ohio

ON THE SHOULDERS of the Alps, where they hunch their granite bones into the State of Baden-Wuerttemberg, the southwest region called "The Black Forest" casts its deep shadows into the narrow valleys. Thrusting green crowns against the sky are the evergreens, roots firmly buttressed in the thin layer of soil covering the rock. These are the trees that give the region its name: "Der Schwarzwald" — The Black Forest. The spruces: The common spruce (*Die Rottanne*) and the fir tree (*Die Edeltanne*), they are the "Tannenbaum" in our holiday song, for they are the European's favorite Christmas tree.

An occasional meadow serves as a "breathing hole" for the dense forest. On these patches the grass grows, flowers bloom, the long-eared hare plays in the sun, and pheasants parade their splendid feathers and then disappear into the underbrush. The wind sweeps across from the alpine peaks and blows through the resinous caverns beneath the dark, dark needle trees where the earth beneath is covered with last year's browned-out needles; and beneath these the spongy carpet of needles from years past, pleasantly damp for armored beetles and slugs to luxuriate in. An occasional green sprout of yarrow (*Schafsgarbe*) finds a sun's ray to grow by, but otherwise the oxygen-poor, acid soil offers little green underfoot.

Overhead, and all about along the paths, wonderful birds in brilliant plumage keep the wanderer company. These birds have the most melodious names, like: Rotkehlchen (Europe's version of our robin, with green on its back and tail); Dompfaff (bullfinch), a charming whistler; Misterldrossel, a thrush with the typical marking of that family, and a jubilant song; Schwarzspecht (titmouse), who looks much like our chickadee. The list goes on and on. Most are startling in their beauty, and many show hints of green in their feathers, which we usually don't expect to see outside the finch cage in someone's home on this side of the Atlantic. They all seem to have attended a Conservatory of Music in infancy, for one's ears are constantly serenaded from above, sometimes even from a lower branch so close as to startle the passer-by. These birds have little fear of humans.

In this unchanging green the heavy snows make the only seeming difference. But the renewal of life takes place here as surely as it does on the open meadow. When the April sun warms the snow and moisture-laden air blows its wakening breath upon the tender buds of the spruce and fir trees, the almost insignificant buds open near the crown of each tree, beneath the baby cones. Already beehives and their swarms with super on super supplied with wax comb are firmly stationed at intervals through the forest. The bees are patrolling their territory and the first really warm day rewards them. The buds at the top of their green towers spray out puffs of pollen and in an instant thousands of bees are attacking the buds for nectar and filling their pollen baskets, Taking pollen home for the larvae and nectar for making honey.

This is the brief season when that specialty of the Black Forest is produced: Gruener Honig — Tannen Honig (Green Honey).

In order for this delicacy to be available in the stores about June, the bees are protected in their industrious pursuit of the nectar. At this time no true Schwarzwalder, or "Schwabe," as the residents are designated, would think of making so much as a loud noise, not even a yodel! If the "Forster" (the Forester) finds it necessary to shoot a deer, the mission is delayed; even a tree that must be culled is left standing for the time being — for the sound of the saw might divert or distract the worker bees.

The harvest of Green Honey is a delicacy that appears in fine shops about late May or early June. It is displayed to full advantage in attractive cases — showing off the small jars of honey the color of mint green, transparent and refreshing, reminding one of the delicate needles that would soon follow the buds. When you visit the Black Forest, stop in at one of the sidewalk cafes or a Konditorei (a beautifully decorated coffee house with pastry shop combined) and order Melitta Kaffee, Broetchen, suesse Schweizer Butter und Honig, Gruener Honig! Translated: a very fine quality coffee, similar in taste to Turkish coffee, chewy hard rolls of fresh-ground unbleached flour baked on the hearth (an incomparable flavor), sweet Swiss butter, and Green Honey.

The people of the Black Forest are very hospitable. You will probably be invited for afternoon coffee by the first family you meet. Do take a jar of Green Honey as a hostess gift which is known to them as a "Mitbringsel."

The native wisdom and wholesome humor of these people will forever enrich and delight you. When I spoke to a walking companion of the restfulness of all that wonderful green, he said: "Green is good for the eyes. I have yet to see a rabbit wearing glasses."

Accommodations are available from a simple room in a private home to the most luxurious hotels. But the cleanliness is always the same, impeccable. If you speak the native language then the experience of staying with a private family oftens leads to lasting friendships. □

Trailer Beekeeping

By ELLIOT WATSON
Lookeeba, OK

We use trailers to move and work bees. As you will note from the photographs and the drawings it is possible to do much of the construction in a home workshop once the basic units are aquired. Maybe these descriptions will help someone come up with even better ideas.

Hives on trailer. Geometric patterns are used to help bees identify their own hives.

View of full length of trailer with sun shade.

Hive Lifter

These trailers are twenty foot long and hold ten hives. To keep costs down I use car spindles and wheels. The material in a trailer will cost about $220.00 at current costs, not counting the shade and its supports.

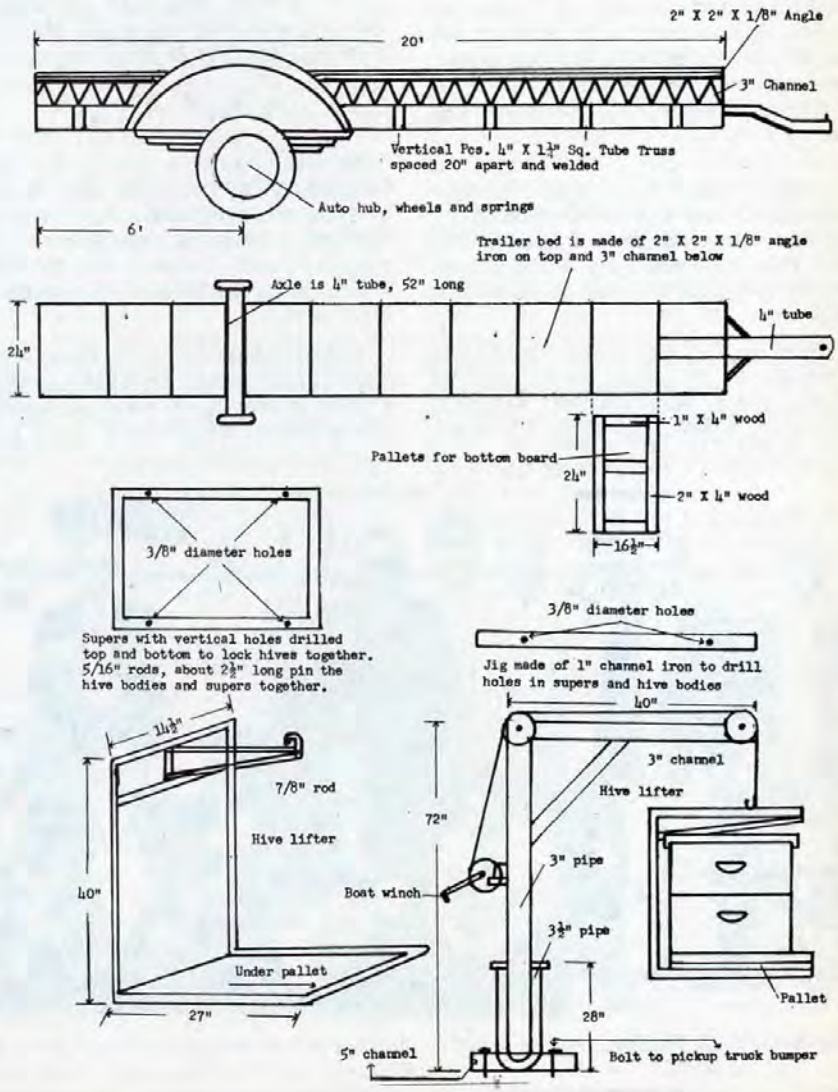
A pallet is made to fit between the angle irons on top of the channel frame. We nail the hive bottom board to the wood pallet.

The jig for drilling the holes in the bottom board and in the sides of the hive is made of one inch channel iron material cut as long as the bottom of the hive. The holes must be the same distance from each end. Drill deeper on the bottom than the top. The pin is a 5/8 inch rod about 2-1/2 inches long. A pin in any two holes will do. I would suggest the holes in the top of the super be one inch deep, the holes in the bottom of the super be drilled 1-5/8 inch deep. You need a little more hole than you have pin.

A rope or truck tie down over the top of the hive will hold the hive together in a high wind or while traveling on the road.

The hive winch comes in very handy to load the hives. I don't find people running over one another to help me load hives that I can't load by myself.

(Continued on page 683)



Book Review

Cria De Reinas Y Jalea Real Insemination Artificial, by J. F. Martinez Lopez. Eighty-five pages.

This book, in Spanish, is on the subject of artificial insemination of queens. It is a complete treatment of the subject with many illustrations and drawings. For more information write to the author-editor J. Felipe Martinez Lopez, Apartado Postal 827, Merida, Yucatan, Mexico.

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The Healthy Taste of Honey, by Larry J. M. Lonik. The Donning Company publishers, 5041 Admiral Wright Road, Virginia Beach, VA 23462. One hundred and sixty pages, plus index. Five and a half by eight and a half, soft cover. $5.95.

The honey recipes of this new book are interspersed with a wide variety of information and lore about bees and honey. There are many interesting photographs and drawings which enliven the printed pages. Author Larry J. M. Lonik is a native of Michigan and a man of many interests and talents among them being an investigator of the bee world. Two and one-half years of research and thought have produced *The Healty Taste Of Honey.*

Valley Gold, by Anne Hutton. Petheric Press Ltd., P.O. Box 8171, Halifax, Nova Scotia, Canada B3K 5L9. One hundred fifty eight pages, paperback, size six inch by nine inch. $8.95.

Anne Hutton, the author, was commissioned by the Nova Scotia Fruitgrowers Association to write this book, a well told story of the apple industry in the eastern Canadian Province of Nova Scotia.

Much history is involved in the telling of the story of this important agricultural occupation. The photographs are interesting, a collection spanning the many years of development of the apple industry which dates back to the Acadian French settlements during the seventeenth century. The book is well researched.

The author has had articles in various rural oriented publicatons, including *Gleanings In Bee Culture.*

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Beekeeping For Fun, by Ray Chapman-Taylor and Ivo Davey, authors and publishers, 72 Nile Road, Milford, Aukland 9, New Zealand, 222 pages, soft cover, $12.00 U.S. Postpaid by surface mail, airmail additional.

Hobby beekeeping is booming in New Zealand and this book comes at a time when many new beekeepers are seeking information. This book grew out of a smaller book by Ray Chapman-Taylor and Tom Dixon.

The full range of beginning beekeeping is discussed. Although terminology, equipment descriptions and illustrations and seasonal references are different than what Americans are accustomed to the principles are basically the same.

Line drawings by Kingwell Malcolm add considerably to the clarity of the descriptions included under the various subjects.

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The Beekeepers Handbook, by Owen Myer. Thorsons Publishers Limited, Denington Estate, Wellingborough, Northants NN8 2RQ, Enland. Two hundred-fifty-four pages, paperback. 4.95 English Pounds.

The author has been a beekeeper for thirty years and now, in this well illustrated book uses a wealth of experience to give sound, practical advice to beginners and advanced beekeepers alike.

* * * * * *

The Beekeepers Handbook will encourage non-beekeepers to perhaps start a couple of colonies and yet will suggest to more experienced beekeepers some ideas to improve beekeeping practices.

Owen Meyer is a former Secretary of the British Beekeepers Association and is the author of *Basic Beekeeping.*

This book is comprehensive and is excellently done. It will be a good addition to many beekeeping libraries. □

Burmese Visit Medina — Vistors from Burma touring agricultural points of interest in Ohio recently included The A.I. Root Company in their itinerary. Pictured are the Burmese, including some who are students in commercial beekeeping at the Agricultural Technical Institute in Wooster, Ohio, and personel of ATI and the Root Company.

Kiwi Beekeeping — Part II

By TOGE S. K. JOHANSSON
Queens College of CUNY
Flushing, NY 11367

HIVES AND EQUIPMENT. I had the opportunity to review the preliminary draft of the proposal for metrification of the New Zealand hive, and expressed regret that the hive was ¼ inch narrower than hives used in the United States. But I now understand why there is no problem with the narrower space since 9 frames are used in the brood chamber instead of 10, and 8 or even 7 frames in the honey supers. The combs are very bumpy, but they are smoothed off with the uncapper.

