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West Maitland, N.S.W.: E. Tipper, August 31, 1908

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THE AUSTRALIAN Bee Bulletin.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.

Edited and Published by E. TIPPER, West Maitland; Apiary, Willow Tree, N.S.W.
Circulated in all the Australian Colonies, New Zealand, & Cape of Good Hope.

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A Monthly Journal devoted to Beekeeping.

Circulated throughout the Commonwealth of Australia,—New Zealand & Cape of Good Hope.

Editor & Publisher: E. TIPPER, West Maitland, N.S.W. Aus.

MAITLAND, N.S.W.—AUG 31, 1908.

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Australia.

FOR the first time for some four months we have been able to spend a full day at one of our apiaries. There has been much cold weather during the time. A number of hive covers had been knocked off by inquisitive cattle, but altogether they were not in bad order, some being very strong, with larvae and brood; a few very weak, and a few had evidently perished with the cold weather. Hardly any bloom was out. This seemingly was not the time for yellow box. A few wattle trees had come out, as well as white box. In one place we were shown some dark honey that had been extracted, evidently gum or apple tree.

We acknowledge receipt of ninth number of "The Call," a journal "to awaken Australians to realise that the defence of our country is the defence of all." No doubt it is a much wanted periodical, and wants a deal of thought, not only by our local government, but by the masses of the people. The great trouble now is "Closer Settlement," but the question is, is that settlement to come to the masses of the people, who with their fathers and mothers have been born and bred on the land, or to moneyed strangers, whose love for the land is in the £ s. d. they can make out of it?

Mr. Abbott, a London beekeeper, has placed a hive on the roof of the "Daily

Mirror" in London, believing it will be a great success there.

Horses on the Clarence are ridden and driven with bows of red ribbon tied round their throats as a preventative against an attack of bot flies.

It is expected that the Byron Bay Creamery will smash all records in the current month's output. It is said the pay for the month will be well over £60,000.

SCOTLAND.

Our dear old friend, Mr. J. F. Meiklejohn, has sent us another letter from the dear old land, where he has gone to end his days, from whence we make the following extracts:—

Dunillane,

July 1908.

Dear Sir,

Glad to learn all the news about our old friends, your Neighbours. Tell Mr. V. his letter to us is long overdue. I should much enjoy a run through the old quarters again, but I fear I will only have to do it in the imagination. That long long road! Glad to learn from papers I get that Australia is still using as his motto "Excelsior," and ever on the ascent. We all ought to be proud of our empire. I have been rambling about a little bit as usual this summer. In May I spent ten days "Doon by the Tummel and banks of the Garry." I saw and spoke to many of the Highland lads there and could always understand what they said, they having the advantage of me, as they were at home in both the English and Gaelic language. I was among dancers and pipers who could give performances as only the children of the mist can. I even tried to get a skirl out of the pipes myself, but managed no more than a grunt. The Highlands are really beautiful, more particularly when dressed in summer's garb, and one can't wonder that so many southerners are attracted to their glens shadowed by the

rugged fens to spend their summer holidays. I enjoyed my visit very much. Kind friends attending to my comfort and entertainment. Since then I have been spending a few days among the Ochile Hills plying the gentle art on the "Banks of the clean winding Devon." The weather was ideal and though trout were difficult to catch, and consequently we had to do with light baskets. Our rambles in that quarter were most enjoyable. In getting to our quarters, a lonely shepherd's cottage, I had to traverse the famed Gleneagles, partly on my bicycle where gradients were not too steep. The scenery as viewed from the higher parts of the glen is very fine. To the north we see Strathallan and Stratheams stretching to the base of the Grampians, and studded with spots of deep historic interest of men and scenes of long ago. Glad in verdure in June, the whole visible outlook is refreshing and beautiful, while to the south the rounded and grass covered Ochils rise in all their solid majesty. In passing up the glen, which has been in the possession of the Earls of Camperdown for some generations, we note a few trees on the summits of the hill, which are said to have been planted to commemorate the victory won by Admiral Duncan over the Danes at Camperdown in the early part of the last century. The Roman Legions have traversed this glen in the early part of the Christian era, and the remains of their road are still quite visible. Well defined remains of their camps are common in Perthshire, where they appeared to have met their match in the rude sons of Caledonia. As I have hinted our success in fishing was not great. The long drought we had experienced accounted for the river being very low, and the water being very clear, it was only by the greatest subtlety we could get within reach to tempt the weary trout with our lines. Still in the company of my brother, we had a most enjoyable time. On getting home I at once made preparations to go to Edinburgh to see the Exhibition which is

being held there at present. Mrs. M. had preceded me a few days ago. In going along by sail, I happened to get into the same compartment with an unbiassed Englishman, who had been touring Scotland. He told me that he had travelled a lot, but nowhere had he been, where he had seen anything in the way of scenery to compare with Scotland, and he had seen no city that could compare with Edinburgh in beauty. I must say that I was rather proud to hear my native country lauded so by a southerner, and determined I would see as much of Modern Athens as I could during the few days I was to be in it. Of course the Exhibition was the first place I visited. It is not nearly so extensive as the Glasgow Exhibition was. The Fine Arts are very fine; the Canadian section is good; so is the Japanese section. I was disappointed to find that there was little or nothing from Australia. Surely the different states of the Commonwealth are standing in their own light in not taking such opportunities to advertise to the world their resources. I am surprised at such supineness. I spent part of two days in the Exhibition, and saw much of interest, though I think the tendency in most of these places now-a-days is to make them more shop or bazaar than wholly exhibitions. To get a good view of the city and surroundings I went to the Castle, and found it thronged with visitors, and from the conversations I heard going on among them I judged the great part of the visitors were not Scotch people, the peculiar twang of speech being heard on all sides convinced me that very many were from the other side of the Tweed, and not a few from the other side of the Atlantic. The view from the Castle ramparts is very grand and extensive. The day being clear, the Fife coast could be seen to advantage, while the Forth literally swarmed with the war ships of the home fleet. There had never been such a muster of war vessels in Scotch waters before. There were no fewer than 150

craft of one sort and another, headed by the monster "Dreadnought," anchored in four lines—each line was three miles in length. I sailed round the fleet two or three days after this, and it had a really imposing appearance, and gave me some idea of Britain's sea power. The ships were all very quiet, but had they all been on speaking terms things would have been very terrible. The crews of these ships numbered no less than 30,000 men. It was called the Red Fleet, and went to sea yesterday to engage the Blue Fleet in mimic warfare. I might say that on my little trip I passed under the Forth Bridge, and was again much impressed with the stupendousness of the structure. I need not enumerate the other lions of the city I went to see, only I may mention Holyrood Palace, St. Giles' Cathedral, the Law Courts, Botanic Gardens, and Picture Galleries. One would take weeks, I dare say, to explore Edinburgh and the suburbs in a thorough manner. As you hope to take a run home to the land of your birth, do not fail to come to Bonnie Scotland and see it for yourself, and I am sure you will not think then that I have been exaggerating in what I have been saying. Now I must close. Thank you for the A.B.B. My bees have all died out, and I have retired, tired of the whole business.

DEVONSHIRE, ENGLAND.

We have much pleasure in giving our readers a copy of a letter we have received from Mr. F. W. Penberthy, who has landed in his native country, and whom we wish every success and pleasure not only there, but also on his return to Australia.

Station Cottage,
Yelverton,
S. Devon,

June 26 1908.

Dear Sir,

Just a word or two to tell you how I am getting on. I landed just 15 days

ago after a most pleasant voyage, the ports of call being very interesting and delightful.

I landed at Plymouth, a very old town with narrow streets, also very crooked. Often got bushed through being used to well laid-out towns. I leave a main street and expect to get into it again by another cross street which never reaches there. The country looks lovely with its green woods and fields enclosed by hedges, very few straight fields small and all shapes, and such a lot of flowers and rarely see a bee. I have seen two places only where bees are kept, not visited any yet. Those I saw was from the train, but have not travelled much yet.

