The Bee Line of of of

The Newsletter of the Oregon State Beekeepers Association

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Wood vs. Plastic - a report of one experience

by Ron Bennett

got into beekeeping by buying four hives from the guy who removed a hive from the roof of the house we had just bought. I bought them because they were really cheap, but in hindsight, those boxes and frames were a little "rough" to put it mildly. One of those hives had plastic frames in a full deep and in a super. Since I didn't know squat about bees or beekeeping when I bought these hives, I had no idea how important managing and maintaining good combs is to bee management.

The next year I added some new hive bodies and frames, and after reading a few books and attending bee school, I thought I knew about frames and comb management. I knew enough to tell that the majority of comb in my hives was poor with lots of burr comb and drone cells. Also that summer, another beginning beekeeping friend in Corvallis decided to build a solar melter to render all of the old brood comb he had (he also had bought from another party about twenty sets of hive bodies with frames from a farmer's junk pile). In addition to not getting very much wax from this mess of stuff, we soon found one of the major disadvantages to plastic frames, they render into gooey sticky ball inside a solar melter!

I tried to use some of the "better" plastic brood frames I had, but although the bees used them, they didn't seems to repair any of the damaged or missing areas. In hindsight, most of that was due to my lack of knowledge in comb management.

I decided the following year that I'd only use wood frames with wired foundation. I still had a few problems with unevenly drawn comb and burr comb, but this was minor. The major problem I had with wood/wax is in new frames I would use for swarms. It seemed that the only time I'd get a swarm call, all I would have on hand would be new frames with foundation, and almost always, the ride in the back of a pickup in the hot sun with a load of bees hanging onto the frames for dear life, would cause a number of the foundations to sag or fall out of the frame. And, if I didn't catch this that day or the next morning, the bees would have already drawn comb

out wherever they pleased! I solved this problem by using Duragild foundations, which had become the mainstay of my comb system. (By the way, don't put Duragild foundation into a solar melter either!)

At this year's ABF Convention I made a point of talking to all the exhibitors about the Bee Line and had a chance to meet Nick at the Pierco booth. He had called me a few weeks before to ask if I knew of any beekeepers who might need some plastic frames since he had an almost full semi coming up to the area for a delivery and could offer them a good deal. The load of frames was for a commercial beekeeper who I feel is one of the best beekeepers in the Northwest, maybe the nation. And, now he was switching over his whole operation to Pierco frames. Hmmm.

Added to this was the knowledge that several other commercial beekeepers were using plastic foundation, I felt that plastic frames for hobbyist and part-time commercial beekeepers deserved another look from me. I told Nick of my experiences and we talked about the advantages of plastic vs. wood at length. He offered me a set each of full deep and Western deep frames to try if I'd write up a report on them. So here it is!

For those of you who might not have seem this frame system, the frames and foundation are one piece of RIM-molded plastic with the foundation area embossed with ridges which are the size and shape of worker cells. The frames are available coated with a thin layer of beeswax or without wax. The set I had had the wax coating which at first look seemed very uneven and caused me some concern (unfounded).

My plan was to follow the very clear instruction that come with the Pierco frames which tell you to introduce the frames between already drawn combs. I planned to put half of the frames in one hive from a split and the second group of five into a swarm with drawn comb on wood frames. This was the plan anyway.

As with the best laid plans, this one went astray. I got my queens for my splits

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from the Editor's Desk

by Ron Bennet

ou may have noticed that this issue is in your hands later than issues earlier in the year, and well, your are right. We publish the Bee Line only ten times a year. Your first issue of the year is the January/February issue and your last for the year is the November/December. Starting with the August issue, the release date shifts toward the middle of the month from the first of the month. This allows us to get the November/December issue in your hands near the Fall/Winter Conference date with the latest information.

While I'm on the topic of the *Bee Line* and receiving your copies, if you are not receiving all of your issues, complain to your Postmaster. There has been/is a problem with some bulk mail in some areas some of the time. We have filed formal complaints with the mailing post office (Salem) and with the bulk mail center in Portland, but it's your complaint to your Postmaster that will get their attention.

This year's State Fair is finally over and we need to all thank all of the people who helped with the exhibit. Richard Farrier gets the Iron Man Award for the most booth duty (and on the days with the longest hours!). Thanks to Walt Nichol for the bee hive, Schumacher Video for the video monitor, Dave Loescher and his company for his work and efforts with the bee cage, Jim Walker, Laurence Bower, and Ken Meir for their help in setup and teardown. And, Happy Birthday (86th) to Morris Smith who had his birthday fall on the day he did booth duty (there is also an article on Morris in the current issue of *Ruralite* magazine).