Since the winters are mild, there may not be as much need to transfer combs of honey from colonies with a surplus to those short of stores. But whenever manipulations call for transfer of combs of brood and honey from one colony to another, it is useful to have combs that occupy the same space, and the bee space principle is then appreciated. The space is adequate for 10 frames in new equipment but not after a period of use when propolis and wax have built up on the surfaces. G. M. Murray is now a member of the Standing Commission for Beekeeping Economy of Apimondia which has set up a committee to discuss the universal adoption of the metric measurements recommended and adopted by New Zealand. Danish beekeepers have adopted these measurements, and such equipment is now common in Papua New Guinea and Australia. A footnote can be added to the tables to advise those who desire or require space for 10-frames to add 6-7 millimeters to the internal width.

More generally than in America, Kiwi beekeepers have built devices for lifting heavy hives and supers including motor powered barrows and boom loaders. P. Pearson invented a hive tipper of light steel tubing to lift four supers of honey to inspect the brood nest. A neighbor, J. Syme, has incorporated a hydraulic lift in his version.

As with commercial beekeepers in the United States, hive equipment is often manufactured on the premises, using trimmmings that result from cutting boards to length. Some beekeepers also harvest logs on their property. Conditions for growing trees in New Zealand are so ideal that trees mature in 25 years. It was common to see the trunks of three trees making a full load on a large lumber truck. New Zealand has some of the largest tree plantings in the world, and recent additions are very conspicuous from the air. Bulldozers hooked to cables attached at the top of hills and mountains are used to prepare the surface. It may be some time before the new plastic hives can compete in price with wooden hives.

As a protection against fungi, hives are routinely dipped in a hot paraffin bath to impregnate the wood. If painted while hot, the paint is drawn in with the wax to fill the wood. Such treatment is also recommended for equipment that has housed colonies infected with American foulbrood.

Nectar and pollen sources. My first sight of New Zealand was the Kodachrome slides of F. E. Todd when I worked at the Bee Research Laboratory in Tucson, Arizona. He had gone ostensibly to visit beekeeping research facilities in Australia and New Zealand, and incidentally to attend the 1956 Olympic Games in Australia. It was startling to hear that seeds, fertilizer and lime were applied from the air, but two-thirds of New Zealand's farmland is too steep for wheeled vehicles. Nearly 90% of her export earnings are derived from agriculture, and that is based on pastural products. Increased use of superphosphates and trace elements has made this possible. The first rock phosphate from Florida to be imported in 15 years arrived while I was in New Zealand. Nitrates from the dung and urine of animals leaching into the ground water sources of some wells has increased to such an extent that it exceeds the World Health Organization limit by more than five times. These nitrates combine with amino acids in the intestines to produce nitrosamines which are thought to be carcinogenic. Bottle-fed babies can be at risk because the nitrates unite with the hemoglobin in red blood cells.

As increased numbers of animals are carried per acre, the pastures are cropped much closer leaving less forage for bees. Other changes in agricultural practices have affected honey production adversely: (1) cutting hay more efficiently; (2) substituting wire fencing for gorse (*Ulex europaeus*) hedgerows; (3) using herbicides to control weeds such as dandelion (*Taraxacum officinale*) and buttercup (*Ranunculus sp.*) in fields and along roadsides which reduces pollen sources for spring build-up; and (4) spraying plants considered noxious weeds but which provide forage for bees: gorse, broom (*Cytisus scoparius*), blackberry (*Rubus sp.*), and thistles (*Cirsium carduus*). Planting willows (*Salix sp.*) for erosion control is a cheerful note since they are an important source of pollen.

The New Zealand Tree Crops Association was organized in 1976, and membership now exceeds 1,000 with ten branches. There is an active interest in promoting the selection, propagation, and planting of trees to enjoy the utilitarian and esthetic benefits they provide. Many of the species considered for two tier farming do provide nectar for bees. The Forestry Division and other agencies are cooperative as are Apiary Advisors.

New Zealand has a unique native flora and fauna to which has been added species introduced from the home countries of the early settlers. It apparently did not occur to them that without predators the introduced animals such as deer, goats, opposum, pigs, rabbits, etc. would reproduce to excess. Not only do these animals compete with sheep and cattle for forage, but they also create havoc in the forests and cause erosion on steep hills and mountains. The small predators that were introduced such as domestic cats, ferrets, stoats, and weasels are devastating to the bird populations.

The control of the widespread red deer begun in 1930 has had an interesting twist recently. The animals are now shot with tranquilizer pellets from helicoptors, and transported by means of a sling to deer farms where the "velvet" on their antlers is harvested for export to Asian countries for use as an aphrodisiac. It is ironic that this lucrative trade resulted from ignorance of the delicate balances in the environment just as the exploding human populations in the countries buying the velvet is fueling the increasing agricultural production in New Zealand. Apparently humans are as helpless to control their destiny as that proverbial moth flying to the candle.

Marketing. A third of the honey pro-

(Continued on page 668)

Kiwi Beekeeping — Part II

(Continued from page 667)

duced is sold by beekeepers to consumers at the back door, others sell their crop to packers, or beekeepers who pack honey for the retail trade. Kiwi's enjoy the highest consumption of honey in the world with four pounds per capita compared to the two pounds of West Germans, usually cited as a benchmark to contrast with the slightly more than one pound consumed in the United States.

Approximately one-third of the total average honey production of 7,000 tons (2240 lb/ton) is sold to the New Zealand Honey Marketing Authority, established in 1953 to promote the marketing of honey locally and abroad. The Authority exports approximately 1,000 tons of honey, although, individual beekeepers can also be licensed to export honey under supervision of the Department of Agriculture. A levy is paid on all honey retailed in New Zealand for the purpose of (1) promoting honey locally and overseas; (2) providing an annual grant to the National Beekeeper's Association; and (3) giving assistance to other aspects of the industry's development. There is a proposal to create instead a Honey Producers Marketing Co-operative that would be immune from industry politics and be responsive to the needs of shareholders.

All honey supplied to the Authority is graded by the Department of Agriculture Honey Grader to ensure a uniform type of honey for exporting and blending for the local market. With increasing world demand for darker and more flavorsome honey, the standards are being revised to not discriminate against producers of darker honey and lose potential sales abroad. This change in bias is good news for those of us who extract amber honey which costs as much, or probably more to produce since the production per colony is less than in the high-average legume regions.

The formerly despised honeydew honey produced by aphids and scale insects as a by-product while feeding on the sap of trees, is now fetching twice the price ($1.24/lb.) of less flavorsome, light honey. The very dark German honeydew called forest or woods honey has traditionally been prized and commanded a higher price. New Zealand beech honeydew is a unique product collected by the bees from the sugary exudate of the soft scale insect (*Ultracoelostoma assimile* Maskill) which infests five species of native beech (*Nothpfagus sp.*). The honeydew I tasted was as delicious as the various other honeys I had the opportunity to sample. It is interesting to contemplate the effect on honey consumption if packers pitched out the Pfund color grader along with the irrelevant refractometer.

A section comb honey producer's association promotes their product with full page color ads in trade magazines, and markets their product in Europe and Middle Eastern countries such as Iran at $23/dozen (1979). Arataki Honey Ltd. uses an ingenious machine to cut sections from combs of honey, and a machine to wrap the sections.

Since New Zealand does not import any honey, they are not concerned about adulteration with high fructose sugar, nor the dissemination of American foulbrood spores from reused containers or retail jars in dumps. There is a brisk market in pollen for human consumption, and the prohibition against importing bee products should include pollen. Since New Zealand is presently free of chalkbrood (*Ascosphaera apis*), there is a potential for supplying beekeepers in the United States and elsewhere that require pollen for bee feed.

The average production per hive is sixty-five pounds (30 kg) but commercial beekeepers in prime areas do considerably better than this. As sugar feeding for winter becomes less economical more beekeepers are taking their bees to the bush (forest) to build them up, and are producing saleable honey in the bargain.

In my conversation with the honey grader, C. G. Rope, I heard the familiar story of drums of honey sitting on the docks at Hamburg, West Germany while the contents are being debated. Having spent a month in the laboratory at the University of Hohenheim where honey analyses are made, I appreciated this problem in semantics. In trade practice the honey gathered in North Auckland and the Waikato may be labeled clover, when in fact it is collected from blackberries. When Dr. G. Vorwohl at Hohenheim does a pollen analysis, he discovers the source of the honey is at variance with the invoice. If beekeepers are aware of these discrepancies and label their honey accurately, the arguments about source can be avoided. When buyers purchase single source honey at premium prices, they expect to find evidence that this is in fact what they are getting.

When I returned from New Zealand, I saw five creamed New Zealand honeys in the delicatessan at the Port Authority Bus terminal in Manhattan selling for $2.45 in one pound jars. It would seem that the white crystals and layered appearance would inhibit sales, but the labels were delightful: buttercup, kamahi, lotus, manuka and the mainstay white clover.

Pollination. On the flight to Auckland I learned of the New Zealand farmers' awareness of the value of honeybees as pollinators of plants that contribute 20-30% of the diet of their livestock. One of my fellow passengers, a former Kiwi stewardess now married to a California rancher, commented on the scarcity of bees in the countryside compared to New Zealand. Widespread dispersal of New Zealand apiaries makes organized pollination service far less common than in California. Permanent apiaries are established in white clover and most fruitgrowing areas with some exceptions. Recently the need for pollination of kiwifruit has caused a demand for bees at a current rate of $30 per colony. Some beekeepers are paid to move colonies into fields of red clover or alfalfa for seed production.

Bumble bees were imported in 1885, and alkali (*Nomia melanderi*) and leafcutter (*Megachile pacifica*) bees are now being established in the hope that they will pollinate alfalfa as successfully as in the western United States. F. E. Todd's assessment in 1956 that New Zealand lagged behind the United States in providing adequate pollination for seed production may soon be outdated.

If agricultural practices eliminate minor nectar and pollen sources that bees depend upon between field crops, there will be fewer or no, permanent apiaries in the vicinity of fields that need pollination. Then it will become necessary to rent bees from migratory beekeepers who maintain their colonies in marginal areas. To date, a cheap artificial pollen substitute to build up colonies to peak just as flowers requiring pollination begin to bloom has not proved successful unless the substitute is mixed with 20-25% pollen.

Diseases and pests. European foulbrood (*Streptococcus pluton*) is not present in New Zealand at present, but American foulbrood (*Bacillus larvae*) is, and the Apiaries Act contains provisions to prevent the spread of this or other potential diseases that might be imported: (1) bees kept at any site for more than 14 days must be registered as a permanent or

seasonal apiary; (2) an apiary if it is more than 200 meters from the beekeeper's residence must display a code letter and number assigned by the Registrar of Apiaries for the district; (3) registration of a seasonal apiary is canceled if bees are not kept at the location for a period of two consecutive years; (4) a beekeeper must notify the Registrar within fourteen days thereafter when a permanent apiary is vacated; (5) written consent of an inspector is required to remove or transfer bees from one location to another; (6) bees or appliances may be removed from one registered apiary to another for the purpose of extracting honey or management if the bees, appliances and apiaries are owned by the beekeeper, and are free from disease; (7) beekeepers must inspect their colonies for disease during August to November inclusive, and file a written report; and (8) when disease is present, beekeepers must take care not to expose any honey, bee combs, or appliances from an infected hive until after those materials have been thoroughly sterilized to the satisfaction of an inspector. At the request of the bee industry, the general penalty under the Act has been increased to a maximum fine of $2,000. There is an additional fine of $1,000 for each queen bee imported or attempted to be imported without a permit.

The role of the Ministry of Agriculture and Fisheries in disease control is to ensure that beekeepers carry out their obligations under the Act, and the success of that effort is evident in that only 3-4% of the 17,200 apiaries are infected with American foulbrood, and 0.5-0.6% of the 211,000 hives. Less than 10% of the beekeepers own 90% of the colonies, and 352 beekeepers have more than 50 colonies. The use of drugs in treating diseased colonies is not permitted, and infected equipment must be burned or scorched. The increasing incidence of disease in countries where drugs are depended upon, the problem of drug residues in honey, and the potential selection of drug-resistant disease organisms reinforce the New Zealand position against the use of drugs. One apiary I visited had a large concrete tank built in the 1920's for treating combs with formaldehyde, one of the several techniques recommended to beekeepers to disinfect for American foulbrood that has proved unworkable.