A few days ago I went into a grocers and asked for a jar of English honey as I wanted to sample it. 9d. per lb. I found it contained a good white clover honey. While at tea one of the family read out the label as follows: "Imported direct from Australia by the Co-operative Wholesale Society etc.," which I enclose. Now I consider we have a good start and must be careful in the stuff we import. Avoid sending honeys that candy into a coarse grain, as they may think there is sugar put into it. I brought over a sample of yellow box honey. My friends think it very nice, and could only detect the taste of the Eucalyptus a little while after eating, with no dislike.

yours truly,

F. W. PENBERTHY.

CHAMPION BEES.

Some time ago I was told the following bee story, which I suppose must have come from yankee land. Mr. F. Robertson relates the story which may amuse some of your readers.

Away down in Pointers Gully, a young couple had newly wedded and previous to the marriage, the very thoughtful young man had a strong wooden building erected containing three rooms and a garret over the sitting room with a trap

door. This was lined with pine boards, tongued and grooved so as to make this loft or upper room frost proof, which was intended to store pumpkins and melons for winter use. Soon after the neat little cottage was completed, along came a large swarm of bees lodged on the gable end of the house. This was early in spring. There happened to be a knot in one of the boards, which after a few days exposure fell out, leaving a hole about two inches wide. These bees did not lose much time. Into this hole they streamed. Shortly after the young folks took up their abode. One room they used for a bed-room, one for the dining room, the third for their sitting room. Mr. Brown was the owner's name. He was a tall, slender young man of fair complexion. His dear little wife, dark, with long lovely hair, in which her husband very much prided. They watched the bees for seven months pass in and out the gable of their dwelling. They never lifted the trap door as they had no use for that upper room, listened to the hum of the bees on warm nights. Mr. Brown often remarked that he would have to obtain the services of a bee-master and get some honey. Probably there would be enough to serve them through the winter. Eventually he sent for Mr. Jones, a noted beeman, telling him to come over night as he was of opinion there was a lot of honey. Mr. Jones soon put in his appearance, and whilst at tea Mr. Brown remarked "I think there may be a lot of honey, possibly 60 or more pounds. Mrs. Brown chipped in. "I have been wondering if the ceiling might break through with the weight of honey." This brought a smile on the beemaster's face. He thought, she does not know much about bees. I have been 45 years working amongst bees, never heard of such an expression, he remarked. We will see in the morning. The subject was turned on the best breed of fowls. Mrs. Brown leading, all of a sudden down came the honey, without a minutes warning. Mr. Brown sprung to his feet. He felt the

mass right up to his shoulders. The first one he thought of was his dear little wife. He placed his long bony hand down by his side, caught her by the hair. Didn't he pull for all he was worth. He was afraid her hair would give way. He was successful, so far as dear Emily was concerned, not even a sting. As for himself he was a mass of tiny splinters from the hot ends of the bees, but oh, such a mess. Mr. Jones was more fortunate so far as stings were concerned, and honey he only got one arm broke and had to be at once removed to the hospital. Mrs. Brown was taken to a neighbour's in a dripping state, where Mr. Brown and her remained until a late hour next day. On his return he found a man with a tip cart and a strong horse. The man was one Mr. Smith. "Please Sir, if you have no use for this honey would you give it to me?" Yes, take as much as you require. That evening Mr. Brown visited Mr. Jones who was progressing favourably, and advised Mr. Brown to charge for balance of the honey which next morning he did, 25/- per tip cart load, which fully repaired all damage to the house.

All this time I had been waiting to ask Mr. Roberson what breed of bees were they, hoping he would say why. The record honey bees, the Cyprians, but no, he said they are neither Italians, or Cyprians, they are a new breed. Mr. Jones is now breeding from these bees, and if you will only watch the beepapers you will see them advertised by Messrs. Jones and Brown as "The Champions." They only want water and not much of that. The roof of an old shed producing tons of honey and when a queen is wanted just pull the sting out of a worker and you have a queen, price 3 for 7/6.

W. REID Sen.,

Honeyvale, Paupong,
via Dalgety, N.S.W.

• INSTINCT AND INTELLECT.

My object is not to write an exhaustive scientific and scientific essay, but to record a few observations and the conclusions drawn therefrom, with a view of calling attention to this interesting subject. Some may consider the life and action of the bees the result of reason and sense; others will think it an absurdity to ascribe to bees intellect, because they have not studied bees but kept them for gain. Thus my writing will find favour as well as induce controversy.

What is Instinct? Instinct is an inborn quality carried out by each individual in fulfilment of Nature's law? it is voluntary. For instance, the infant suckles, the duck swims, the bees walk about as soon as hatched, with their wings they can fly: the sting is used in case of attack or defence without instruction in the art of fencing; the cells are all of the same size and shape in every hive; they feed and care the brood given them by the beekeeper from another hive or another variety just as they nurse the brood from their own queen, and yet they never received any lessons regarding proper nursing: they know instinctively how to do all these things. Bees are models of industry, economy and cleanliness.

I will explain further what I mean. Remove a sufficient quantity of brood that is just near hatching and place it in temperature and condition as near as possible to what it is in the hive, but without bees. The brood will hatch. Give the bees a queen and provide them with food, and then take all the old comb away, feed abundantly on honey to enable the secretion of wax and the bees will build combs exactly like any other, although they have never seen any bees in the act of comb-building, they know by instinct how to do it. As a matter of fact I may mention that they cannot build combs of which the cells are round, they are distinct to build hexagonal cells, whether they will or not.

Make your honey look attractive by having nice labels. Send for Samples.

If their food, honey and pollen, can be gathered in plenty bees are ever ready to collect and store it, even should the bee-keeper deprive them of their honey almost as soon as they unload it in the cells, they notwithstanding go on fetching in more. Not much sense in that, is there, but the bees seem to enjoy the fun. They are fulfilling what they are intended for, not only in respect to gathering, but they also act as fertilising agents when in search for food. These actions indicate what is meant by instinct, and it is hardly conceivable that the little bees possess it in such well defined form.

Intellect is shown in actions that have to be learned, require will-power or reflection in their execution. It may be difficult to exactly say where instinct ends and intellect begins, thus I take only on broad lines. I said before bees fly without having been taught how to fly, but when they take to the wings at first they have to take notice of the surroundings of their home, and to better note the various objects they turn round with the head towards the hive. When they have a clear impression of the locality they fly straight away without taking notice what the surroundings are where they come from. This indicates reflection. The bees impress upon their mind or memory the things they have seen, denoting that they are in possession of reflex-organs. If it was not so how could the darting away bee find its home after each trip from the fields. I will illustrate it further. Move the hive some yards away and the returning bees will fly straight to where the hive used to be; even the bees leaving the hive after it has been moved will return to the old place. If, however, the hive is moved so far as to present to the bees entirely new surroundings, then the bees have again to learn the new objects, and they are quite capable to do so the same as they did in the first place. Thus bees can change and alter the first reflex-impression at will. Is instinct flexible enough to admit that? Bees also distin-

guish color. Do they do that by instinct? Let us see. If a hive painted white (say) is removed and another painted red just in its place the returning bees are quite non-plussed, and thinking they may have made a mistake they fly some little distance away again, and when they made sure that they are on the right track they come back to the same old spot; they know the hive used to be there, but they are also intelligent enough to notice the difference in color.

A child must learn to walk. It requires will-power to place one foot before the other. It has to learn the location of home, or else it would soon be lost. These and other such actions require thought and reasoning.

The action of stinging does not to be learnt, but nevertheless it seems as if the bees exercised will-power in deciding the motive for or against.

How do bees know their queen? By instinct. If so, does it go so far as to prevent bees without a queen from accepting another when they have no means of rearing another? The queen is the most important, being the mother, laying all the eggs for workers, drones and queens. Does she lay by instinct? Is her actions like that of a will-less creature? In that case how does she distinguish between worker and drone eggs?