We had lots of interest and questions which will be sorted out and sent to each of the local groups to follow up on. We had lots of request for tastes of honey and Fritz Skirvin and I would like to ask anyone interested in helping setup a honey tasting event at the fair next year to get in touch with Fritz or myself.

I was proud to give the Oregon State Beekeeper's Trophy to Bill Ruhl and Bill gave the Ruhl Beekeeping Supply Trophy to Michael Laux. These are the same two winners as last year and all of you out there need to work on your entries to keep these two from winning the awards for the third year running and retiring these trophies - I think Bill already has a room full of them! The quantity and quality of the entries this year was up from last year and was very impressive. We almost ran out of stands to exhibit comb honey this year and the display case was getting a little crowded.

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The Dyce Process for Making Crystallized Honey

by Roger A. Morse, Dept. of Entomology, Cornell University, Ithaca, NY 14853

Iton J. Dyce was born and raised in Meaford, Ontario, Canada. He attended and graduated from Ontario Agricultural College now known as Guelph University. Today's enrollment is much higher than when Dyce studied there. Dyce obtained his Masters degree from McGill University and came to Cornell University to study with the late Professor E.F. Phillips in the tall of 1929. Dyce completed his Ph.D studies in spring 1931 and returned to Guelph where he became Professor of Apiculture.

Dyce came to Cornell to study honey fermentation and crystallization. At that time huge quantities of honey were lost annually became these phenomena were not understood. As honey granulates only about 12% of the water present becomes part of the crystal thus raising to moisture content of the part that does not granulate. If a container of honey granulates uniformly there is no problem, but if only part of the honey in the container granulates then the liquid portion has a much increased moisture content. Whenever the moisture content of a honey rises higher than about 19%, the yeasts present may grow and fermentation can occur. Yeast cells are always present in unpasturized honey; once honey is fermented

there is no way it can be salvaged.

At the time Dyce started his studies England was a major market for Canadian honey. England gave the commonwealth nations favored status which allowed them to send goods to England without duty. That privilege was never enjoyed by the United States or non-commonwealth nations. The creation of the European Common Market which England eventually joined, eliminated that favored status for Canada and certain other nations forcing their beekeepers to sell their honey on the world market.

The favorite honey in England was one that was light in color, mild in flavor and granulated. The English preferred granulated honey with fine crystals and paid a premium for it over honey with coarse crystals. At that time nobody knew how to control honey granulation though some beekeepers because of the flora their bees fed on, and the resulting ratio of the sugars glucose and fructose in the honey made a product that was constantly finer grained than other honeys.

When Dyce began his graduate studies at Cornell he was a salaried lecturer at Ontario Agricultural College, a fact that later played a role in the disposition of the patent he finally obtained on his process.

Dyce had been appointed to the teaching post when

he graduated in 1923. Sugar chemistry was still little understood at that time, as shown by contemporary textbooks.

Dyce's major contribution to our knowledge of honey was his discovery that one could control the granulation process by adding seed crystals. A seed crystal is simply a crystal with one or more sharp fractured edges where the crystal might grow larger. He also determined that 57°F (14°C) is the optimum temperature at which granulation would take place. Pasteurization was required if the honey liquefied partially upon long standing. Looking back on the situation, it is obvious to anyone today with a knowledge of physics and biochemistry that such a process could be controlled, but in 1927, this was a major breakthrough in honey processing and marketing.

In conversation, Dyce recalled that the idea for controlling honey granulation came to him one evening in Ithaca when walking home from a lecture. It took some time to determine the optimum temperature for granulation and to learn how to eliminate most of the foam that inevitably appeared on the top of the freshly crystallize honey.

After Dyce wrote his thesis, his research was published in Cornell Bulletin 528, Fermentation and Crystallization of Honey (Cornell University Agricultural Experiment Station, October 1931, 76 pages). I still have a few copies of the bulletin that are available for libraries.