When I arrived in New Zealand a petition was being considered to permit the importation of pollen from abroad. I was able to report information from the American Beekeeping Federation Convention I attended in San Diego a few days earlier that chalkbrood (*Ascosphaera apis*), and the insidious mite (*Varroa jacobsoni*) could be imported along with the pollen. Bees have not been imported into New Zealand for the past 27 years for fear of introducing the acarine mite (*Acarapis woodi* Rennie), but unfortunately an amendment in 1978 excluding bee products did not specify pollen as one of these. Hopefully, this will be included in the next revision now being debated. One of the issues is the provision of indemnity payments to beekeepers for the destruction of colonies infected with acarine and *Varroa* mites, but such payments are not available for the brood diseases. *Nosema apis* has not been a serious problem since an epidemic in 1946-47.

The mild winters make wax moths (*Galleria mellonella, Achroia grisella*) a serious problem and methyl bromide gas is widely used as a means of controlling their depredation. One beekeeper uses space in a nearby freezing plant to protect his extracted combs. In the United States there is a study underway to determine whether bromide is incorporated into the wax. In the event it is, a search is being made for a virus that will provide effective biological control. The German yellowjacket (*Vespula germanica*) is a serious pest in New Zealand causing greater economic loss than American foulbrood. The yellowjacket was accidentally introduced in 1922 and became firmly established after World War II. They build large paper nests in which some may survive the mild winters. This same insect was apparently established in the United States by 1968 and has since undergone a population explosion, hanging out around hamburger stands, trash baskets and anywhere that sweet or meat products are to found, particularly in urban settings. At our local bus stop the long line of waiting passengers makes a discrete loop around the trash basket full of discarded cans of beer and soda with its buzzing cloud of wasps carrying away the goodies.

Research. Apicultural research is centered at the Wallaceville Animal Research Centre in Upper Hutt under the direction of P. G. Clinch. The laboratory is also responsible for diagnosis of disease, and evaluation of the toxicity of new agricultural chemicals on honeybees. The Apiaries Act of 1969 is a model of legislation that could be emulated by other countries or states. Sprays or dusts toxic to bees can be used only with a permit in accordance with specified conditions. No spray or dust can be applied "when flowering plants which attract bees are present in such quantities within these crops that any such applicaiton would be likely to damage or destroy foraging bees". It is not likely that the insidious encapsulated pesticides that have created such a serious threat to beekeeping in the United States would get approval. The regulations are implemented jointly by the Apiary Advisor or Instructor and the Farm Advisory Officer for the district concerned.

The subjects undertaken for investigation concerning pollination, disease control, management etc. arise from suggestions by beekeepers or apiary field staff. One project involved the development of equipment for obtaining samples of honeybees, and a rapid method of examing honeybees for *Nosema* spores[2]. Apiary Advisors or Instructors may assist with field work, and they also undertake experimental work on their own.

Libraries and documentation. New Zealand is a literate country with well stocked book stores in even moderate sized towns. On a Saturday morning the Wellington Public Library was crowded with a long line at the check out counter. For those who live in isolated, remote rural areas it is difficult to gain access to libraries, and acquiring a personal library may not be affordable. Inaccessibility to special collections such as beekeeping is not a problem unique to New Zealand. Only those who happen to live nearby, or can afford to travel, or choose to use their discretionary income in this manner can consult such collections.

The major collection of bee literature is to be found in the Ministry of Agriculture and Fisheries Library at Wellington, where the International Bee Research Association publications are also filed after making the rounds of the Apiary Advisors and Instructors. The Issac Hopkins Collection is housed in the library of the Department of Scientific and Industrial Research at Lincoln, and the National Beekeepers' Association of New Zealand maintains a lending library for its members.

The various branches of the Ministry that I visited had small libraries, and occasionally I had time to scan volumes of the *New Zealand Journal of Agriculture,* and the *New Zealand Beekeeper*, both excellent sources of information concerning equipment and management devised

(Continued on page 670)

Kiwi Beekeeping — Part II

(Continued from page 669)

by ingenious Kiwi beekeepers. Major articles from both journals are listed or abstracted in the *Apicultural Abstracts*. G. M. Reid and G. M. Walton are compiling a bibliography of books and articles on New Zealand beekeeping that should be very useful. A facsimile reprint of the first edition (1848) of W. C. Cotton's *A Manual for New Zealand Beekeepers* was published in 1976. Cotton purported to provide information unavailable in European books for keeping bees in New Zealand. He noted the propensity of New Zealand honey to granulate, and this is the form in which most New Zealand honey is marketed.

General and special impressions. New Zealanders are friendly, cheerful people with well behaved children, and they are kind to their environment. It is difficult to find litter on streets and beaches, and they do require a deposit on bottles. Verandas over the sidewalks in business districts protect against sun and rain, and the discrete signs on stores do not obtrude and obscure traffic signals. If the experiences gained by traveling were limited to those promoted in travel brochures the effort and expense might still be warranted, but it is often the unexpected such as attending a play rehearsal, or commonplace occurrences like a slow walk through a supermarket that we remember and cherish.

A fortuitous visit to a courtroom in Christchurch with judge, prosecutor, and barrister very British in wigs and robes was fascinating. The unscheduled stop at a geriatric hospital with facilities and care that are probably unexcelled elsewhere in the world was in sharp contrast to the hospital where I go to donate blood! A trip up North Island on the elegant Silver Fern provided a last close look at exhilarating New Zealand scenery, as well as the marvelous experience of traveling on a train that should be the model for our Amtrak. But a plane trip from Nelson to Invercargill permitted an overview of the land literally from "sea to shining sea."

Where else could you have a renowned national meringue dessert (Pavlova or Pav) for breakfast? It was created by a chef in honor of Anna Pavlova's graceful dancing on a visit to Australia. In Rotorua I experienced my first earthquake tremors, their first in six years. After many laughs at the adventures of the incomparable sheep dog in the comic strip "Footrot Flats", H. Cloake arranged the thrill of watching real sheep dogs expertly herding a flock around us with Mt. Cook as a backdrop. I have just now acquired two handsome wool shirts from New Zealand at a local store and speculate whether I might have seen the very sheep that grew the wool. After driving past approximately 3,000 miles of sheep, it is not all that improbable.

My only regrets are the scarcity of time for more one-on-one conversations with beekeepers and other New Zealanders, and, after the pleasure of reading most of Samuel Butler's books, failure to make a pilgrimage to his sheep run at Erehwon. The details a visitor notices and remembers about another country are individualistic. Everytime I struggle to open or shut a window in our apartment, I remember the performance of comparable New Zealand hardware. Our kitchen sinks are set with a dirt catching rim on top of the counter; in New Zealand the counter edge is placed on top of the sink, and a slight bevel on the front and ends of the counter prevents spills running onto the floor. Advertisements for the various American toilets promise comfort, quietness, style, but not the downright dependable performance of the universal New Zealand standard. Kiwi's enjoy an enviable standard of living, but apparently refuse to invest in hyperbole. □

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Michigan Beekeepers

In the photo above, Christ Ott of Dundee, Michigan stands among sumac bloom in their five acre woodlot.

Below, Mrs. Ott is shown in the same stand of sumac which begins to bloom around July 1st in Monroe County Michigan. The Otts raise a variety of honey plants on their small acreage.

Questions and Answers

Q. In late May I bought four packages of bees. Three did well but one hive just didn't do much, in fact, it got just the lower hive body filled with brood and honey. I would like to know if perhaps this hive has an old queen and if I can requeen it this fall, or should I wait until spring? Another thing, I would like to know if I can take full frames with bees and put them in the poor hive. E.F. Nebraska

A. The package of bees which did poorly probably had a young queen but possibly she was not of good quality. Of course, there are other reasons, other than queen failure, which could cause one hive to do badly. The brood nest should be examined at intervals of no less than every two to three weeks during the summer to determine the progress of the queen or to detect other problems which may cause the colony to fall behind the others. Requeening may be successful in late fall but the population level could not be increased in a weak colony to bring it up to wintering strength. In the spring or early summer the transfer of combs of bees with honey and a limited amount of brood from healthy, strong colonies is an acceptable practice to strenghen weaker colonies but is not a good idea in the late fall. We suggest combining this weak colony with one of the stronger ones. In the spring one of the stronger colonies can be divided and the empty hive again filled with bees and a new queen.

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Q. A couple of my hives of bees were hard hit with the poison Sevin last summer. Now, very few bees are left. I don't know if there is a queen or not. Would the honey be OK for human use or to give to other colonies? Would the combs contain poison and be unusuable next year? Could I place each weakened colony over a strong colony and let the bees clean things up for next summer? How about leaving the colonies as they are for now, closing down the entrance and cleaning up next spring? F.H. Massachusetts

A. I doubt if there is an extensive contamination of the honey from the bees' exposure to Sevin, but we cannot be sure. In all probability most of the foraging bees that gathered nectar which was contaminated died in the field or on the way back to the hives, but we could be wrong. You did not indicate how many bees were found around the hives. If a large number of bees were found dead around the hives it may have indicated that the insecticide was carried into the hive with the nectar. Whether the Sevin persisted to contaminate the honey could only be determined by laboratory testing. Because of this uncertainty we would advise not to extract the honey for human use. If you wish to chance feeding a few combs from these hives do so in the spring and watch the results before feeding the balance. The risk is likely to be very low. The wax combs are not usually contaminated by Sevin, although the new encapsulated pesticides are another story; the contamination is retained by the comb and its contents for an indefinate period.

Since you are now in the middle of October the best approach may be to simply unite the bees with strong colonies for overwintering. If you do not want to chance the use of the combs you can simply shake the bees onto other combs which have not been in hives affected by the pesticide and then combine the colonies. Hives left empty outdoors, even though closed up, are subject to wax moth damage. If the weak colony dies during the winter the combs become damp and very often moldy. It would be best to add the bees to another colony and store the empty hives in a cool, dry building and fumigated for prevention of moth damage and closed up to keep mice out. In the spring the hives can be aired out and bees again placed in the hives without much chance of contamination or damage.

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Q. Please tell me what I can do to keep honey combs in a super so the wax moths do not get into them. I have only six hives and I just can't see extracting 10 frames of honey at a time. I like to wait until I get four to six supers before I extract. This saves me time and the work of cleaning up each time. C.H. Pennsylvania

A. It is not recommended that any of the chemicals presently available for wax moth control be used on combs which contain honey intended for human consumption. It would be much better to simply leave the supers on the bees until you are ready to extract the whole lot. They will receive the best of care until you are ready to extract.

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Q. I have some uncapped honey which I extracted last fall and is now beginning to ferment. Could this be fed to the bees if it is heated to stop the activity? E.B. Ohio

A. A limited amount of fermentation in honey does no harm if the intention is to feed it back to the bees from which it was taken. Heating the honey to about 140 degrees F. will stop the fermentation. The flavor may be affected by the fermentation but it would be satisfactory for bee feed. It would be better to feed it in the spring.

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Q. How can I keep a weak colony over the winter — feed syrup? M.W. Michigan

A. The concept of feeding syrup to over winter bees is sometimes interpreted too literally by inexperienced beekeepers, expecially during the fall season. No matter how much sugar syrup is offered to weak colonies in the fall they remain virtually certain to die during the winter; and especially so if they are north of the middle latitudes of the United States. It is much better to combine weak colonies with each other or with another strong colony in the fall. Weak colonies cannot store sugar syrup in sufficient quantity or of proper moisture content to compensate for indadequate honey supplies. Also weak colonies cannot respond to the stimulation of feeding in time to build an adequate population of bees for winter unless the feeding is begun at least six to eight weeks prior to cool weather. The very reason the colony is weak can continue to plague the colony despite intensive feeding, so the first task of the beekeeper is to determine and correct the cause of the low population level rather than begin indiscriminate feeding throughout the apiary.

Capping The News

THE EDITORS

"Beekeeping Small Ta'k"

Future of Hive Products

There has been considerable public comment as a result of some recent attacks made on the alleged deficiencies of honey in human nutrition and unfair comparisons have been made between honey and other sugars by some writers who pose as knowledgeable nutritionalists. It cannot be argued that nearly all sugars, particularly in the amounts which we consume, are not essential to good nutrition and may even be deterimental to our health.