Equal as astonishing is this: How do bees differentiate between worker larvæ and drone larvæ when feeding them? It must here be born in mind that worker larvæ receives different prepared food to the drone larvæ, that there are so many thousands larvæ of various ages, therefore requiring differently prepared food for the different ages as well as sexes. Or how do the bees find a honey field, perhaps several miles away and now in one, then in another direction? And when the flow is over how smart the bees are to rob some other hive trying various methods to attain the desired end, and how equally clever the defenders repulse them. These and numerous other

actions plainly show that bees possess qualities far superior to any other insect and embodying more than mere instinct.

It may be argued that bees are simply the result of evolution, but there is no foundation for such assumption. Bees have been what they are and will be. For the last fifty years students have been able to study bees much more than ever before and some have thought of having been successful to breed bees of special excellency, such as color, long-tongued, non-swarmer, non-stinging, etc., but the result is that where one quality is fostered and others disregarded it ended in ultimate failure. Bees are not created for the purpose of gain to the beekeeper alone, but for other purposes also, and the better we understand these purposes the better success and the more profit may be attained in keeping them.

W. ABRAM.

Italian Bee Farm,
Beecroft, near Sydney.

STRENGTHENING WEAK HIVES.

Quite a number of our beemen say we cannot help weak swarms. I think it can often be done. The queens are too often blamed for this trouble, when in many instances she may have no control in the majority of cases. Honey or poller want is answerable for weak hives. Suppose the spring is cold and the hive we have to deal with contains but a pint of bees, and say there is a good queen in this hive, place them in a good warm hive containing but 3, or 4 frames, which fills the hive, or make a bottom story hive, equal to this by means of followers, place the hive in a sunny situation. Suppose this swarm of bees are in a large hive which is often the case, and you wish to place them in a 4 frame hive, take out 3 frames containing the most bees. Now jar out all the remaining bees if any, into this small hive. Be careful to place this hive in the same spot as the large hive. Take a frame without

any bees and exchange with a strong hive giving the strong hive the empty frame, and take a frame from the strong hive containing, say, a patch of breed ready to hatch out, or nearly so, 4 inches square, no more. Jar off the bees, place this in centre of small hive, making 3 or 4 frames in this small hive, cover up warm and dry. See that the frame contained a fair lot of honey. In about 14 days add another similar frame and the probabilities in a month that little colony will be ready to return to their former hive. In the event of those bees having no honey and the other hives cannot spare any, take equal parts of best white sugar and water, boil for 30 or more minutes, when cool, take an empty frame free of bees, lay the comb on the flat, and charge about half or more (according to quantity of bees) with this syrup. In no case give a weak lot more than one side charged with syrup, as it is liable to sour or go mouldy; besides too much moisture will make the hive cold. Renew the feed once a week; as soon as the bees commence to collect their own food, stop feeding, don't fail to reduce the entrance so as only one bee can come in at a time;

I prefer a piece of wax for this purpose.

W. REID Sen ,

Honeyvale, Paupong,
via Dalgety, N.S.W.

The Honey-Bearing Trees of West Australia.

The Eucalyptus furnished to Gleanings by Mr. John Craigie:—Red gum, Jarrah, York gum, Wandoo, Tuart Blackbutt, Flooded gum, Blue gum, Peppermint tree, Paper-bark, River Banksia, Seaside Banksia, Narrow-leaf Banksia, Menzies Banksia, Hollyleaf Banksia, Great flowering B., Toothed Banksia, Wattle bark, Raspberry jam, Wattle gum, Christmas tree.

AUSTRALIAN PRICES.

The following is in the "British Bee Journal":—Prime clear lots of honey are on offer at 2½d. to 3d. per lb.; medium to good sells at 1¾d. upward; prime clear wax is quoted at 1s. 2d., and for medium lots sellers are accepting down to 1s. It is to be hoped it will be long before such prices quoted in the *Australian Bee Bulletin* rule in this country. Undoubtedly sellers should hold out for a good price this year, as honey will be scarce even with a good season, for the simple reason that stocks are very greatly reduced in number all over the three kingdoms.

HONEY.—

With the reduction in the price of butter, the demand for honey has weakened, and stocks continue fairly heavy. Choice Western is selling from 2¾d to 3d.; with an occasional 3¼d per lb.; good from 2¼d to 2½d per lb.

BEESWAX.—

Very dull of sale. Best bright from 1/1 to 1/2; dark, 1/- to 1/1 per lb.

Highest market prices obtained for
Honey and Beeswax by

PRESCOTT LIMITED.

COMMISSION AGENTS

336 & 338 SUSSEX STREET

—SYDNEY—

FOR SALE.

BEEKEEPERS' Supply Plant, Consisting of Foundation Mill, Foundation Plates, Dipping Tanks, Dipping Boards, Barnes' Circular Saw, Sections, Section boxes, Enamelled glass on both sides. All in first class order. No reasonable offer refused.

STRAND,
Longford, Tasmania.

The best strains from the first source is what I breed from.

The all-important question for the up-to-date honey producer is: Are his bees the right strain?

For fifteen years I have been importing from the most reputable Queen Specialist in Italy, who has made a reputation as **A BEE FOR BUSINESS** with these Pure Three-Banded Italians.

I have queen mothers of last season's importation that have proved themselves equal to any I ever had, and am offering their stock for the present season, fully guaranteed, October to March.

Untested, 5/-; Tested, 10/-.

J. DRAGE,
EAST ADELAIDE, S.A.

FOR SALE.

ABOUT 70 HIVES GOOD ITALIAN BEES.
E. TIPPER, Wallabadah.

For all you want in the way of

PRINTING!

Try the

"Australian Bee Bulletin" Printing Works,

West Maitland, N. S. W.

NOTICE.

I BEG to return my sincere thanks to my numerous customers for their kind patronage during the past. I would draw their attention to the fact that, owing to a good winter, I will be able to supply Queens as early as Sept. 15th for the coming season.

All Queens Reared from Imported Mothers.

Untested, 5/-; Tested, 8/-.

Select Tested, 15/-.

M. ARMSTRONG,
ROSAVILLE APIARY, THORNTON.

Beekeeping Among the Celtic Monks of Great Britain.

Why Candles of Beeswax are Used for Sacramental Purposes; a Church Built by Bees.

BY FATHER MAURUS MASSE, O. S. B.

As in the honorable mention you make of us in January 15th issue, page 83, you do not seem quite certain whether we read GLEANINGS and the A B C, I am penning these lines to assure you that we do read them both with great interest and pleasure. What you say of European clergymen as being often ardent disciples of the bee-keeper's art his quite true and my researches in that line leads me to conclude that it was still more so centuries ago; for then it was not only pleasure and profit but necessity that prompted them to keep bees. To mention only the Celtic monks of Great Britian, and, later, of Armorica (whither they were driven by the Saxon invaders), for whom I may be pardoned for taking a special interest as one of their race and profession, many a quaint story is related in ancient chronicles about their apicultural successes. Thus we find the following interesting account of the exchange of their products with the Parisian abbeys:

One day St. Samson, abbot and bishop of Dol (in those times abbeys very often became bishoprics) and the bishop of Paris talked together about their monasteries. St. Samson mentioned that his monks were such good managers, and so careful of their hives, that besides the honey, of which they had an abundant supply, they had more wax than they could use in the church during the whole year; but that the country, not being fit for the growth of vines, they had a great dearth of wines. "And we, on the contrary," said St. Germain (bishop of Paris) "have vineyards in abundance, and a much greater quantity of wine than is wanted for the supply of the monastery; but we are abliged to buy wax for the church.

If it pleases you we will give you every year the tenth part of our wine and you shall furnish us with wax to light our church." Samson accepted the offer, and the two monasteries mutually accomodated each other during the life of the saints.