During his later days as a graduate student, Dyce was approached by a fellow graduate student who asked him if he proposed to patent the process. Dyce indicated he had no such plans. The other student, unbeknown to Dyce, applied for a patent on the process. When the patent was received in the

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patent office in Washington, it was sent to Professor Phillips for comment and advice. Phillips had previously been in charge of bee research for USDA in Washington and was a well-known authority on bees and honey. The patent office was unaware that the applicant and the real author of his patent were both students of Phillips; its only goal was to determine if the idea was valid. Phillips, of course, was angry and dismissed from the University the student who had improperly submitted the patent. It was decided that Dyce should seek a patent to protect his discovery. Since he was a full-time employee of the Province of Ontario, he gave the rights in Canada to the Province and in the United States, to Cornell University. A note at the end of his 1931 bulletin states, "For the purpose of safeguarding the quality of the product that may be obtained by use of the process described in this bulletin, the author has applied for patents on the process and product and has assigned these, if and when issued, to Cornell University or the use of the College of Agriculture in promoting similar researches."

On August 13, 1931 Dyce wrote Cornell President Livingston Farrand, stating "I request these funds" - if any are forthcoming - "be used for further development of the work of apiculture in the University." His offer was accepted, first by Provost A.R. Mann and later by President Farrand in letters dated August 21, and November 26, 1931,

respectively.1

In 1944 Dyce came to New York State there he became the first manager of the newly formed Finger Lakes Honey Producers Cooperative, in Groton. One of his goals was to promote the sale of crystallized honey in the United States. Until that date, little royalty money had been received by Cornell University. Two years later Dyce joined the Cornell Faculty, where he remained until his retirement in 1965.

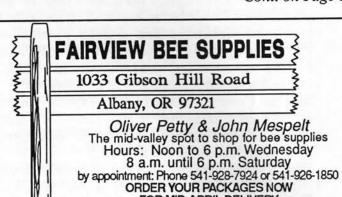
By the time it expired in 1962, the Dyce patent

had brought Cornell University \$144,473.88. It is difficult to place a value on that sum in today's inflated economy; however; it is certainly safe to say that such a sum would have the purchasing power of more than one million dollars today. For several years, money from this fund was spent for research and student support. Upon his retirement, Dyce set aside part of the money as a permanent endowment for the library. A second sum was reserved for the construction of a laboratory. In 1968 with matching funds from USDA, Dyce Laboratory was built to house the apiculture program. The remaining money was invested in the Cornell investment pool where it continues to earn money that is paid to the laboratory annually for research on bees and honey. This has been an important part of the support for the apiculture program ever since.

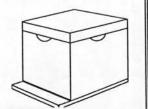
Dyce wanted the granulated honey made using his process to be of high quality. He wrote little about the process, since he preferred to work closely with those who were licensed by the University. Only two formal papers were written and published on the subject. One was the bulletin cited above and the other was a chapter entitled "Producing Finely Granulated or Creamed² Honey", which appeared in the 1975 book *Honey*, edited by Dr.

Eva Crane.

In the 1940'S, Dyce prepared the following sum-Cont. on Page 5







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mary of this process, which was never formally printed and appeared only in mimeograph form.

Summary of the Dyce Method of Processing Honey

"Honey should be heated until it is totally liquefied and until a temperature of about 150°F. (66°C) is reached. It should then be thoroughly strained through two or three thicknesses of fine cheesecloth, nylon, an O.A.C. strainer or some other medium that will remove all noticeable wax particles. The honey should be stirred constantly, yet sufficiently careful to prevent overheating and the incorporation of air bubbles. The agitation should be from below the surface of the honey. The honey should then be cooled as rapidly as possible to about 75°F (24°C), and here again some form of agitation will have to be used which will not incorporate air and which will remove the cooled viscous honey from the sides of the tank or cooling

"When the temperature of the honey is between 70°F. (21°C) and 80°F (28°C), 10% of the starter, which consists of fine, creamy, previously processed honey, is thoroughly mixed with the honey which has been heated, strained and cooled. The honey used as a starter is thoroughly broken up in a grinder or sausage machine which will not incorporate air. The seeded honey is left to settle

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"Honey high in water content should be blended with honeys low in water content, so that the honey will not have more than 17.5% or 18% moisture. This precaution will usually result in a spreadable product, which is not too hard or too soft. If the processed honey is too hard for table use, it should be placed at room temperature of about 80°F (28°C), until it becomes sufficiently soft. Once it becomes soft it will not return again to its original hardness.

"This is a brief outline of the complete method of processing, but precautions must be taken to prevent overheating darkening and impairing the flavor of

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the honey. If this formula is carefully carried out, the resulting product should be a fine creamy, crys-

tallized product."