In my opinion, which, unfortunately, no one asked, the true issue in some of the discussions about honey is to kill, under the guise of superior nutritional advice, an anachronism; to put a myth about honey dispassionately, neatly and permanently to death. This type of article answers, for the unquestioning reader, at least, whether honey is "good" or "bad".

It would be better if the critics of honey vented their venom, if you will excuse the analogy, on the agents who saturate our prepared foods with sucrose. In my opinion the greater evil is this force feeding of a high sugar diet, not the innocuous persuasion by gentle myths which, rightly or not, has promoted honey as an alternative; not forced it down our throats, as has much of the sugar we involuntaily consume.

Since honey is the principal and best known of the products of the bee to the public it has been singled out to bear the brunt of the attacks by self appointed guardians of our collective health. We can only speculate on where the next blow will fall; perhaps on bee venom therapy. One may doubt the benefits of being stung deliberately and repeatedly to relieve a condition, which, to one unaffected, may seem easier to endure than the hundreds of bee stings. I can understand the reluctance to challenge in public the judgement of an individual who has the physical courage to endure such punishment. Such obviously irrepressible souls would make formidable opponents for anyone who would dare attack the principle of venom therapy. Besides, apiotherapists, unlike honey lovers, are organized. Beekeepers who have seen, and perhaps suffered a massed stinging attack, can anticipate what it would feel like to be zapped by a horde of venom loaded mortals. Their collective reinforcement, whipped into a formidable force, could be directed against anyone who may be so foodhardy as to suggest that venom therapy is ineffectual; a panacea for whatever happens to trouble the patient. Not I. Live and let live, I say.

The devotees of pollen, like those who swear by honey are, at present, a disorganized lot and may expect to be challanged in their carefully nurtured rapture at any time. Whether in the pill form or stripped and preserved in the natural capsule from the legs of the honeybees, pollen is not something to be enjoyed, like honey. This may give a hint as to the type of disciplined individual who will swear upon a holy book that pollen is the answer to any number of failings, from poor appetite to impending baldness. There are also those rather questionable claims of certain athletic super stars who credit their performances to pollen. We hear testimony to the mystique of using pollen in their training program, testimony which is rarely questioned when it originated from the Olympian heights of the world of super stars.

So much for roasting pollen, which, by the way, is not a preferred method of handling I am told. Use it in the pure form, dried and preserved in a paper sack in the refrigerator, not in the freezer necessarily, but keep it in the door shelves where it will be handy for use. For those who skoff at we users of pollen there are being published pamphlets which have some interesting things to say to those who are uninitiated. Pollen could have a future in beekeeping, at least beyond its present role in nourishing the brood of the bees.

Propolis is being extensively explored in Europe. It is being experimentally prepared in solutions of alcohol and water, in salves and in such other forms of application as toothpaste. Propolis is being marketed as an ingredient in the above preparations as well as in the pure, raw state. Both experimental and practical results from the use of propolis in medicines and other applications shows promise but the research and development activity is mostly outside of the United States. In the future we may see the acceptance of propolis, in even the United States. The challanges to our non-acceptance of the so-called "natural pharmaceuticals" sometimes comes from individuals and groups with impressive credentials and popular support, particularly when these substances are safe, effective and cheaper.

To the beekeeper, propolis is an abhorrence. It sticks to the fingers, and stains clothing and skin with a tenacity which only a few solvents will erase. It clings to frames, queen excluders and the insides of hives where it remains tacky in summer and almost as hard as flint in cold weather. It tastes terrible and sticks to the teeth like a horrible green adhesive. I say, if someone wants my propolis they are welcome to it.

Perhaps royal jelly has had its day, back in the 1960's — or has it? Judging by the enthusiasm for this hive product among some of the Asian people, royal jelly has lost none of its allure or value as a rejuvenator, supplement, preservative or any number of other esoteric applications. A stoic, Asian regard for the practical application of logic does not seem consistent with some of the claims made in the pamphlet which address themselves to the subject of royal jelly. In any event, it is unimportant to the honeybee what man makes of royal jelly. Let them argue about abstractions, they would say, so long as it accomplishes the miracle of changing the destiny of the larva from worker to queen when the need arises in the colony.

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Research Review

By DR. ROGER A. MORSE
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Problems With Frozen Honeybee Semen

DR. JOHN HARBO, of the USDA's Baton Rouge, Louisiana Laboratory, is continuing with his studies of freezing as a method of storing honeybee sperm. Unfortunately, there is some evidence that genetic damage may occur in the second generation offspring from stock inseminated with frozen semen. Harbo states that "the results were not overwhelming" but that because of the information obtained researchers have hestitated to use deep freezing as a method of holding stock on a routine basis.

In these studies the semen was stored in liquid nitrogen at — 196°C. Although some of the sperm stored at such a low temperature is damaged and some killed, a good portion survives. However, the fact that genetic damage has shown up in some granddaughters of queens inseminated with this frozen semen poses many problems.

The development of a long-range bee breeding program is dependent upon several factors, money included. At the present time the only safe way to maintain breeding stock is through keeping large numbers of queens alive in normal colonies or nuclei. This is expensive and takes time and funds away from the research itself. If we had a cheap, easy, long-term way of storing semen from different lines, the research would be speeded up. As far as I am aware Dr. Harbo is the only one in this country or elsewhere who is seriously concerned with sperm storage. I think this is too bad and suggest it is an important research area that needs more attention.

Harbo, John R.
Viability of honeybee eggs from progeny of frozen spermatozoa. *Annals of the Entomological Society of America* 74: 482-486. 1981.

The Effect of Mt. St. Helens' Ash on Bees and Other Insects

Several entomologists from Washington State have contributed to a collection of articles on the effects of volcanic ash on insects in their state. The adverse effects of ash on honeybees were reduced by the unusally wet spring and early summer. Fortunately, pollination of the commercial fruit crop in the area was completed before the first ash was deposited on May 18.

The ash was so fine that bees had great difficulty removing it from their bodies and great numbers died from suffocation and dehydration. Many colonies of bees were killed outright. Others lost their field forces, which caused a host of further effects: 1) The weakened colonies quickly rid themselves of their drones. 2) Many colonies showed increased aggressiveness; no explanation was offered for this phenomenon but I wonder if the reason might be the reduction in foraging. 3) Supersedure occurred at an increased pace, perhaps because of a pollen shortage. 4) Beekeepers reported there was a strong tendency to swarm even in colonies with ample room. Some proposed that this might have represented an attempt on the part of the bees to escape the area, but no data were offered. I am aware that others in the past have suggested that a dearth can encourage absconding.

In addition to honeybees, alkali bees, bumblebees, leafcutters and others also suffered extensively. Natural disasters can often cause great problems; it will be interesting to follow the recovery of the beekeeping industry in the affected area.

Several authors and articles in *Melanderia* 37. 1981.

A Possible Bee Repellent

E. Larry Atkins of the University of California at Riverside reports that a synthetic insecticide, that normally kills bees, may be a good bee repellent under the right circumstances. The technical name of the material is permethrin. Atkins has tested the material on seed alfalfa and cotton; more tests are being conducted. To date, no one knows why this substance may repel bees.

Several people have investigated potential bee repellents over the years but no one has yet found anything worthy of further investigation. The results reported in the paper below, while preliminary, are encouraging. □

Editor
Permethrin is a potential bee protector. *Agrichemical age 25*: (August-September) 18. 1981.

Capping The News

(Continued from page 672)

One has to be philosophical about the future of the various hive products. It is typical of the nature of man to be contentious about accepting an unknown when it relates to the health and well being of that individual. This is not necessarily bad. However, who can really say but what, some day, one of the so-called byproducts of the honeybee may become of greater importance and value than the honey. We are aware of the value of the honeybee in pollination, estimated to be many times the value of the honey crop, but other hive products may some day surpass even this acknowledged merit of the bee. Meanwhile, we should not be impatient with the critics who advise caution and demand accountability for statements and proof of safety and performance. An old Chinese proverb says "Patience is power; with time and patience the mulberry leaf becomes silk" — but whoever can afford silk? □

Economic Facts About

By GRANT D. MORSE
Saugerties, NY

BEEKEEPERS ARE customarily classed as commercial, part-time, and hobbyists.

Producers who own more than 600 colonies are labeled commercial. Nationally, about 60 percent of our honey is produced by large commercial operators.

The Census of Agriculture (1974) indicated 4,656 commercial operators in the U.S. with an average of 1,200 colonies per operation. Some operators own as many as 17,000 colonies.

Part-time operators are made up of those owning 25-599 colonies. The average number of colonies owned by part-time producers in 1974 was 100. Part-time operators are estimated to produce approximately thirty per cent of the national crop. They are calculated to number 190,000 individuals. They tend to sell a considerable part of their honey to local retailers. Yet, nearly half of their production is marketed in 60-pound cans and 55-gallon drums to processors.

Hobbyists are normally made up of those owning fewer than twenty-five colonies. They tend to market most of their honey locally.

The number of colonies of honeybees being operated in the U.S. is declining, being 5,916,000 colonies in 1947; 5,005,000 in 1960; and 4,084,000 in 1978.

Honey yields have likewise been declining. In 1960 the average yield per colony was forty-eight pounds; in 1977 it was forty-one pounds. The causes for the decline have not been documented but may very likely stem from a decrease in good nectar sources, widespread use of pesticides, and unfavorable weather conditions.

Despite the decline in production nation-wide, some states have maintained their yields, for example, North Dakota, South Dakota, and Minnesota. In this connection, it is noteworthy that the level of rainfall in that area is usually high. In 1980 it was 100-150 per cent of normal. My experience in beekeeping is that adequate mositure is the chief key to a good nectar flow.

Florida is another state that had rather high yields from 1960 through 1979. Its yield per colony ranged as follows: 1960 — 70 pounds; 1979 — 78 pounds. Its low point of production was in 1977 when the yield was only 40 pounds. I have observed that many Florida grove operators provide an overhead supply of water for their citrus trees.

Another probable reason for the consistently high yield in the Plains States I have listed is the presence there of extensive plantings of alfalfa-clover. Also, the plantings in that area are normally in the same locations year after year, thereby enabling the beekeepers to place their yards close to the nectar sources. This reduces loss caused when bees have long distances to carry their loads. There is consistency too in the nature of the source. It tends not to vary in volume of plantings from year to year, nor to range in nature as in some other states where there is a greater diversity of plantings.

A considerable decline in colony numbers (1960-1978) occured in the northeast portion of the U.S., the count ranging from 420,000 in 1960 to 255,000 in 1978. But the greatest decline in colony numbers occurred in the South where the fall-off was from 958,00 colonies in 1960 to 602,000 in 1978. The southeast maintained a fairly high level number, ranging from 971,000 colonies in 1960 to 933,000 in 1978.

In 1978 California was the highest honey producing state, followed by Florida and Minnesota. But in 1979 Florida and North Dakota outranked California.

Texas is an example of a state whose production of honey has markedly fallen off from a total of 14 million pounds in 1960 to less than nine million pounds in 1980. The reason assigned is the recent use of nectarless cotton in that state.

Local sales prices also tend to influence volume of production, one reason for the high production in Florida where the very high level of visitation by Northerners helps provide ready markets. In 1978 California produced 24,332,000 pounds of honey for an average price of forty-four cents per pound. Florida in the same year produced 23,852,000 pounds for an average of forty-nine cents per pound.

Package bee and queen sales form an important part of the bee business in California and in the Southeast. California's shipment of packages in 1979 was 500,000. From the Southeast the shipment of packages totals approximately 350,000 per year.

Processing Honey

Most of the honey retailed in the U.S. has been processed by specialists who buy the greatest portion of the U.S. honey crop in 55 gallon drums.

Processors treat the honey they buy by placing it in setting tanks of 16,000 pound capacity. Some filter the honey subsequently. Heating the honey to 155 degrees F. for one minute tends to suppress the inherent wild yeasts, and to retard granulation. Control of heating for the desirable short period, and evenly, is difficult for the small operator. He tends often to heat the product unevenly. Too long heating can darken honey and destroy its aromatic ingredients thereby causing loss of flavor — perhaps the most distinguishing characteristic of honey as contrasted with competing sweets. Some processors blend their honeys, usually before they cool below 90 degrees F. Blending, if attempted at temperatures below 90 degrees F., may cause each kind to separate from the others, partly because each has a different moisture content; storage at 68 degrees F. is customary.