I have gone some length to quote this agreement, because it illustrates very well what must have been the custom in most Celtic monasteries of that period, not excepting Buckfast Abbey, as the extant records would imply; for this old abbey had a Celtic origin, and is believed to have been founded in the sixth century by the great British saint, Petrock, son of a Welsh king St Samson, spoken of above, was a compatriot and an intimate friend of our founder, and on his way to Armorica came to Devonshire to spend a few days with St. Petrock, when, I feel sure, the bees formed an item of their conversation, just as it happens now when two beekeepers meet. Another British monk of the same period (sixth century) was so celebrated as a beekeeper that poular tradition invested him with the glory of having introduced bees into Ireland. This predilection for bees went so far that in monasteries, which, by the will of their founder, were sometimes to remain without earthly possessions, yet was there an exception made in favor of bees, of which they could have an unlimited number. This should not astonish us if we bear in mind that monks like to consider their monastery as a "Holy Land" where floweth the milk and honey of spiritual graces and consolations; and the analogy is brought home to them more forcibly by the presence and taste of the materia honey. Ancient writers even compare the monastic home to the bee-hive, because, as says Virgil, "Innatus apes amor urget habendi," so "the monastery was a hive of piety and industry wherein the monks gathered in abundance the richest honey of religion, literature, and science, to be freely dispensed to those around them."

But, besides such mystical considerations there was, as I said, the reason of necessity. You are aware, no doubt, that in the Catholic Church beeswax candles are extensively used for divine services, and their liturgical meaning is to represent Christ, the light of the world. No other material could replace beeswax, which has a noble and beautiful mystical signification; for, being produced by a virgin insect, it represents the body of Christ produced by a virgin mother; hence the great consumption made of that precious substance for church purposes. It is marvellous to read what Anglo-Saxon writers tell of the splendour of divine worship at the times when Britain and Saxon alike flocked to St. Mary's Abbey on great festivals; of the countless waxlights that made night as bright as day; and well may we ask from what source they did draw all that beeswax. I believe it was produced in great quantities by clergymen themselves, as the instance of St. Samson mentioned above testifies. This was so well known that the ancient laws of Spain made the provision that clergymen might pay their taxes in wax instead of money if they chose to do so.

An instance somewhat similar is connected with this abbey. By a charter (of which the original is still extant) given to the monks of Buckfast in the year 1216 we learn that the (then) abbot agreed to give on the patron feast of our abbey one pound of beeswax to all our knightly benefactors in order to keep alive the memory of their gifts. The distinguished company, before singing that charter in our chapter room, had, no doubt, visited our garden and had seen a good range of bee-hives as now, and nothing, therefore, more natural than that they should suggest an annual pound of beeswax as a recognition for their liberalities. We are not left to ignore, however, that a lady disagreed to this, and, when the document was brought to her to be signed in the guest-house (for, according to monastic customs, ladies are

not admitted within the enclosure), she asked to have a pair of white gloves instead of the beeswax, which request was easily granted, as Buckfast Abbey was then the great centre of woollen manufactures in Devonshire. Perhaps the reason that beeswax can now be gotten so easily causes us to cultivate bees on less extensive lines. But still, even now I know of more than one Lord Abbot who does not think it below his dignity to look after these interesting little creatures, and within the last two years it has been my own privilege to help in introducing bees into two newly established monasteries.

The following is a curious example of what may be done with bees. I know of a clergyman who set twelve stocks of bees on a piece of land granted to him on lease. They prospered so well that in a remarkably short time he not only paid for the land, but also built on it a nice parochial church almost entirely with profits derived from his bees. This has set me thinking how much I wish we could do the same here, for we have just started rebuilding our old monastic church to the memory of the late Lord Abbot who perished last August in the wreck of an Italian steamer while on his way to visit our American brethren. He loved the bees so much that, on his tour to the United States two years ago, he brought us some seeds of your bee flora. This will explain why the present writer is anxious, that, in their turn, these sweet pets should contribute in some way their little quota to the erection of the monument in memory of the popular and beloved deceased. But sharing not in their capabilities the same confidence as the above-mentioned clergymen, he has deemed it more prudent to exchange temporarily the fragrant air of the apiary for the dusty studio, as illustrated in the enclosed photo. Our apiary is beautifully situated in a valley, and a more ideal place could scarcely be found for bees. It is protected on all sides against the wind, and is, during spring

and summer, like one of nature's Edens. One side of its secluded precincts is wooded with the fragrant thuja; on the west and north is a long low wall of which the stones are intermixed with *Arabis*, *Alpina*, and *Aubrietas*, which, forming a solid mass from end to end, descend to the ground like a graceful carpet, while their snow-white cross-shaped flowers spread their chaste perfume all about. Behind and above that wall, as if to shelter the sweet fragrance from the north wind, rise the golden broom and roses with their delicate colors, while gorgeous hues of wild flowers and ferns fringe with beauty the banks and braes and streams around. Two rivulets of clear water crooning under the ferns and trickling down from stone to stone, in their gentle embrace enclose the apiary, mingling their tiny voice with the aerial hum of the busy throng, whilst hard by in the dim shadows of its woody bank a mighty river, the Dart (called for its picturesqueness the English Rhine) winds along its poetic course. A few yards further lies a placid sheet of water, beautiful beyond expression, in which monstrous salmons weighing from 15 to 20lbs. show us their glittering silvery scales. On the northwest of the apiary, a mile away, appears the imposing cone-shaped Hembury Hill, once a Roman camp, and historically connected with St. Mary's Abbey at the time when the heroic Britons made of it their stronghold against their Saxon invaders. From its summit may be viewed a panorama of matchless beauty, especially toward the venerable abbey among whose possession was reckoned centuries ago. Every year in late summer our bees animate its crimson crest with their thousand thanksgiving hums.

The valley of the Dart is one of the loveliest parts of lovely Devonshire, and its nameless charm casts its spell even on Americans, of whom several come every year to spend their holidays under the shadow of the old abbey.—
"Gleanings."

POETRY.

O ERRANT BEE.

Thou art so gay, so bright and free,
O errant Bee!
Sipping the sweets from flower to flower
So recklessly!
Could I but join thee in thy fight
And hie away
From cares that vex and griefs that cling,
For just one day!
Could I but beat the air with wings
As light as thine—
Upon the sweets of life like thee,
At will could dine—
Then, gorged with honey, hie me home
To sleep, care free,
And awake, unknowing what morn had
In store for me!
Ah! is it knowledge that doth breed
Inward unre-t?
Doth take from common daily toil
Its welcome zest?
O Nectar Gatherer, meet we,
For wings, forego
The thrill which loving, human hearts
Alone can know?
Then hie thee to the clover-blooms,
O Light of Wing!
Since neither pain nor loss of love
To thee can bring
Heartache or sorrow—live thy life
Griefless, care free—
Pain is my legacy from love,
O errant Bee!

—HELEN M. RICHARDSON, in *Farm Journal*.

UNCAPPING ARRANGEMENTS.

By J. T. PETERSON.

The cappings and the honey drop through the hole in the top of the table, and fall directly on the tank filled with boiling water, and the mass at once melts

and drains off into the receiver, where the honey goes to the bottom and the wax to the top. When the division line reaches a certain level the honey escapes to the main honey-tank into which the honey runs; also from the honey-extractor.

I used one of these machines for extracting several weeks, and it worked perfectly, and at the end of each day I had no cappings, etc., to use up time. On the following morning I always had a perfect cake of wax ready for market after removing it from the tank. It was then necessary only to light the burners and go ahead. Any water that might get into the wax and honey from the uncapping-knife goes off in steam immediately, when it gets on the tank and the honey and wax slowly drain down the one-inch incline. It takes but a very small flame to keep this tank hot. The uncapping-knife is heated in the well for the purpose, which is a part of this tank; any steam that may generate escapes through this, and you always have a hot uncapping-knife, and can here also see when the water is getting low, and pour more in.

Besides the one I used I made three others for friends, and they used them with equally good results. I used No. 30 galvanised iron for the tank, which is 3ft. long and 1 inch deep, and perfectly flat, with a rail on sides and back.

The honey from this machine is not in the least coloured, as is the case in the old sun extractor, and the wax does not need remelting, etc., You are through, and have a finished job each day. The honey has also a good heavy body. Because of the evaporating process it goes through draining over the tank. Not one particle of wax escapes with the honey, as the honey drains from the extreme bottom of the receiver.

The burners should be close to the bottom of the tank. One five-gallon can of gasoline lasted me one season.—“Gleanings.”