There are several considerations and problems in manufacturing honey that should be clarified. Some of these are mentioned in the 1975 article by Dyce, others are little known. Dyce states. "Since dextrose crystals are pure white, honeys become lighter in color as the granulation progresses." This may also create a problem if the honey is not thoroughly strained, since any specks of comb, especially dark comb, are readily visible. Honey shrinks slightly upon crystallization and has a tendency to pull away from the side of the jar if it is packed in glass. Here the white crystals that are visible may appear as mold. Some buyers have rejected crystallized honey for this reason, thinking something is wrong with the product. Dyce advised that it the honey was packed in a clear glass jar one should use a label that wrapped fully around it. It is preferred to pack crystallized honey in an opaque container.

Dyce observed that if the moisture content of the honey seems too low, the temperature too cool, or the product was stored in a refrigerator, it would not spread easily. Dyce processed honey made for use in the southern states, or the northern states and Canada in the summer, should contain about 17.5% water. Crystallized honey used in the cooler months should contain about 18% water. As indicated above, the best way to adjust the moisture content is to blend honeys of varying moisture content.

A serious problem with crystallized honey is that air bubbles may be incorporated into the honey when it is cooled and/or as seed crystals are added. This air may rise to the surface as the honey cools and before it becomes firm. Foam on the top of a package of crystallized honey gives it a bad appearance and may again cause a consumer to reject it. Some firms found that if they inverted the containers of freshly seeded honey, the foam would

form on what would eventually be the bottom of the container. In this position, it was not visible to the consumer. More recently, several firms have begun to make crystallized honey in bulk containers, and after the product has become more or less firm, it is homogenized. This serves to give the final product a unified appearance and is a step forward

Dyce recommended that those who made crystallized honey use 10% seed, however, he was aware that many firms used only 5%. He found that if one had a grinder that would reduce the crystals into tiny fragments, one could actually make good crystallized honey using only 1% seed. Doing so required the honey be less than 70°F (21°C) at the time the seed was added, that the seed be thoroughly mixed, and most important, that the seed be finely ground. Each manufacturer of crystallized honey must deal with consideration in his own way.

We are often asked how one determines the best size crystal for Dyce processed honey. There have been no taste tests made recently as far as I know, but those conducted by Dyce many years ago, indicated the crystals should be too small to be felt by the tongue. Not all beekeepers agree with that thought and I have known many who make their crystallized honey with larger crystals, however, I feel that this is because they did not have adequate facilities to grind the seed honey properly or to control crystallization temperature.

I believe that we could sell much more crystallized honey nationwide if it were properly made. The most widely crystallized honey pack sold in the country today is that packaged by Sioux Bee. In my opinion it is a high-quality pack though several other packers also do an excellent job. I suggest any beekeepers interested in marketing crystallized honey first try some of the Sioux Bee prod-

There is no question that many people feel that Dyce processed honey has a different flavor, some say it is better. An important feature of crystallized

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References-Notes

¹This and other papers relating to the process, patent and royalty income are contained in a bound volume under the *Correspondence Concerning The Honey Process And Product Patent* in the A.R. Mann Library (SF 532, H7, D99).

²There is some question about the advisability and legality of using the term "creamed" today since it suggests a milk product. Certainly the word "crystallized" is more descriptive.

Basics in Northwest Beekeeping

by Ron Bennett

eptember starts our Fall management planning and preparations, and protecting your bees from their neighbor hives and yellow-jackets. You need to remember to remove your Apistan* strips after 54 days. It's not only embarrassing to find strips in your hive in Spring, you run the risk of helping to induce fluvalinate (the active ingredient in Apistan) resistance in mites, which will lead to future treatment problems for all beekeepers.

The major nectar flow is over now and the bees are starting to wind their populations down for Winter. But, the populations are still high and there are flowers around (Queen Ann's lace, thistles,

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mint, and others) for the bees to work, and hives with some storage area will make for a "happier" hive. So, keep supers with a few empty combs on the colonies, especially those that are overly heavy with stores in the brood nest.

The worst problem beekeepers face in late Summer and Early Fall is robbing. Don't tempt robber bees by exposing honey. Don't work the brood nest unless necessary; stop if robbing starts. One of the best methods to minimize robbing and help your colonies stave off the yellowjacket onslaught is to reduce entrances to a bee space sized slot after hot days are over.

Keep on the lookout for American Foulbrood, chalkbrood and Nosema. You will be treating for these problems later this year, but if you have a problem now, treat it now.

Check your stored comb for possible wax moth infestation. Wax moths (like rust?) never sleep it seems. They can ruin all of your precious combs in little time.

One of the most popular and effective treatments for wax moths are moths balls (don't mix the two different types active ingredient moth balls) or sunlight on the combs. To treat with moth balls, stack your boxes with frames about four to five deep and put a few moth balls (or a handful of crystals) on a paper plate on top of the combs and cover the boxes with large plastic trash bags.