There are thirty-five major honey packers in the U.S., the largest being the Sioux Honey Association which has plants in several different states, the largest being in Sioux City, Iowa. There has been a recent tendency to package honey in smaller size glass jars, chiefly the eight ounce and one pound sizes. Three pound cans seem largely to have replaced the five pound size due to the inclination and neccessity for housewives to economize. Of course, it is an economy only if the quantity used is small.

Competing Sweeteners

There is no doubt that competing sweets are reducing the demand for

Beekeeping Today

honey. That is a reason the sellers of honey must emphasize its true and peculiar virtues. Some of these virtues lie in its distinctive flavors, its nature (natural), its ingredients (mineral, etc.), and its semi-predigested quality.

Since 1965 beekeepers have lost a large portion of their industrial market, which uses 40 percent of their crop, to competing sweeteners, chiefly less expensive sugar syrups such as Isomerose which has a chemistry markedly like honey.

Commercial users of honey normally prefer the stronger flavored types. These are the darker colored ones, and so the producers of them have felt the competition most. Corn syrup substitutes for honey have been a chief competitor. They cost less than honey. In 1978 the price of honey for use in confectionary products ranged between three and five times the cost of glucose corn syrup, and four times the price of refined sugar.

The use of honey in some products such as soft drinks and candies has some disadvantages, among which are its variation in sugar content; but greater cost is probably its chief deterrent. Processors have not totally lost their preference for honey, however. The very word, honey, carries charm. Manufacturers like to advertize that a product of theirs includes honey.

The per capita use of honey in the U.S. increased over the period of 1962-1978 from 1.1 pounds in 1962 to 1.25 pounds in 1978. It declined in the years 1967, 1968, and 1974.

The use of glucose corn syrup increased from 9.3 pounds per capita in 1962 to 18.1 pounds in 1978. High fructose corn syrup increased in use per capita from .7 pounds in 1970 to 11.0 pounds in 1978. The use of refined sugar declined slightly from 97.9 pounds per capita in 1962 to 93.2 pounds per capita in 1978.

Prices and Uses of Foreign Honeys

The U.S. imports large quantities of honey (55,963,000 pounds in 1978). Much of the imported honey was dark in color, thereby being most competitive with local or native honeys of strong flavor.

Most of the importation is traceable to lower cost as shown by the following table.

	Average U.S. Price	Average Import Price
1974	51.0¢/lb.	40.6¢/lb.
1975	50.5	34.9
1976	49.9	30.0
1977	53.0	30.8
1978	53.5	34.5
1979	59.0	48.5

The above prices do not quite indicate a comparable situation since much of the U.S. honey was light in color and therefore (rightly or wrongly) is in greater public demand for table use than darker honey which constituted so large a portion of the imported product.

Meanwhile the volume of U.S. exports of honey has declined, particularly in the last eleven years. In 1957 our export of honey (in millions of pounds) was 17,799; it reached a volume of 25,120 in 1963 and dropped to 4.0 in millions of pounds in 1975. (The low point for the 1957-1978 period.) For 1978 it was 8.01 millions of pounds. This is less than half of the export poundage in 1957.

In 1966 the U.S. imported most of its foreign honey from Mexico, Argentina, and Chile. In 1969 Canada replaced Chile as the third greatest exporter to this country. The 1978 U.S. importations in metric tons were: Mexico — 14,065; Argentina — 8,397; Canada — 2,480; Australia — 1,205. Forty four other countries also exported honey to the U.S.

We export honey chiefly to West Germany, Japan, Netherlands, Canada, France, Saudi Arabia.

Honey — Volume Produced, Color, Quality

Honey production in 1980 in the U.S. totaled slightly less than 199 million pounds, 16 percent less than the 1979 crop. Drought is assigned as the chief reason for the decline. Florida's crop in 1980 was down by as much as 28 percent compared with 1979. Total consumption in the U.S. in 1980 was the lowest since 1974, slightly more than 237 million pounds. This contributed to surplus stocks, the greatest since 1970. Meanwhile imported dark honeys, chiefly from China and Mexico, reduced the commercial consumption of U.S. produced dark honey.

Nevertheless, honey prices did not decline in 1980. The price of clover-alfalfa, water-white to light-amber honey, ranged between 51.3 cents and 52.7 cents during the first eleven months of the year.

Pollination by Honeybees

Income from pollination services by honeybees has come to be a significant factor of income for many U.S. beekeepers.

Prices paid by users of pollination services varied across the country, as might be expected. Here are some of the rates paid in 1980: California — alfalfa seed — $14.00-$20.00; berries — $15.00-$25.00; Illinois — apples — $12.00-$15.00; blueberries — $25.00; sunflowers — $15.00; New York — apples — $22.00-$23.50; Pennsylvania fruit orchards — $15.00-$18.00; Oregon — cranberries — $25.00; cucumbers — $20.00.

Rainfall Conditions in 1980

As we have said above, rainfall represents a significant influence on honey production.

An examination of the precipitation maps prepared by the NOAA/USDA Agricultural Weather facility for 1980 reveals some low levels of rainfall over large areas of the country.

California — June-July high precipitation in north central area; under 50 percent in lower half of state; during Sept.-Nov. it was under 50 percent throughout the state.

Texas — June-August under 50 percent ; Sept.-Nov. from 75-150 percent in large areas.

Florida — June-August 50-70 percent in the western portion. Sept.-Nov. — 100-150 percent in the extreme southern portion; 75-100 percent in the eastern portion.

Ohio — June-August 50-75 percent except in the west-central portion where it was over 150 percent; Sept.-Nov. 75-100 percent.

Northeast — largely normal; above normal for June-August in Vermont and New Hampshire.

In summary, what can we say for the future of beekeeping in the U.S.?

(Continued on page 678)

Winterizing Hives

By PAT JOHNSON
Erie, PA

Abstract

WINTER HIVE management often produces varying results for colony survival. A northeastern states beekeeper uses a method of winterizing hives which generally results in healthy colonies. His method, which is inexpensive, reusable, and easy to use, may be effective for other northern beekeepers with small to medium operations.

Winterizing Hives In The Northeast

Here in Erie, Pennsylvania the winters are long, hard, and cold; not particularly favorable conditions for honeybees. Beekeepers are faced with the job of winterizing their hives each year with the intention of maintaining live and healthy colonies through winter months. Unfortunately, a beekeeper often finds that his efforts produce varying results. Sometimes his hives manage well through the winter, and other times they do not make it.

David E. Zukowski, a local beekeeper, is using a method of winterizing hives which generally results in healthy colonies even after the longest and coldest winters. This method may be very effective for other beekeepers in northeasten United States, especially those with small to medium beekeeping operations.

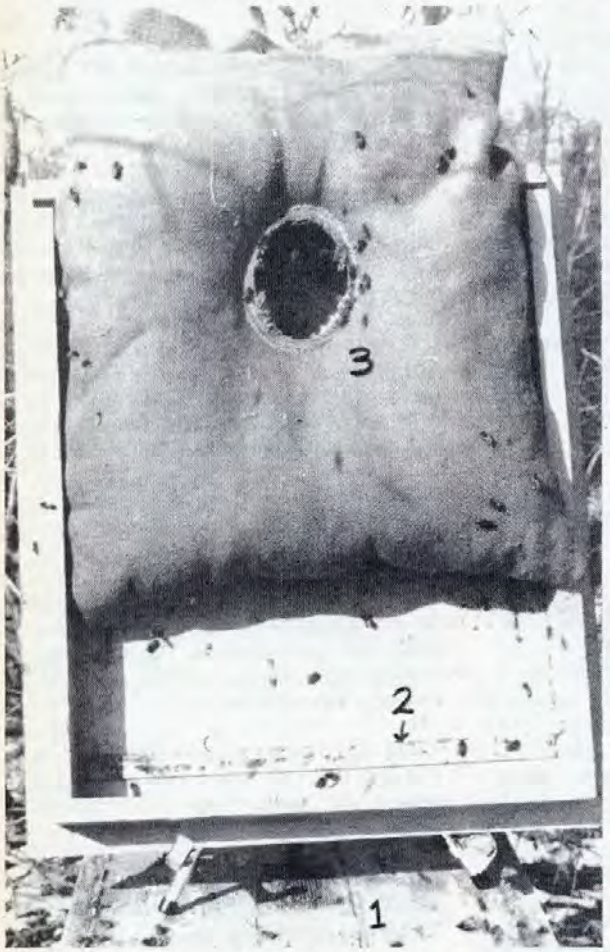
Winter

During winter months, low temperatures prevent bees from leaving their cluster. Days warm enough for venting flights are limited, therefore stress conditions are increased within the hive lowering the survival rate. Although the beekeeper has no control over weather, he can help to increase his bees' chances for better wintering by reducing all possible stress factors affecting the hive.

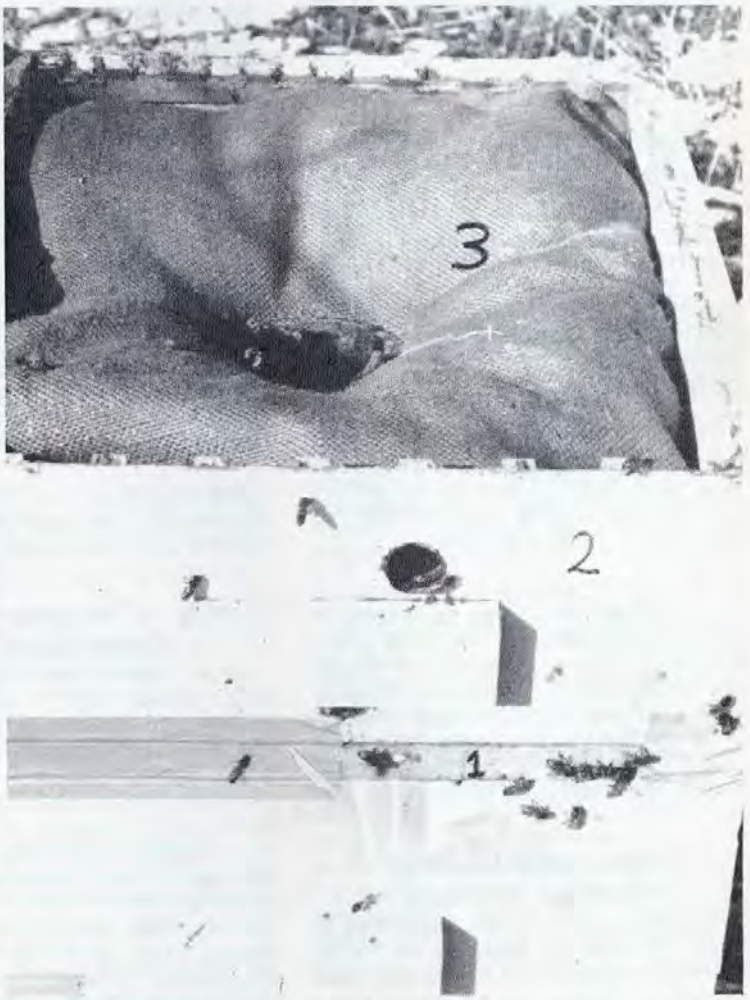
Bees have survived without the aid of man for milleniums, but the goal of the beekeeper is to maintain strong, productive. colonies compared with those in nature. Winter survival is difficult for the honeybee, but let us take a look at some of the ways to prevent stress within the winter hive.

Stress Prevention

Many methods can be found in the literature regarding winter hive management, and they can be broken down into several basic factors including the quality of the queen, cluster size, food supply, and hive design. These factors all affect the success of a hive and should not be



Appendix 1 — Hive Top Components — 1. Modified inner cover. 2. Inside view of outer cover with offsetting wood strip. 3. Insulating pillow with center feeding hole.



Appendix 2 — Hive Top with Components in Place — 1. Inner cover. 2. Half-depth super. 3. Insulating pillow.

In The Northeast

overlooked when planning winter hive management.

The queen is the center of the colony's activity; she is the unifying force. A young, healthy queen is essential to the well-being of the colony, and hybrid queens are especially advantageous because they are bred for their outstanding characteristics necessary for productive colonies. Included among these characteristics and important for the winter hive are disease resistance, uniform egg-laying ability and capacity, ability to withstand temperature extremes, and properties relative to good colony morale. Not only does a young, healthy hybrid queen possess many desirable qualities, she usually lacks the inferior characteristics that might inhibit her and her colony's overall performance.