THE BUMBLE BEE.

The female bumble bee lives from two to five years, and has her stinger to protect her in fighting life's battles. The male has no stinger because he has no battles to fight. He is born in June, lives in luxurious life among the flowers until frost time. He is then married, and always goes from his wedding trip to his grave. His widow goes into a dormant condition, usually one or two inches below the family home, and so remains until the following spring. The usual number of female bees so hibernating in a home is about ten to seventeen. Her hope is that she may have sufficient strength in the spring to reach the little sups of stored honey above her head, and feasting thereon for two or three days, go out into the world and make a new home for herself and her children to be.

The time will come when those homes will be provided during the winter time and placed in proper positions for the widow's use.

We are now using old felt hats torn into shreds, and other soft material, for filling bumble bee boxes. We use that kind of material for the reason that the bumble bee first makes but one cell and likes to make that surrounded by very soft material, so that as she makes the other cells she may easily make room in her nest. The boxes are made eight inches high and one foot square out of old well-worn lumber. The entrance holes are made one-fourth of an inch in diameter, large enough for the bees, but too small for other animals. The boxes are just put carelessly along the fences of clover fields and orchards.—“American Beekeeper.”

WAX SECRETION.

“I want to ask you a question or two Mr. Doolittle, regarding wax secretion. It is calculated that a ten-frame Langstroth hive requires about 2 lbs of wax to fill it with comb, is it not?”

"I think that is about the estimate, and it is not far out of the way."

"Then are you prepared to say that, when swarms are building their own comb, and filling the brood-chamber with brood and honey, other and similar swarms, which were supplied with full sets of ready-made comb, would store a surplus of 50 lbs of honey?"

"I do not know that I fully understand what you are after; but I judge that you think the estimate of the consumption of 25 lbs of honey to produce one pound of secreted wax is too high a figure."

"Cut it down to 25lbs surplus from the ready-made combs, as against nothing from those that built their own comb; what do you say now?"

"The claim put forth by some that it takes 20lbs of honey to cause the bees to secrete a pound of wax, and that the bees would gather 5lbs of honey while they were manipulating the pound of wax into comb, thus making an expenditure of 25lbs of honey for every pound of comb built in the hive, I have always considered a fallacy."

"Do you know upon what such calculation was based?"

"Upon Huber's experiments, I think."

"Then Huber must have been a careless experimenter."

"I should hardly want to say that. I think there is no question but that the experiments of Huber, proving that it took 20lbs of honey to produce one pound of clean (wax) comb were correct, under the conditions by which they were tried; but it must be remembered that bees are thrown out of their normal conditions when they are confined to their hive so that they may receive no benefit from the fields; and when not in a normal condition there is no accounting for what they will do. Most of our

practical apiarists of the present time have been led to believe that the real cost in honey to produce one pound of clean comb, when the bees are in a normal condition, is from 5 to 10 lbs. This being the case, the true answer to your question would be that you should secure from 10 to 20 lbs. of honey extra from a swarm hived on a full set of combs, in a Longstroth ten-frame hive."

"Then this is as you believe?"

"From my experience covering about forty years, taking an average, this difference is about right."

"Well, you and I can not agree."

"How is that?"

"There is an important part which has not as yet been touched at all."

"To what do you allude?"

"To the fact that bees secrete wax during any and every heavy flow of honey, whether the hives have comb in them or not. Let me tell you some of my experience. I have been extracting honey from a part of my colonies during the past four years; and when honey was coming in abundantly I have seen workers in extracting colonies that were laden with great pellets of wax scales sticking out on the under side of their abdomens. I have caught such bees, and with the point of my knife have pulled off these pellets of wax, piling the eight pellets together, when I had enough coming from one single bee to build a good part of one cell if not the whole of it."

"But that wax was probably to use in lengthening out the cells and capping the honey a second time, after you had shaved off the cappings and a part of the comb the time before, when extracting."

"Possibly some of it might have been used in that way. But I had not finished. At such times I have seen wax used to plaster on the front of the hive, to chink cracks, putting great knots or knobs of it

here and there, where there seemed to be no purpose other than to get rid of it in some way. Aren't the bees silly to eat honey from which to make wax just to waste? If the cost of wax is 5, 10, or 20lbs of honey, it would seem to me the bees should know enough to store that away for future use when they have the combs all provided, rather than use honey to secrete wax when there is no comb to build."

"Then your idea is that the bees secrete wax during a heavy flow of honey, and do this without regard to whether there is any comb to be built or not."

"That is right. And I consider the filling of a hive with foundation, of combs already built, only a waste of the cost of the foundation, and the time and trouble of using it."

"And I think you are a little hasty in your conclusions. Listen a minute. There is an element which comes in right here that is well worth considering. Swarms hived in full ten-frame Longstroth hives, with empty frames, or those having only starters in them, are almost sure to put much of the wax you are talking about into drone comb, especially if the queens are not very vigorous; and this drone comb is against the best usefulness of such colonies for all time to come, so long as those combs are occupied by bees; and to do away with this drone-comb nuisance, a few combs to insert when the bees persist in building drone-comb are a bonanza, even if they cost 50lbs of honey to build five of them."

"Why do you specify five?"

"Listen to this: Hive your swarms on five empty frames, having only starters in them, putting on a super of sections when hiving, and the bees will build out the five combs nearly if not quite all the worker size of cell, if their queen is good for any thing. Now take out your

division-boards or dummies, which have been used thus far, and fill out the hive with five nicely built worker combs, and you have things as they should be, and something which will be a pleasure to you as long as you and those combs live together."

"But you don't think all the wax will be saved in that way?"

"There will be no loss of wax when working in this way provided you have the surplus arrangement party filled with comb foundation, as any knobs of wax not needed below will be used in building combs in the sections. In this way we kill two birds with one stone." —
"Gleanings in Bee Culture."

How High a Price will the Trade Tolerate?

I find that when the wholesale price of a No 1 quantity of white honey reaches 8½ cts a pound or over, the consumptive demand is curtailed at once. This will mean a jobbing and car price of 8 cts. a pound or a trifle less; therefore, this may be regarded as an outside price to prevail for any length of time; and even then, as soon as conditions begin to ease a little, the price will begin to drop.

Some of the journals of last fall advocated a permanent rise in honey price, and suggested 10 cts. a pound as a possible wholesale price for nice extracted honey. Where a person has a special private trade, or where he sells his crop direct to the retail trade, he may, and often will, receive that price under the conditions prevailing last fall, but the wholesale trade cannot sustain it; and, of course, the jobbing price has to be still less.

The effect of the pure food law may be to stiffen prices, but honey, when used as one of the necessities of life, is at once brought into competition with other lines of goods, and the extent of its use will rise or fall, to a greater or less degree,

according to its comparative price. I find a great many people who ordinarily use a large quantity of honey, dropping its use when the price reaches ten cents. Many of my customers have very materially cut down their honey bill this year on account of its expensiveness, although my accessions of new customers have been sufficient to extend the entire volume of trade handled.—“Beekeepers’ Review.”

[And yet one of the largest English buyers are offering £23 per ton for best Australian honey. Do they think all Australians are softies.—Ed].

Giving Swarms to Weak Colonies.

Wm. W. Case, in *Gleanings*, gives a plan of dealing with swarms and weak colonies. In an apiary of 100 colonies, say there are 25 very strong, and 25 weak. When the first strong colony swarms, go to the strongest of the weak colonies, remove the queen and cage her.

“Now hive the swarm *right into this weak colony* and give plenty of room for surplus. As all the bees are well filled with honey there will rarely be any dispute. This poor worthless colony has now become, like magic, one of the very best in the apiary, and possesses every requirement for yielding a large surplus, viz., a medium amount of brood, a large force of field bees stimulated by having swarmed, a good force of nurse bees already in the hive and a first-class queen. Such a colony will rarely swarm again during the season, as, by the time they are again gorged with brood, the honey-flow will generally be so far advanced as to discourage further swarming.