You also need to protect any stored equipment and combs from mice. They will burrow through your stored combs, eat your combs (especially honey supers) and build nests in the boxes. Treat for mice and rats by trapping or use poisons (as you see fit).



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early this year since my hives were really booming and made my splits into nuc boxes, which went immediately into a blueberry patch (I normally will not move bees for pollination - this is my least favorite part of beekeeping and I did it only because the farmer kept begging my for any type of bees for their blueberries). So, plan B would be to use the Pierco frames on swarms which everyone I knew were getting in bunches.

Well, my luck was that I didn't get a single swarm call until mid-June! But then they came at the rate of two to three a day! I was scrambling for all the equipment I could put together and in my haste, just took the Pierco frames and put half into one box with some wired foundation (no particular order on the frames - just jammed into a box) and put the

swarms into them.

Well, we all know about the June-July honey flow this year, and the swarms quickly drew out all of the foundation and filled it with brood and pollen and nectar. The Pierco frames were drawn to perfection - better for the most part than the Duragild and wired foundation frames. Even cells from corner to corner on each of the frames. It didn't seem to matter if they were plastic-frame-to-plastic-frame

or wood-to-plastic.

The real test came when these boxes needed supers (which was soon). Again, a mad scramble to put together enough supers to give these booming hives somewhere to put all the nectar they were bring in. Again, I gave up the idea of careful intermixing of drawn comb and new Pierco frames since I'd run out of drawn frames weeks before, and jammed frames into boxes and put them on the hives. All of the supers I had left already had Stoller nine frame spacer rails so these hive got nine frames. Normally, this would be an invitation for miss-shapen comb and lots of burr comb. There was a little burr comb, but only on the wood/foundation frame and not on any of the Pierco, which all came out looking like State Fair entries!

The next big test came when I extracted. I use an electric knife and uncapping is my second least favorite beekeeping task. After my experience with the solar melter and plastic frames, I was more than a little apprehensive with the first Pierco frame to fall under the hot knife. Well, wouldn't you know it, the Pierco frames made uncapping a breeze. The smooth even edges ment that the knife just glided along smoothly and evenly - what a pleasure compared to the wood frames.

I don't know if the performance of the Pierco frame was just because of the exceptional nectar flow, but the Pierco frames were drawn out better than the wood/foundation frames in the same hives. I still have one minor concern which won't show up for a year or two. That is how well the bees will repair damage or fill out a open corner. The only downside of the Pierco frames is that when they are damaged beyond use, you can't just cut out the old comb and pop in a new foundation. You may be able to remove the damaged comb from the Pierco frames by freezing them and snapping it off, but I haven't tried this. Maybe Nick at Pierco or someone with some long term experience can guide us on

When you compare the cost of the Pierco plastic frames to wood and foundation, there is a cost difference. This gets smaller with quantities, but in the quantities that a hobbyist is going to buy, there is a cost consideration. But, when you figure in your time to assemble a frame and install foundation and

wire it, the costs difference is small.

In summary, the Pierco frames performed far better than I had expected and actually exceed my hoped-for results. I will be adding new Pierco frames for my supers from now on and look for long years of service from the deep brood box frames as well. Time will tell how cost-effective they are in the long run, but I assume from the example of the commercial beekeeper I mentioned early on, these frames will prove very cost effective and perform well.

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Klamath County Meeting dates and sites vary. Call officers:

President: Ken Crow, 541-882-1893 Vice president: Chet Hamaker, 541-882-2404

Lane County
Meets 7:30 p.m. second Tues;
Public Employees Credit
Union,
1155 Chambers St., Eugene

President: Lee Zigler, 541-688-5675 Vice president: Edgar Elder, 541-998-3199 Treasurer: Jim Sheridan, 541-344-1354 Newsletter Ed.: Lee Zigler, 541-688-5675

Portland Area Meets 7 p.m. second Thurs Clear Creek Mutual Telephone Co. 18238 S. Fischer Mill Road, Oregon City

Info: Rosemary Marshall, 503-631-7313

Southern Oregon Meets 7:30 p.m first Mon.; S.O. Research & Extension Center 569 Hanley Road, Central Point

President: Stan Kee, 541-664-3238 Vice pres.: John Campbell, 541-664-4867 Secretary: George Steffensen, 541-474-4305

Tillamook County Meets 7 p.m. first Thursday; Fish & Wildlife Bldg., 4909 Third St., Tillamook