A large amount of information regarding queens and requeening is available, but will not be discussed because of the limited scope of this article. The importance of the subject of queens cannot be stressed enough, and a working knowledge of this is vital to the successful beekeeper.

A winter hive should contain a large quantity of bees. A large cluster is essential to maintaining proper temperature for the survival of the individuals and for promoting mid- and late-winter brood rearing and early spring foraging and build-up. A large cluster is also important for movement within the hive under extremely cold conditions, enabling the bees to reach their food supply.

The hive must contain adequate honey and pollen stores to provide nourishment necessary during winter months when foraging is not possible. The beekeeper must make provisions for an adequate food supply either by leaving the bees abundant stores in the fall or adding food substance as necessary. Otherwise, the bees may starve.

Appendix 3 — Complete Winter Hive — 1. Bottom reducing entrance cleat. 2. Inner cover with offset entrance/vent. 3. Hive taped and strapped.

Hives must be arranged or constructed to provide proper ventilation for promoting moisture removal from the hives and yet retain heat. A way of arranging the hive is the main subject of this article and will soon be discussed in detail.

Upon brief examination of the discussion thus far, one can generalize that minimizing all stress factors affecting a colony is the key to successful wintering of honeybees, and in fact may be the key to successful beekeeping. In addition, the beekeeper must employ methods which reduce stress in a given situation without promoting other stressful situations.

One must keep in mind that even the best beekeeping efforts are at the mercy of extremely adverse weather conditions, and many colonies simply cannot survive if Mother Nature gives no breaks.

Common Methods Of Hive Winterization

As previously stated, hive construction must provide ventilation and insulation. Some methods of winterizing hives involve wrapping them with tarpaper, packing them with straw or paper, locating hives together in sheltered areas, providing ventilation by displacing supers and leaving openings between the hive bodies, drilling holes in supers, and so on.

Many of these methods are an answer to one stress problem, but often add to another. For example, a hole drilled in a super containing a colony provides excellent ventilation, but snow can easily blow into the hive creating excess moisture. The main reason for ventilating the hive is to remove moisture, so this method is probably not effective in a snowy region. The following method for winter hive design eliminates stress situations without adding other stress problems to the colony.

Winter Hive Design

For best results, hives should be located in an area that is sufficiently protected from the wind, and should

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Winterizing Hives In The Northeast

(Continued from page 677)

be painted non-white to absorb heat from the sun. White painted hives are preferable in warmer climates. However, many areas in northeastern United States have short and fairly cool summers, so darkly painted hives work very well.

For actual hive design with this method, major modifications of the hive involve redesigning the inner and outer covers and adding an "attic" and insulating pillow to the hive. Appendix 1 shows a photograph of the hive with these modifications and may be helpful in clarifying the design as discussed below.

To prepare the winter hive, an inner cover is remodeled so that the center ventilating port is moved to one side, therefore any snow blowing into this hole will not be directed to the center of the hive. Several one-inch holes are also drilled through the inner cover to provide internal ventilation. A quarter-inch wide and thick strip of wood is nailed across the inside width of an outer cover to prevent it from fitting snugly over the hive.

An insulating pillow can be constructed of burlap sized to fit in a normal extracting super and sewn so that a hole is formed in the center which provides room for spring feeding containers. The pillow is then filled with loose cellulose insulation, the type used to insulate homes. After these preparations are made, the hive can be arranged for the winter. (See Appendices 1 & 2.)

The modified inner cover is placed on the hive providing an upper exit for the bees. Next, an extracting super (partial depth) containing a hole in the front is placed above the inner cover, creating an "attic" for the hive. A few 2″ x 2″ x 14″ strips of wood are then put in the bottom of the super before adding the insulating pillow, therefore preventing it from fitting snugly to the inner cover. An unobstructed passage of air from the hive through the inner cover to the extracting super must be achieved. The center feeding hole can be covered with a thin piece of wood. The outer cover is then placed over the hive. (See Appendix 3.)

Using 2-inch wide polyvinyl packing tape, the upper super and inner cover are taped to the hive to prevent them from sliding apart. Since bees are unable to propolize the inner cover and upper super together, the tape must be used. Any large cracks along the hive should also be taped to prevent snow or rain from blowing into the hive. Elastic "bungy" straps can be hooked to the hive to hold the outer cover in place and help keep the entire hive secure.

Finally, an entrance cleat with the smallest opening should be situated in the bottom of the hive to provide an entrance for the bees and an opening for sufficient intake of air for ventialation, yet keeping out mice and other rodents. The small opening also helps to retain heat within the hive.

Conclusions

This method of hive winterization has many advantages, primarily that it works. The few modifications of the hive provide the necessary insulation for heat retention and ventilation for moisture removal.

The extracting super and insulating pillow serve to prevent condensation of moisture from the hive to fall onto the bees. Instead, the moisture is absorbed by the pillow, the main purpose of the entire hive arrangement.

As the bees generate heat and moisture, the internal ventilating holes provide a passage for the vapor to escape to the extracting super. The vapor then condenses on the outer cover and drips onto the pillow. The extra super and insulation also help to keep heat within the hive much like an attic aids in retaining heat within a home. Without this set-up, heat would escape directly to the outside, and any condensation within the hive would drip onto the bees. The insulating pillow also absorbs excess moisture created by snow blowing into the hive.

This set-up is not only effective, but also inexpensive, reusable, and simple to use. Once the pillow has been constructed, it can be stored during the summer in a dry place and reused each winter. Some alternate methods of insulation such as packing the entire hive or top portion with straw or strofoam shavings are messy, time-consuming, not easily reusable, and generally less effective than the pillow.

Retaining heat within the hive serves an additional purpose for wintering bees. Warmer bees use less food, so the food storage will be more likely to last most of the winter if the bees can keep warm within the hive. The beekeeper should make every effort to design his winter hive for maximum heat retention, otherwise his bees might not servive the winter's cold.

Once a beekeeper makes plans and general preparations for winter hive design, he will find that winterizing his hives each year actually uses minimal time and effort, and with this method should provide successful results. □

Economic Facts About Beekeeping Today

(Continued from page 675)

Beekeepers are likely to continue to experience strong pressures from competing sweets. Beekeepers in other countries where conditions are favorable to good yields will likely continue to offer their honeys here at lower prices than are desirable from the point of view of U.S. producers, as is true with many other commodities such as automobiles, electronic equipment and so on.

Producers of light colored honeys are likely to have an advantage over those whose sources produce dark honeys. Need for advertising of an honest nature about the true values of honey may be fruitful in helping sell more of our product. Emphasis on individual flavors is especially important. Quality of packaging will always be a significant factor. Hobbyists in particular should be careful to make sure that their packaged product is truly free of foreign substances and foam. Many first-time users of honey get their impression of honey from the product sold by hobbyists. Care should be taken to attempt to market our product at a fair price. Constant study of more economical ways of production is desirable.

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Marketing Honey and Beeswax 1980 U.S. Dept. of Agriculture.Agricultural Marketing Service. Fruit and Vegetable Division. Federal-State Market News. Honey Market News, issued by the Market News Branch, Fruit and Vegetable Div., AMS, USDA, Washington, D.C. 20250, (has been discountinued).

News and Events

LOUISIANA
Beekeepers' Association of Greater New Orleans

The Beekeepers' Association of Greater New Orleans got off to a buzzing good start when officers were named and bylaws approved for the organization.

"With at least 75 to 100 beekeepers in just the Greater New Orleans area alone, it behooves us to set up an organized group to help other New Orleaneans with bee problems," said Fred W. Rich of Algiers, president of the group.

"Plans are underway to bring speakers, discussion groups and presentations on various aspects of beekeeping to the organization's monthly meetings," Rich said.

The organization is designed to help everyone from the beginner up to the professional beekeeper, he added "No one can learn everything there is to know about our little well-armed friends."

Anyone desiring additional information concerning beekeeping may call Rich at (504) 361-3411.

Discussing the attributes of different smokers is from left Fred W. Rich, Hilaire Andry and Bruce Broussard, president, vice president and treasurer respectively of the newly founded Beekeepers Association of Greater New Orleans.

FLORIDA
South Florida Beekeepers' Association

The following were elected officers of the South Florida Beekeepers' Association: President — Allen Walker; Vice President — Don Dawen; Treasurer — Arthur Gilloren; Secretary — Randy Quinn; Board of Mangers — David Canada, Ralph Wadlow, and Harold Curtis.

Meetings are held on the first Monday of the month from 7 to 9 p.m. at the Nature Center on Ortiz Ave., Ft. Myers, Florida. There are 50 members at present.

NEW YORK
Bee Business Seminar

A day long program dealing with THE BUSINESS OF BEEKEEPING has been scheduled for January 9, 1982 in Greenwich New York. The event is cosponsored by Beekeeping Education Service and Betterbee, Inc.

Speakers will be John L. Chamberlain, CPA of Miller, Tighe and Chamberlain, Certified Public Accountants of Middlebury, VT, and Larry Connor, Ph.D., Director, Beekeeping Education Service.

Also in the morning, Connor will discuss MAXIMIZING BEEKEEPING INCOME.

In the afternoon, Chamberlain will outline THE TAX SITUATION with emphasis on the changes just placed into effect in 1981 by Reagan and Congress. Connor will then outline CONFLINCTS EXPERIENCED BY BEEKEEPERS.

Also in the afternoon, small groups will be formed by individals of similiar interests for a discussion topic. Each group will then report back to the total group.

For registration materials and directions to the meeting, write or phone Beekeeping Education Service, P.O. Box 817, Cheshire, CT 06410, Phone 203-271-0155. The registration fee is $20.00 per person, or $35 per couple. Payment should be mailed in advance of the seminar.

OHIO
Central Ohio Beekeepers' Association

The Central Ohio Beekeepers' Association will hold their winter meeting at the Franklin Park Conservatory & Greenhouse on Tuesday, January 12, 1982, 7:30 p.m. (1777 E. Broad St., Columbus). The program will feature winter management as well as how to recognize and prevent losses from pesticides. Club officers will be elected for the year. Further information may be obtained from Joe Hutt — 614-276-5975.

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News and Events

(Continued from page 679)

KANSAS
Kansas Beekeepers' Adopt New Name

The Kansas beekeepers meeting in Chanute, Kansas, September 25-26, 1981, saw the adoption of the name, "The Kansas Honey Producers Association", for their organization. The group also adopted a new Consititution.

Among the current activitives of the The Kansas Honey Producers Assocition are the sponsorship of the Kansas Honey Queen Program, radio and television programming emphasizing the importance of bees the desirability of protecting them from pesticide hazards, booths at flower and garden shows and the Kansas State Fair, and dissemination of information about good beekeeping management practices. The Kansas Honey Producers Association also has a quarterly newsletter, "Cappings", which is sent to its membership.

American Beekeeping Federation 38th Annual Meeting

Hyatt Regency Hotel — Gavannah, Georgia
January 17-23, 1982

Tentative Schedule and Progam

SUNDAY, JANUARY 17, 1982
2:00-5:00 pm.
ABF Executive Committee meeting

MONDAY, JANUARY 18, 1982
9:00 a.m.-noon
ABF Executive Committee meeting

Noon-600 p.m.
ABF Registration

Beginning Beekeeper School Registration

Ladies' Auxiliary Registration

Noon-5:00 p.m.
Set-up Exhibits and Honey Show Display

1:30-5:00 p.m.
ABF Board of Directors meeting

8:00 p.m.
American Honey Queen Committee and Interested State Queen Committees

TUESDAY, JANUARY 19, 1982
6:00-9:00 a.m.
Honey Industry Council of America breakfast meeting

8:30 a.m.-5:00 p.m.
Registration continues

9:00 a.m.-noon
Set-up Exhibits and Honey Show continues

9:30 a.m.
Opening of the General Session
American Beekeeping Federation

Call to Order — Binford Weaver, president, ABF

Presentation of Colors — Benedictin Military School, Savannah

Invocation — Miller Liston, pastor, Skidaway Island Community Presbyterian Church

Welcome — John P. Rousakis, Mayor, City of Savannah

Response — Troy H. Fore Jr., president, Georgia Beekeepers Association, Jesup, GA

10:00 a.m.
President's Address — Binford Weaver, president, American Beekeeping Federation, Navasota, TX

10:30 a.m.
Keynote Address: The Sexy Smell of the Bee Hive — Murray S. Blum, research professor, Department of Entomology, University of Georgia, Athens, GA

11:00 a.m.
Presentation of American Honey Queen and Contestants — JoAnne Weber, chairman, American Honey Queen Committee, Clayton, WI

11:45 a.m.
ABF Membership Report — G. C. Walker, Jr., past president, ABF, Rogers, TX

Noon
Announcements — Lunch Break — Exhibits and Honey Show Open

1:30 p.m.
Announcements and Door Prizes

1:40 p.m.
The Chinese Beekeeping Industry: A Sleeping Giant Awakens — Eric Mussen, Extension Apiculturist, University of California, Davis, CA

2:40 p.m.
Integrated Pest Management — George H. Blake Jr., Auburn University, Auburn, AL

2:20 p.m.
Beekeeping in the Pest Control Climate of the "90's" — Mashall D. Levin, chief, Crop Sciences, National Program Staff, USDA, Washington, D.C.