“Now to return to the hive from which the swarm issued. Next day about noon, when the new field bees are out foraging, smoke the bees; and, if you have time, remove all queen-cells and turn the queen taken from the weak colony loose on the combs. She will be accepted ninety-nine times out of a hun-

dred, and no questions asked. If rushed for time, just turn her loose on the combs anyhow, and she will take care of the queen-cells herself.”

As each strong colony swarms in turn, repeat the process, each time giving the swarm to the strongest of the remaining weak colonies.

JAPANESE BEES.

In *l’Apiculture Nouvelle*, is given an account of Japanese bees. They are much like Italians, although a little smaller. Only a single colony had been seen by the correspondent, but that showed a very peculiar trait. The entrance guards acted also as ventilators *with their heads towards the entrance*. Was that a freak performance of the occasion, or is it the rule with bees of Japan?

Franco-British Congress of Beekeepers.

The Congress of Beekeepers was held in the Congress Hall at the Franco-British Exhibition on June 25, under the presidency of Lord Avebury, P.C., F.R.S., when a distinguished company numbering over 250 assembled, among whom was Mr. R. Beuhne, Melbourne.

Lord Avebury, on rising to address the Congress, said:—

As regards the practical management of bees, you gentlemen are most, perhaps all, more qualified to speak than I am, and I will therefore deal with bees from a somewhat different point of view.

The study of bees is no new subject. Aristotle gives a very interesting account of them. He not only recommended their industry—which, indeed, is obvious enough—but observed, or at least mentions the interesting fact, that during one journey from the hive each bee keeps to one species of flower—an incident which

required close observation, and was not mentioned by any other author so far as I know till it was also noticed by our countryman, Gould.

He also stated that a bee—I presume a queen—would live for six or even seven years. I am not aware whether this has been confirmed, but I do not doubt that he is correct, for I had myself a queen ant which lived to be fifteen years old. He commends the cleanliness of bees, and observes that they are “the only insect that never touches anything putrid.”

This is scarcely accurate, but, generally speaking, his statements are careful and correct.

Aristotle has also the great merit that where he is in doubt he says so. No doubt he fell into the common error of supposing that the queen is a male, and this led to his difficulties about the reproduction of the species. All persons, he tells us “are not agreed as to the generation of bees, for some say that they neither produce young nor have sexual intercourse, but that they bring their young from other sources; and some say that they collect them from the flowers of the calytrus. Others, again, say that they are found in the flowers of the olive, and produce this proof: that the swarms are most abundant when the olives are fertile. Other persons affirm that they collect the young of the drones from any of the substances we have named, but that the rulers (queens) produce the young of the bees.”

Pliny, in the main, repeats what Aristotle had said, with, however, some amusing additions of his own. Among insects, he says, “the first rank, and our special admiration, ought, in justice, to be accorded to bees, which alone of all the insects have been created for the benefit of man. . . . They form their combs and collect wax, an article that is useful for a thousand purposes of life; they are patient of fatigue, toil at their

labours, form themselves into political communities, hold councils together in private, elect chiefs in common, and, a thing that is the most remarkable of all, have their own code of morals. In addition to this, being, as they are, neither tame nor wild, so all-powerful is Nature that, from a creature so minute as to be nothing more hardly than the shadow of an animal, she has created a marvel beyond all comparison. What muscular power, what exertion of strength are we to put in comparison with such vast energy and such industry as their’s? What display of human genius, in a word, shall we compare with the reasoning powers manifested by them?”

It is not surprising, he says, “that there have been persons who have made bees their seclusive study. Aristomachus of Soli, for instance, for fifty-eight years did nothing else.”

So much, and such long, devotion, however, led to but little result. Pliny, also like Aristotle, was much exercised about their mode of breeding, since he also regarded the queen as a king.

Many persons, he says, “have expressed an opinion that they must be produced from flowers, aptly and artistically arranged by Nature; while others, again, supposed that they are produced from an intercourse with the one which is to be found in every swarm, and is usually called the king. This one, they say, is the only male in the hive, and is endowed with such extraordinary proportions that it may not become exhausted in the performance of its duties.”

Bees he regarded as useful to man, not only as supplying honey, which before the days of sugar was, of course, more important even than now, but because “they often afford presages both of private and public interest.”

The drones, he thought, were “a kind of imperfect bee.” and he knew that they were killed in the autumn. He thought that the cells were hexagonal

because bees have "six legs," "each foot having formed its own side." This is not more far-fetched than Netter's idea that the form is an echo of the mosaic vision of the compound eye. If their honey is taken from them he says they die of grief. "It—the honey—is engendered from the air, mostly at the rising of the constellations, and more especially when Sirius is shining; never, however, before the rising of the Vergiliæ, and then just before daybreak. Whether it is that this liquid is the sweat of the heavens, or whether a saliva emanating from the stars, or a juice exuding from the air while purifying itself, would that it had been, when it comes to us, pure, limpid, and genuine, as it was when first it took its downward descent. But as it is, falling from so vast a height, attracting corruption in its passage, and tainted by the exhalations of the earth as it meets them, sucked, too, as it is from the trees and the herbage of the fields, and accumulated in the stomachs of the bees—for they cast it up again through the mouth—deteriorated besides by the juices of flowers, and then steeped within the hives and subjected to such repeated changes—still, in spite of all this, it affords us by its flavour a most exquisite pleasure, the result, no doubt, of its ethereal nature and origin.

The real use of the honey in flowers, indeed, now seems so obvious that it is remarkable to see the various theories which were entertained on the subject. Patrick Blair thought it absorbed the pollen, and thus fertilised the ovary. Linnæus confessed his inability to solve the question. Other botanists considered that it was useless material thrown off in the progress of growth. Krunitz even thought he had observed that in meadows much visited by bees the plants were more healthy, but the inference he drew was that the honey, unless removed, was very injurious; that the bees were of use in carrying it off. Sprengel was the first to show that the real office of the honey is to attract insects, but his view was far

from meeting with general consent, and even so lately as 1833 was altogether rejected by Kurr, who came to the conclusion that the secretion of honey is the result of developmental energy, which afterwards concentrates itself on the ovary.

But I must hurry on and leave the history of bees for the bees themselves. Few animals have been more studied, and yet how many unsolved problems still remain! I shall not attempt to deal with the management of bees or the important improvements of recent years. These I will leave to you gentlemen, who are such great authorities and experts. My own observations have been directed to their anatomy and habits, their senses and psychology.

On all these departments of the subject we have made immense progress since the times of Aristotle and Pliny, yet though what we know is very interesting, what we do not know is even more so.

That bees can touch, and taste, and smell is obvious enough, though how they do so is as little known as in our own case. The scent of flowers is generally supposed, and I think with reason, to serve as an attraction to insects. We can hardly doubt that bees possess the sense of smell, and probably with great delicacy. Nevertheless, my experiments led me to the conclusion that the sense is not very acute, and Forel who knows ants better than, and bees as well as, anyone, is of the same opinion.

They see, but how do they see? The organs of vision, as in most insects, are very complex and conspicuous. There are generally three eyes arranged in a triangle on the top of the head, and on each side a large compound eye containing sometimes more than 1000 facets.

The ocelli or simple eyes probably see in the same manner as ours do. That is to say, the lens throws an image on the back of the eye, which we call the retina. In that case they would see everything reversed as we do. You are, of course, aware that in reality we see things up-

side down, though long practice has given us the right impression. The simple eye of insects then, resembles ours in this respect. But how about the compound eyes? There are two theories as to the manner in which they see. One supposes that each facet acts as a separate eye. But some beetles have as many as 22,000 on each side. Many ants have a 1,000; in fact, these, so far fortunate, insects realise the sonnet of Plato:

Thou lookest on the stars, my love—
Ah, would that I could be
Yon starry skies with thousand eyes,
That I might look on thee!

But if the male ant sees 1,000 queens at once, even when only one is present, this would seem to be a bewildering privilege.