President: Bob Allen, 503-322-3819 Vice pres.: Fritz Hoffman, 503-842-6856 Sec.-treas.: Gregg Cline, 503-842-6323

Tualatin Valley Meets 7:30 p.m. second Wed. PGE Building, Old Scholls Ferry Road & Murray, Beaverton

President: Chuck Sowers, 503-636-3127 Vice pres.: Jim Marshall, 502-642-3319 Secretary: Michael Laux, 503-591-8864 Treas.: PattiJo Campbell, 503-690-9341

Willamette Valley Meets 7:30 p.m fourth Mon.; Room 112, Building 50, Chemeketa Community College, Salem

President: Walt Nichol, 503-585-5705 Vice pres.: Richard Farrier, 541-327-2673 Secretary: Ron Bennett, 503-838-2328 Treasurer: Fritz Skirvin, 503-581-9372

Calender of Events

Sept.	20	Coos County Meeting, Coquille
	23	WVBA Meeting, Salem
Octobe	r 5	Tillamook Beekeepers
Secondary Paris	7	So. Oregon Beekeepers, Central Point
	8	Lane County Meeting, Eugene
	9	Tualatin Meeting, Beaverton
	10	Portland Meeting, Oregon City
	18	Coos County Meeting, Coquille
1 - 1	28	WVBA Meeting, Salem
Nov.	4	So. Oregon Beekeepers, Central Point
	7	Tillamook Beekeepers
	12	Lane County Meeting, Eugene
	13	Tualatin Meeting, Beaverton
	14	Portland Meeting, Oregon City
	15	Coos County Meeting, Coquille
	25	WVBA Meeting, Salem
Dec	6-7	OSBA Fall Conference, Seaside

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Cont. from Page 9 - BERMUDA

The ABF asked their Convention Travel Management company to quote them sample round trip airfares from select departure cities—both to Norfolk via Bermuda and to Norfolk only. Here are the fares they found -on Delta Air Lines: FROM

Norfolk Only Bermuda/Norfolk San Francisco \$454.00 Seattle \$693.00 454.00 680.00

These fares were in effect on June 28 and are subject to change until ticketed. Participants would secure individual air travel, either through the Convention Travel Management company, from their private travel agent, or direct from the airlines. Most major U.S. airlines

Costs in Bermuda: Hotel and Group Transportation (airport transfers and group tour on Monday) - \$345.00 per person. The hotel and ground transportation package is on a per person rate, based on double occupancy, and is available only through the ABF Office. Add \$195.00 for single occupancy hotel room; add \$130.00 per room per night for arrival earlier than 1/11/97. All

prices are tentative, pending final arrangements. No meals are included in package.

They need an indication of your interest so they may proceed with the planning. If you are interested, please contact the American Beekeeping Federation at P.O. Box 1038, Jesup GA 31598. NOTE: Do not commit to non-refundable airline tickets until you are notified that final arrangements are confirmed.

Cont. from Page 2 - EDITOR'S DESK

One of the hardest parts of this job is reporting on the loss of a friend and in this issue, you will find an obituary on Florian Schmitz from his daughter, Rosalie. Our deepest sympathies to Rosalie and the whole Schmitz family. He will be missed.

Next issue will have details on the exciting program Charlie Mock has put together for the Fall/Winter Conference. From preliminary indications, this year's event will outshine last year's meeting and all who attended know what that means.

OOK AT YOUR ADDRESS LABEL

echnology has finally caught up with our mailing list. You will note that there is a date code after your last name. This is the date of expiration of your membership. We have tightened up on past due membership dues. You will stop receiving the *BeeLine* and your membership will be inactive 60 past the due date. If you feel we are in error on your date, contact Phyllis Shoemake at the address on the inside front cover.

Membership and Publications

Membership in the Oregon State Beekeepers Association is open to anyone who has an interest in bees and beekeeping. You do not need to own bees or reside in Oregon to join the OSBA. OSBA Membership is \$15 per person and includes a vote in all OSBA elections discounts on other bee-related publications. To issues of The person and includes a vote in all OSBA elections, discounts on other bee-related publications, 10 issues of The Bee Line, and more. And, if you are already a member of a local group, your group will receive \$1.00 from your OSBA dues. Foreign membership is \$23.

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CLASSIFIED ADS

Classified Advertising Rates per issue: 30 words, per issue: OSBA members \$2.00, Non-members \$3.00 Copy and payment must be submitted by the 15th of the month prior to publication.

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