2:40 p.m.
The Role of APHIS in the National Mite Survey and the Medfly Eradication Program — James O. Lee, Jr., associate administrator, Animal and Plant Health Inspection Sevice, USDA, Washington, D.C.

3:00 p.m.
Break

3:15 p.m.
Announcements and Door Prizes

3:20 p.m.
National Honey Packers and Dealers Assn. — Directors meeting

3:20 p.m.
Thru the Years with Package Bees and Queens — Harvey York, Jr., York Bee Co., Jesup, GA

3:40 p.m.
Queen Rearing for American Foulbrood Resistance — Steve Taber III, Taber Apiaries, Vacaville, CA

4:00 p.m.
The Pollination Value of Honeybees in the 1980's — Basil Furgala, University of Minnesota, St. Paul, MN

4:20 p.m.
Hybrid Cotton Pollination — Gordon D. Waller, Hayden Bee Research Center, USDA, Tucson, AZ

4:40 p.m.
Requirements for a Successful Pollination Business — Norman Sharp, Fishers, NY

5:00 p.m.
Movie: Bee Vacuum Apparatus and Strategies for Requeening Colonies — Norman E. Gary, University of California, Davis, CA

8:00-10:00 p.m.
American Honey Queen Reception

WEDNESDAY, JANUARY 20, 1982
7:00 a.m.
ABF Membership Committee breakfast meeting

8:30 a.m.-noon
Registration continues

8:30 a.m.-4:30 p.m.
Exhibits and Honey Show open

8:50 a.m.
Announcements and Door Prizes

9:00 a.m.
Ladies Auxiliary — Depart for House Tour and Continental Breakfast

9:00 a.m.
Beekeeping with African Bees in Southern Africa — David Fletcher, Department to Entomology, University of Georgia, Athens, GA

9:20 a.m.
Defensive behavior of Africanized Honeybees — Anita M. Collins, Bee Breeding and Stock Center Laboratory, USDA, Baton Rouge, LA

9:40 a.m.
Africanized Bees: A Status Report — Tom Rinderer, Bee Breeding and Stock Center Laboratory, USDA, Baton Rouge, LA

10:00 a.m.
Break

10:15 a.m.
Announcements and Door Prizes

10:20 a.m.
ABF Resolutions Committee meeting

10:20 a.m.
Bee Research, Beekeeping Extension, and the Beekeeper — Malcolm T. Sanford, extension apiculturist, University of Florida, Gainesville, Fla.

10:40 a.m.
Essential Steps in Forming New Bee Associations — V. Rodney Coleman, extension entomologist, University of Georgia, Athens, GA

11:00 a.m.
Nucs: Production, Care and Use — Robert Banker, Banker's Honey Inc., Cannon Falls, MN

11:20 a.m.
The Protential Impact of New Honey Bee Diseases — Hachiro Shimanuki, Bio-Environmental Bee Laboratory, USDA, Beltsville, MD

11:40 a.m.
The Varroa Mite: A Status Report — Roger A. Morse, Cornell University, Ithaca, NY

Noon
Announcements
General Session Adjourns for afternoon of sightseeing and tours as selected

1:00 p.m.-4:40 p.m.
Bee School — Alfred Dietz and Rodney Coleman, University of Georgia, Athens, GA (See separate schedule)

THURSDAY, JANUARY 21, 1982
7:00 a.m.
Mid-U.S. Honey Producers Marketing Association breakfast meeting

8:30 a.m.-5:00 p.m.
Registration continues
Exhibits and Honey Show open

8:50 a.m.
Announcements and Door Prizes

9:00 a.m.
Panel: New Developments in Outdoor Wintering
Moderator — Basil Furgala, University of Minnesota, St Paul, MN — Harold Goltz, Ada, MN — James Tew, Ohio State University, Wooster, Ohio — Charles Mraz, Middlebury, VT

9:40 a.m.
Wintering Bees Indoors: An Update — James Kuehl, Cook & Beals Inc., Loup City, NE

10:00 a.m.
Ladies' Auxiliary — Brunch and Meeting (see separate schedule)

10:00 a.m.
Break

10:15 a.m.
Announcements and Door Prizes

10:20 a.m.
Radioactive and Other Contaminants of Honey — Howard Kerr, Maryville, TN

10:40 a.m.
EPA's Efforts to Reduce Bee Poisonings — Phil Gray, Jr., U.S. Environmental Protection Agency, Washington, D.C.

11:00 a.m.
Panel: Living with Pesticides
Moderator — William T. Wilson, Honey Bee Diseases/Pesticides Laboratory, USDA, Laramie, WY — Jim Smith, Yuma, AZ — Blaine Simpson, Powers Apiaries, Oakes, ND — Donald Schmidt, Schmidt Honey Farms, Winner, SD — P. A. Yelverton, Stover Apiaries, Mayhew, MS

11:45 a.m.
Changes in Apiary Inspection — James Herndon, president, Apiary Inspectors of America; Florida Department of Agriculture, Gainesville, FL

Noon
Lunch Break

1:30 p.m.
Announcements and Door Prizes

1:40 p.m.
First Reading of the Resolutions — Phillip Rossman, vice president, ABF, Moultrie, GA

2:00 p.m.
Panel: Honey Protection — Adulteration
Moderator: J. W. White, Honeytech Inc., Navasota, TX — David Sundberg, chairman, Honey Industry Council, Fergus Falls, MN — Robert M. Rubenstein, counsel, Honey Industry Council, New York, NY — David K. Mc Ginnis, Tropical Blossom Honey Co., Edgewater, Fl — Martha Rhodes, director, Florida Department of Agriculture Food Lab., Tallahassee, FL

3:00 p.m.
Break

3:15 p.m.
Announcements and Door Prizes

3:20 p.m.
Honey and Honey House Sanitation — Randy Johnson, Honeygold Inc., Nampa, Idaho

3:40 p.m.
National Honey Packers and Dealers Association — open meeting

3:40 p.m.
Leasing and Migratory Beekeeping — Gary J. Reynolds, Concordia, KS

4:00 p.m.
Seas and Bees: The Honey Connection — Alfred Dietz, Department of Entomology, University of Georgia, Athens, GA

4:20 p.m.
Microwaves and Honey Bees — Norman E. Gary, University of California, Davis, CA

4:40 p.m.
Auction of Honey Show Entries

6:30 p.m.
Social Hour

7:30 p.m.
American Honey Queen Coronation Dinner and Ball

FRIDAY, JANUARY 22, 1982
7:00 a.m.
National Honey Packers and Dealers Association breakfast meeting

8:30 a.m.-noon
Registration continues
Exhibits open

8:50 a.m.
Announcements and Door Prizes

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9:00 a.m.
Ladies' Auxiliary — Depart for Hilton Head Island, SC shopping and sightseeing tour

9:00 a.m.
Impact of "Parity" on the Honey Price Support Program — Harry Sullivan, ASCS, USDA, Washington, D.C.

9:20 a.m.
Panel: Honey Marketing Today
Moderator — Ralph Camber, Dutch Gold Honey Inc., Lancaster, PA — Charles C. Boyle, sales manager, Sioux Honey Association, Sioux City, IA — Jim Powers, Powers Apiaries, Parma, ID — Dennis Smoot, Power, MT — Bob Brandi, Los Banos, CA

10:00 a.m.
Break

10:15 a.m.
Announcements and Door Prizes

10:20 a.m.
Promoting and Marketing Commodities — (to be announced)

10:40 a.m.
Honeybee Nutrition — James L. Nation, Department of Entomology, University of Florida, Gainesville, FL

11:00 a.m.
Chronology of Pollen Collections — Moonyean S. Brower, Armstrong State College, Savannah, GA

11:20 a.m.
Panel: New Developments in Pollen Production
Moderator — Andy Nachbaur, Los Banos, CA — Paul Limbach, Silt, CO — Reiner Krell, University of Georgia, Athens, GA — Alfred Dietz, University of Georgia, Athens, GA

Noon
Lunch Break

1:30 p.m.
Announcements and Door Prizes

1:40 p.m.
Progress in Apiotherapy — Ann W. Harman, information officer, North American Apiotherapy Society, Laytonsville, MD

2:00 p.m.
ABF Business Meeting — Invitation to Hawaii — Adjourn

6:30 p.m.
Social Hour

7:30 p.m.
Annual Banquet

SATURDAY, JANUARY 23, 1982

6:00 a.m.-9:00 a.m.
Honey Industry Council breakfast meeting

9:00 a.m.-noon
ABF Board of Directors meeting

1:00 p.m.-5:00 p.m.
ABF Executive Committee meeting

BEGINNING BEEKEEPER SCHOOL

Conducted by Alfred Dietz and Rodney Coleman
University of Georgia — Athens, GA

WEDNESDAY, JANUARY 20, 1982
1:00 p.m.
Getting Started with Bees — Rodney Coleman, University of Georgia, Athens, GA

1:20 p.m.
Apiary Site Selection — James Tew, Ohio State University, Wooster, OH

1:40 p.m.
Package Bee and Queen Introduction Methods — Rob Stevenson, USN, Jacksonville, FL

2:00 p.m.
Management of Honey Bee Colonies — Tom Sanford, University of Florida, Gainesville, FL

2:20 p.m.
Break

2:40 p.m.
Comb Honey Production — Roger Morse, Cornell University, Ithaca, NY

3:00 p.m.
Swarm Prevention and Control — Harold Goltz, Ada, MN

3:20 p.m.
Bee Diseases — Hachiro Shimanuki, Bio-Environmental Bee Lab. USDA, Beltsville, MD

3:40 p.m.
Outdoor Wintering of Bees — Basil Furgala, University of Minnesota, St Paul, MN

4:00 p.m.
Nectar and Pollen Plants — Harry E. Williams, University of Tennessee, Knoxville, TN

4:20 p.m.
Bee Behavior and Social Order — Frank A. Eischen, University of Georgia, Athens, GA

Advance registration to the convention saves $5.00 and space is limited on some of the tours. The Federation's convention mailing should be in hand by early December. If not, a convention packet may be obtained from the American Beekeeping Federation, 13637 NW 39th Ave., Gainesville, FL 32601, or from the convention host committee: ABF/Savannah-1982, P.O. Box 1982, Jesup, GA 31545. For specific information on the city, write the Savannah Area Convention and Visitors Bureau, 301 West Broad St., Savannah, GA 31499.

Ladies' Auxiliary

MONDAY, JANUARY 18, 1982
Noon-6:00 p.m.
Registration

TUESDAY, JANUARY 19, 1982
8:30 a.m.-5:00 p.m.
Registration continues

WEDNESDAY, JANUARY 20, 1982
8:30-9:00 a.m.
Registration continues

9:00 a.m.
Depart for House Tour and Continental Breakfast (Pre-registration required)

THURSDAY, JANUARY 21, 1982
9:00-10:00 a.m.
Registration continues

10:00 a.m.
Brunch — Welcome — Mary Fore, Jesup, GA — Response — Vi Walker, vice president, Ladies' Auxiliary, Pasadena, GA — Invocation

Brunch served

Introduction of 1981 American Honey Queen and 1982 Candidates
JoAnn Weber, Chairman, American Honey Queen Committee, Clayton, WI

Business Meeting — Call to Order — Phyllis Taylor, president, Ladies' Auxiliary, Stratford, SD — Introduction of Past Presidents and Guests — Invitation to Hawaii — Other Business — Adjourn

Gift Exchange (Bring small — $3-5 — gift to exchange. Bee motif items are fun.)