The prevailing opinion of entomologists is that each facet takes in one point of the field of view, so that in fact, they see a sort of mosaic. This theory also, however, is open to serious difficulties. In those ants which have eyes with very few facets the vision must be very imperfect. Moreover, in this case the image would be direct, whereas that given by the ocelli is reversed, and you will agree with me that to have two eyes which see everything the right way up, and three in which everything is topsy-turvy, must be very confusing.

Exner, indeed, seems to have proved that under certain conditions the facets of a compound eye may give a single image, which he has even succeeded in photographing. The light is condensed to a luminous point at the base of each crystalline. The problem is, however, full of difficulty, and one of very many still remaining to be solved. The special use of the ocelli is by no means clear.

That they do see somehow is unquestionable. But how do things look to them? Are they privileged to enjoy the wonderful play of light which we call colour? Of course, it does not follow that because an animal can see, and perceive differences of form, it should also distinguish colours. It is a blessed thing that we can do so, but it is conceivable

that they might all appear of one uniform tint.

I was, therefore, anxious to determine, if possible, by experiment whether bees could distinguish colours.

That bees possess the power of distinguishing colours is implied, of course, in the now generally-accepted views as to the origins of the colours of flowers, but had not been proved by direct experiment.

Mr. Albert H. Benson, Queensland, Australia, spoke as follows:—As the representative of Queensland, Australia, I beg to thank the British Beekeepers' Association for the invitation to attend this Franco-British Conference of Beekeepers, and for the pleasure and instruction that I have derived through listening to the address of of welcome so ably delivered by Lord Avebury.

I am sorry that the State of Queensland is not represented by a practical apiculturist, my speciality being fruit, not bees, but fruit-growing and beekeeping are to a certain extent kindred industries, the orchardist being considerably benefited by bees in fertilising the flowers of certain fruits that would otherwise prove unfertile. Beekeeping is carried on in many parts of our State, and were we assured of a steady market our honey-production would be considerably increased, the conditions, climatic and otherwise, of our State being conducive to health in the bees and a good return in honey. Progressive beekeepers are well up to date in their business, keeping themselves in touch with the newest appliances in apiculture by means of the American and English bee-journals as well as by departmental and local journals. Some excellent honey is produced in Queensland, especially that obtained from the flowers of white clover, lucerne, orange, scrub-box, and the white and yellow box trees of the table lands. Some of the flowering trees and plants, however, produce a strong flavoured honey, but none produce a honey with a

strong eucalyptus flavour, a reproach that is unjustly applied, not only to Queensland, but to Australian honeys generally. The flower of no species of eucalyptus with which I am acquainted contains a trace of the flavour of eucalyptus, as the essential oil that gives that flavour is obtained from the leaves and not from the flowers, and, so far as I know, bees do not gather honey from the leaves. The objectionable eucalyptus flavour is obtained by adulterating the honey with oil of eucalyptus obtained from the leaves, such adulteration being made, not by beekeepers, but by those who sell honey to the public. I desire to make this point very clear, as there is a general impression that all our honeys have this objectionable flavour, and this false impression has a very detrimental effect on the value of our honeys.

I have had opportunities of tasting honeys gathered from heather in Scotland, from white clover in England, and from white sage in California, and, as far as my judgment goes, the honeys in Queensland equal in flavour any of these celebrated brands that I have mentioned. Even with the low prices frequently obtained for our honey, the industry, when carried out on the right business lines, is a fairly profitable one, as in normal seasons there is a good flow of honey resulting in a yield per hive. In addition to those who make a speciality of apiculture in Queensland, bees are frequently kept as an adjunct to the farm, orchard, or garden, and when this is the case they not only supply all home requirements, but are a source of profit as well.

Major A. E. M. Norton, D.S.O., F.R.G.S., Commercial Agent for the Government of South Australia, was the next speaker. He said:—My Lord, Ladies and Gentlemen,—I feel honoured that I have been privileged to attend this important Congress, and particularly that I have had the opportunity of listening to your lordship's most instructive and enteresting address. Like several others that

were at one time considered minor industries, beekeeping is fast becoming one of considerable commercial importance in South Australia. The time is not far distant when it was thought that owing to the supply of honey being greater than the demand the bee-industry must be crushed out of existence by its own weight, our market being limited to the Commonwealth. Shipments of honey had been sent to England, but unfavourable results were sent back to the effect that the eucalyptus flavour characteristic of Australian honey would for ever exclude it from the English market—in short, we were told that the British public would not have it at any price. However, South Australia is blest with a progressive Government and an enterprising beekeepers' association, and a small rebuff like this did not daunt them. It was determined to exploit the home markets in a thoroughly practical way, and a consignment of honey was accordingly sent here about eighteen months ago. Exhibits were made at various shows throughout the country, where small samples and pamphlets setting forth the merit of our honey were given away. The honey referred to being supplied by the beekeepers' association, the necessary funds for preparing and distributing the samples were supplied by the Government, and as a result four of the most important retail firms in London are at the present time stocking South Australian honey, one firm alone having a standing order with the South Australian Beekeepers' Association for seven tons monthly.

Now it is possible that some of my English and French friends here may look upon this new source of supply with alarm, but I maintain that the more we can popularise honey as food, rather than let it remain as heretofore as a luxury, the better it will be for all concerned in the industry. In Australia honey is already looked upon as a necessary and healthful article of diet, but from what I can gather in England it would appear

that it was a luxury for the few. I am told that we in Australia with our four millions or so of population use more honey as food than is consumed throughout the whole of Great Britain.

My Lord, Ladies, and Gentlemen,—If I begin to say anything about practical bee-keeping, you would no doubt soon be aware that I know nothing about it. I have, therefore, confined my remarks to the commercial aspect of the product of that important little worker, the bee.

The beekeepers of South Australia, like most of the primary producers in that part of the world, are intelligent men, and are ever ready to learn what is going on outside their own little sphere, and for that reason I am pleased that you permitted me to be present, because I shall forward through my Government to the Beekeepers' Association much of the valuable information I shall hope to gather here. To my mind, the opportunity of an international exchange of ideas is a most important factor in any industry, and no doubt many points in connection with beekeepers that in the past have been undecided will be settled satisfactorily. On behalf of the State I have the honour to represent, I wish this Congress and the beekeepers' association of England and France every possible success.

Mr. H. C. Cameron, Produce Commissioner for the New Zealand Government, said :—

My Lord Avebury, Ladies, and Gentlemen.—It is with very great pleasure that I have the honour of being present today to take part on behalf of the New Zealand Government in the Franco-British Congress of Beekeepers.

Like the Australian States mentioned by the previous speakers, The Dominion of New Zealand is greatly interested in the subject of apiculture; so much so, indeed, that the Government has passed an Act of Parliament called the "Apiaries Act" to encourage and protect the bee-industry there. The clauses in this Act may possibly appear somewhat

drastic to you in this country. For instance, inspectors appointed under the Act may enter upon any premises or buildings for the purpose of examining bees, hives, or bee-appliances, and if in any case disease is found which, in the opinion of the inspector, is so far developed as to be a danger to neighbouring beekeepers, he may direct the whole of bees, hives, and appliances so affected to be destroyed by fire, and no compensation for such destruction is allowed. Then no beekeeper is allowed to keep bees except in a properly constructed frame-hive.

The New Zealand Department of Agriculture takes the greatest interest in all pertaining to bee-culture, and, as I see from the leaflet that has been handed to me, its aims are similar to those of the the British Beekeepers' Association. Although the beekeeping industry in New Zealand is practically in its infancy, and though there is as yet scarcely any export of honey to this country, the consumption on the spot being equal to the supply, considerable improvements have been attained in the quality of the honey produced. Such lots as have been shipped to London have met with high approval and have commanded top prices.

There is now in the New Zealand Pavilion at this Exhibition a very fine exhibit of the honey produced in the Dominion, and should any of you find time to inspect it I shall be greatly pleased, and can assure you your visit will be heartily welcomed.

TO BE CONTINUED.

STRAWBERRIES IN HONEY.