FRIDAY, JANUARY 22, 1982
9:00 a.m.
Depart for Hilton Head Island, SC — A Day on the Island — Sightseeing, Shopping, Lunch (Pre-registration required)

3:00 p.m.
Arrive back to Hyatt□

Trailer Beekeeping

(Continued from page 665)

If I were building other trailers I would lower the frame and axel as far as possible. This would make it easier to place and remove the top supers. This trailer will not carry many hives but it works very well for the small beekeeper. Because of the extreme heat in the summer I prefer a single row of hives. They can be turned to the south to get all the air circulation possible. □

By ROLAND BELL
Fort Worth, TX

I MOUNTED MY colonies on trailers and at one time I had 120 colonies operating quite satisfactorily in this manner. I mounted them ten to the trailer for one reason only; the tire load rating for two wheel, four ply tires was 2,600 lbs. — so you see the entire load must be figured arithmetically.

I made the bed seven feet wide and ten feet long. Two parallel four inch pipes were mounted on the springs of the axle with one and one-quarter inch black pipe seven feet long as cross supports on top of the parallels. I used corrugated sheet iron, doubled layered, for flooring material. This construction seemed to be the least weight that I could conjure up for the trailer and still have good stability. The use of corrugated iron gave me an edge in the weight factor.

This seven foot by ten foot bed allowed me to position my colonies five to the side with a walkway behind and between the hives as I worked the colonies without being in the flight pathways. I always stationed the trailer so the hives lined up north to south to have less shadow for them than if they were east and west.

I had to build up over the wheels (wheel wells) to place one hive over each wheel. I did this with three quarter inch diameter pipe. It was necessary to use flat sheet metal fashioned into fenders to keep mud and dust from accumulating during the moves.

My first several trailers were constructed on the rear axles of 1956 Chevrolet running gear without springs but that was certainly a mistake, for it literally beat the rear colonies to bits. This was a hazard to anyone following me as I went down the road, as you can imagine, with bees and hive parts marking where I began and where I stopped! This called for a wholesale replacement with front end running gear with springs, after which the trouble quickly abated. Buying up a half dozen running gear at a time tends to make the individual price of things somewhat lower, it seems, and having my rear gears as trade-ins also helped financially.

My first few trailers were constructed with the bed having considerable clearance over the wheels. This made the load quite top heavy and required expertise when clearing terraces and jumping ditches. Later, I built the bed as close to the axel as the springs would allow. I never did undersling the springs but this would also have been a great help.

An adequate tire rating, spring mounting and light, strong construction materials for a bed built as low to the axle as possible is the way to build your trailer.

As many tight turns were needed, I made the tongue extend past the front of the bed some four feet, that I might obtain as near a ninty degree angle of car to trailer as possible. Besides, a trailer with a long tongue is easier to back up than one with a short tongue.

Now there is nothing worse than a loaded trailer standing on its tail when you are trying to hook up. I made two one inch pipe stands sleeved through six inch long one and one-quarter inch pipes with spaced holes in the one inch pipes so that I could pin appropiately as dictated by the terrain and location. I welded the sleeves to each rear corner of the trailer. Feet were added to the base of the stands. I did the same thing for the front tongue and thus, with these three stabilizers, I was able to approximately level the trailer bed as well as taking weight off the tires during the time the trailer was parked at the location.

The trailer mounting idea worked extremely well. I could move out at the drop of a hat, either day or night. I usually left weak colonies at a location to catch bees or whatever nectar I could if such seemed desirable at the time.

It never failed that I would have a flat tire. I solved this problem by making sure that the tires and spare were inflated before I went out. By equipping a thirty foot length of small diameter rubber tubing with a tire valve screw-ons, which I cannibalizied from tire pumps, I had a tire pump allowing me to draw air from the spare or the mounted tires to get to wherever I needed to go.Arithmatic again. Five tires, times twenty-seven pounds pressure, divided by seven tires, gives plenty of air to go some distance. It was necessary, of course, to have a spare trailer tire on hand, and to this end all of my trailer tires

(Continued on page 684)

Trailer Beekeeping

(Continued from page 683)

were the same mounted on the same size rims.

As there were eleven trailers here and there in outyards and the need for road travel, the business of tail lights and turn signals was solved by mounting two tail lights salvaged from wreck cars on a one inch by four inch board about five feet long. Two lights were connected to each other and provided with an alligator clip which fastened the mounted lights to the trailer bed. I attached the board with the lights to the trailer bed with wire which allowed me to change quickly from one trailer to another. A long, two wire extension cord connected the light wires to a two way toggle switch mounted on a small board which I held in my lap. I flipped the switch for left or right turns. The center post of the toggle was wired to the positive post of the battery. If I wanted to stop I would flip the toggle right or left continuously, which worked just fine. One set of tags fits all. (Note-State requirements for towed trailers may vary: Check with your State Highway Patrol for your state regulations. Ed.)

Farm animals often gave me trouble by their rubbing and jostling the trailer but the three stanchions proved sufficient for stability of the setup. Six inch sleeves of one and one-quarter inch pipe, four to the side, and welded to the trailer bed provided a place to mount sideboards using one inch pipe for standards. Heavy hog wire side boards provided animal protection but other materials could have been used for this.

My outyards were scattered mostly around a lake impoundment and I would move into the cotton fields and back thus not causing a great deal of disturbance to the colonies. I used baling wire to tie down the colonies with spacers of wood between the bottom boards to keep the hives apart. If I ever go back to moving colonies by trailers I will fashion light chains with small, inexpensive turnbuckles to take the slack out of the chains. This would strap colonies individually to the trailer bed.

This lake outyard was maintained for some three years on wild flowers, catsclaw, salt cedar, mesqute and cotton until the lake authority dozed the entire area of mesquite and cedar. I found out about it two months later, in July. I pulled out in the middle of the summer which didn't help in the search for other locations. A period of drought set in about then which did not help either. That did me in and I went down to about twenty-five colonies. Now I have my bees in permanent locations.

For those people who wish to construct a tandem wheel trailer (4 wheels) with a short spring arrangement, it seems that long spring running gear would suffice just as well. A bee trailer is not towed for long distances usually (tire wear comes from twisting and turning) and the trailer could be elongated to accomodate some twenty colonies with ten to the side.

Having adequate equipment for migratory beekeeping is the first requirement, of course, and the second is the ability to move in and out of an outyard. Walking out a prospective roadway before driving through is a must and is well worth the time spent doing so. My most worrisome location was sandy land. It had to be just right; not too wet and not too dry. One day I hooked up and, with the tachometer striking the pin, I set out plowing through a road hub deep in the sand. I snagged a hot wire fence which I thought had been weighted down sufficiently and jumped a three foot barrow ditch before I made it to the hard top road. Well, I sure don't want to do that very often. Restringing that fence for about half a mile was not what I set out to do that day, but I did.

One other word of caution may be in order when one goes to outyards in areas such as ours. There is a need for awareness of snakes. I would sometimes find them laying up on the running gear or on the platform. I always approached the trailer with a long stick and did a thorough job of inspection before working on the bees.□

Permethrin Is Potential Bee Protector

PERMETHRIN, A synthetic pyrethoid insecticide may eventually provide protection for honeybees through its repellency. Although permethrin products (Ambush and Pounce) cannot be used as repellents until the use is registered, entomologist E. L. Atkins has shown that they are highly effective in keeping honeybees away from cotton and seed alfalfa that have been treated at rates of 0.1 and 0.2 pound active ingredient per acre.

Atkins stressed that permethrin is highly toxic to bees that are directly exposed to treatment. Bees are repelled by chemical residues in the tests. Adding permethrin to other insecticides reduces bee mortality by 50% to 80%. The chemicals effectiveness lasts up to 5½ days.

From *Agrichemical Age* Vol. 25 (8) Aug.-Sept. 1981.

Hire A Beehive

IN 1979 a project was undertaken in various parts of Sweden to interest more people in beekeeping. Non-beekeepers were encouraged to hire a hive of bees for the summer. They paid 200 kr; the beekeeper looked after his colony, and if desired showed the hirer what had to be done. The hirer was given 5 kg. of the honey crop. Most of those hiring bees lived in the suburbs, not in rural areas. Statistics of demand and supply were quoted in the original report in *Bitidningen*, a Swedish Bee Journal. In some places more hives were asked for then could be supplied, and a fair number of those hiring them said they would start to keep bees themsevles.

From *Apicultural Abstracts* Vol. 32 (3) 1981.

"Honeybee Lenses" Restore Vision

RAYMOND BRACO, Haverford College freshman, is the 150th patient to be fitted with the special glasses, and the optometry college is showing him off because the glasses he is wearing have been considerably refined since they were developed 2½ years ago.

The glasses are called "honeybee lenses" because they are based on the principle that endows bees and other insects with wide peripheral vision.

"Up to now every lens I've developed has had an only a 10 to 12 degree field of vision," said Dr. William Feinbloom, who creates glasses for legally blind patients. "We finally had to turn to nature" to find the technical means.

"Insects, and the honeybee in particular, have a wide field of vision. Several thousand lens, each of which points in a different direction, gives them the wide field," he said.

Braco, albino, is legally blind, with eyesight about 10 percent of normal.

A native of Puerto Rico, Braco read a newspaper article at home about Philadelphia optometrists who had fit three legally blind albino brothers for special lenses, the kind with narrow magnified vision.

When Branco came north to school, he contacted the college, which in turn referred him to Feinbloom.

Feinbloom, a New York optometrist, retired after he had a stroke three years ago, and has continued to develop glasses for legally blind patients while he serves as a consultant to the college.

Persons legally blind have 20-200 vision, meaning they see at about 20 feet what the person with normal sight sees at 200 feet. Neither surgery nor drugs can help them. Glasses are their only hope, and until now, Feinbloom said Monday, no one had come up with a way to give them peripheral vision.

Braco is unabashedly grateful. He always managed to do well in school by remembering things the first time he heard them. Now he can read with much greater ease.

"The first thing I got to look at was the (eye) chart, which I could read for once," said Braco, who speaks English without a trace of a Spanish accent because he attended schools on an American military base in Puerto Rico.

"When I went out, I was seeing everything from leaves on trees to cars. I find myself gazing around looking at things you take for granted, things that you don't think of as spectacular."

The special glasses cost from $3,000 to $6,000 (payment plans and insurance can ease the burden). But those who have them think they are well worth the expense. When Braco went to the recent Rolling Stones concert here, he said, he didn't even need to pack binoculars.

From an article by Linda Herskowitz Printed in the Lexington, KY Leader 10/13/81.

Bees Shut Down I-35

A STRETCH of Interstate 35 was left in a honey of a mess after a trailer carrying nearly 11 million bees overturned near Guthrie, Oklahoma.

One lane was closed after the accident and remained blocked for 11 hours.

Most of the bees were killed after experts covered the truck with plasic and sprayed methyl bromide from below.

The Highway Patrol said 180 colonies of bees were being trucked to Texas when a car cut in front of the truck.

There were about 60,000 bees in each colony, meaning that nearly 11 million bees were madder than horents that their journey had been bumbled.

Propolis

FRENCH SOURCES, via *Apiacta* (1980) (3) 101-103 reported three persons with hay fever were treated with an alcohol extract of propolis in soluble starch. Each patient received 7-8 doses daily for 8 days, each dose containing 250 mg of dry total extract. The patient's symptoms were almost or competely alleviated; small doses were given in the following two years. Results were still good after a further two years without treatment.

From *Apicultural Abstracts* Vol. 32 (3) 1981.

EAS Honey Show Award Winners

Congratulations to Mrs. Mettie Fisher of Princeton, NJ who won two blue ribbons and a silver Tray Award at the recent EAS Honey Show conducted at the 1981 EAS Conference. Her ribbons and award were for Mead entries.

Congratulations are also extended to Fred Harris who scored 99 points and tied for a Silver tray in the extracted honey category for his entry of Dark Honey. □

From New Jersey Beekeepers' Association News

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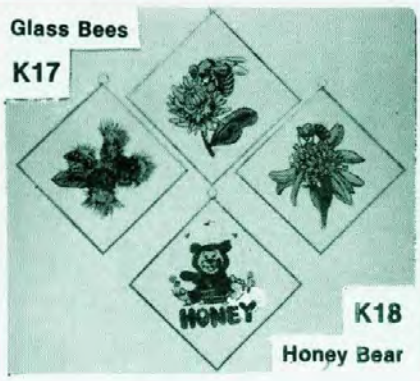

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