We have just been eating, says the editor of "Gleanings," some strawberries preserved in nothing but honey, put up by Mrs. Frank M'Glade, Hebron, Ohio. The jar from which we took the fruit was labelled 1906, yet on this day, 11th. February, 1908, there was not a particle of mould on top. We are of the opinion

that the berries would have kept several years longer. Mrs. Root remarked that these strawberries, unlike those preserved in sugar syrup, had almost their natural color. This is all the more remarkable because the jar has been standing on the desk of the editor, in the full glare of three windows, through which the sun often streams in. The temperature of the office seldom goes below 70 deg., and yet this fruit has stood thus for nearly two years. Had it been put in a cool, dark cellar the natural color would have been still more pronounced, no doubt. Some time ago Mr. Frank M'Glade wrote an article on preserving fruit in honey. Referring to these particular strawberries, and how they were put up, he said:—"Our own experience here in our home has been very satisfactory in the use of honey in canning and for making preserves. Of course we do nothing in a commercial way, but every year Mrs. M'Grade puts up whatever fruit she desires in honey—strawberries, currants, peaches, (canned and preserved) and jellies. Strawberries preserved in honey are about as fine eating as I ever expect to get in this present life. As to the keeping qualities, we have them on various ages—two and three years old—and none spoil. The fruit is handled the same as when sugar is used. We have put the honey over the fruit and let it stand all night before cooking; again, after the fruit is cooked the honey has been put in. Either way proved entirely satisfactory. We use about the same amount of honey as of sugar. If you can make preserves, jellies and jams with sugar you can with honey. There certainly is an excellent field here for an enterprise in a commercial way which cannot help yielding large returns. The people are willing to buy that of which they have the assurance of purity.

The Isle of Wight Bee Disease, which destroyed every bee in 1906, swarms introduced last year were most successful.

A BEE OUTBREAK

A curious incident is reported from Saint Prieure, near Chambéry, France, where two colonies of bees in a state of insurrection have routed everybody from the neighborhood, and are still masters of the road. The cure of a neighboring place, accompanied by a farmer came to take possession of two bee hives, which the farmer had loaded on a cart drawn by two oxen. Half way home one of the hives fell off the cart, and was broken up. The bees, on being liberated attacked the farmer with fury, and stung him so violently that the poor man fainted and fell on the road. The cure came to his rescue, but in his hurry upset the other hive, from which the bees also escaped, and attacked him in turn. Workmen from the fields round about head his cries and rescued both men, who had to be carried to a house and attended by a doctor. Meanwhile the bees attacked the two oxen, and stung them so fiercely that the two beasts started on a mad race down the road, and were finally stopped by a woman, who, in turn was surrounded not only by the bees of the first two hives, but apparently by all the bees in the neighborhood, and had herself to be rescued by the villagers. So savage have the bees become that the highway is still said to be in their possession, and the inhabitants have to be well protected to venture out in the fields.—"Leader."

REMOVING HORNS FROM DAIRY STOCK.

A Logan River (Q.) dairy farmer writes as follows to the "Dairyman":—"A man who was looking for land in this district a week or two ago, and who said he had been farming in New York State in the nineties, asked me why I did not prevent the horns growing on my young stock by an application of caustic potash. He

said this was largely practised in America, that one application was generally sufficient, and that hornless stock could not easily injure themselves or their attendants. But a neighbour of mine, who has experimented with one or two calves, says it makes them very 'tricky,' and that they push and butt with their hornless heads a good deal more than horned animals think of doing. Can you tell me whether this is so? Does the experience of other dairymen agree with that of my neighbour? It would be interesting if they would, through your columns, give the result of their experience."

BANANA MARGARINE.

Banana margarine is among the latest novelties now being placed on the market in England. A food expert has elaborated a process of blending bananas with milk, butter and other wholesome ingredients, and has produced a natural food product resembling in appearance and texture choicest Danish butter, and characterised by the flavor of the banana. To protect this process, patent rights have been applied for in the United Kingdom and the Isle of Man by the inventor and the Board of Agriculture and Fisheries has approved of the sale of the article under the name "Banana Margarine." It is claimed that the product will save the housewife 25 per cent. on cost compared with butter, and give the retailer a clear profit of 25 per cent. Steps are being taken to secure patent right on the Continent and in the colonies. The quality and flavour of the new article are stated to be excellent.

V.A.D., Kempsey. —The past season was very good here, but was very short, but the bees have a good winter harvest now in the stringy bark trees which will last them well into the spring.

Trusting for a good season for us all next time.

CAPPINGS.

In August last Mr. Taverner, the Victorian Agent-General, went to Norway on a mission on behalf of the Agents-General. Margarine had been arriving in England from a Christiania firm, and was being placed upon the London market bearing the device "Australia." The Agents General thought that this labelling was calculated to convey the impression that the product was from Australia, and they sent Mr. Taverner to Norway to protest against the continued use of the misleading brand. The firm refused to abandon the mark which they declared was registered by them as a trade mark as far back as 1890, Mr. Taverner interviewed the Norwegian Minister of Agriculture, who promised that he would bring the matter before the Cabinet. This he did, with the result that it is now announced that the Norwegian Government will shortly introduce a new law preventing goods from being marked with an incorrect definition or with a wrong country of origin, or in such a way as to cause a mistaken idea as to the place of origin.

A writer in the "British Bee Journal" says:—"I work mostly for section-honey, but am never able to secure such large returns as are sometimes reported in the JOURNAL. On the other hand, I never had a season in which the surplus did not more than cover expenses. As a rule there is a nice balance left. Most of my honey is sold retail at 1s. per 1-lb jar or well-filled section. I have sold some wholesale at 9s. per dozen when I had an extra good season. In my case one season's crop is generally sold out before another is ready. Beekeeping is, to my mind, the best paying of all hobbies. I have read somewhere that 'beekeeping is the only honest way in which a man can steal his living.' It's a bit of a paradox, but has some truth in it, if we

admit that we reap our crops from other people's sowings.

The very fact that the Italian bee is considered the best is because it is bred in an extremely cold climate high up among the Alps. Further, the heat must have an effect on the vegetation, and nectar yielding plants. We all know that Nature's means are ingenious in every respect. She caters for the vegetation of hot climates by producing only, or rather ninety per cent of flowers so constructed as to require little or no fertilizing element from insects and is practically independent of them. A study in botany will reveal Nature's marvellous ways, and it is a well-known fact that in tropical climates the flowers are hermaphrodite, i.e., bearing the two sexes, male and female, to bring about their own fructification.

Beekeepers must study and interest themselves in the scientific side of apiculture when many complex problems will be revealed which they could not understand. They must remember, as one writer remarked many years ago, that beekeeping, like all other branches of science, which have developed the resources of the world, has had its origin in ages past. They are all but accumulations and scientific combinations of ideas and inventions scattered by past generations in their march from ignorance, superstition, and bigotry to intelligence, knowledge and science.—"Beekeepers' Review."

As to what kind of paint to use, this is a perplexing question to answer, as we have difficulty in obtaining the same grade of paint each time. I have used white lead and raw oil with a very little Japan drier added, and it wore very well. At other times it either scaled off or rubbed off as dust. I should prefer a paint which had the last-named fault rather than the first, as it would last very much longer. The trouble seems to be either in the oil or in the lead. Perhaps adulterants have been used at times with

one or the other. An addition of zinc is an improvement on the paint; Still, I use it very seldom, and only in the ready-mixed paints. I have never used the dry-powder (water) paints on account of lack of faith: but I should like to hear from some who have used it for hive-painting, or any other work, as to its protecting power, lasting qualities, etc.—"Gleanings."

If you have the bee fever, hesitate before you build air castles on the strength of the reported successes of some of the much glorified "lights," for their shining is not all their own nor the reports all true. The Baron Munchausens are among beekeepers as elsewhere in life. When their tales are used to glorify the pursuit of bee culture and indirectly help the sale of bees and supplies they needs be taken with a very large dose of salt.—"American Beekeeper."

One firm in America, according to "Gleanings," has contracted to take from a foresting farm 5000 basswood seedlings, two years old, to be put out as soon as the weather is favourable in spring. Something Australian beekeepers should take a limit from

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