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THE AUSTRALIAN Bee Bulletin.

A MONTHLY JOURNAL, DEVOTED TO BEE-KEEPING.
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"The Australian Bee Bulletin."

A Monthly Journal devoted to Beekeeping.

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Published by : E. TIPPER, West Maitland, N.S.W. Aus. **Editor: W. ABRAM, Beecroft**

MAITLAND, N.S.W.—AUG. 31, 1911.

EDITORIAL.

So far the weather conditions are very favourable to bees, that is, at least, in our coastal district, but the same seems to apply to other parts, as information indicates. The trees are budding well, and if we do not experience excessive dry weather and heat we should have a very satisfactory season.

The last one cannot have been too bad in some places, as the supply fully meets the demand, in fact, the price for good products even is on the decline rather than a rise, while inferior quality is hard to shift at any price.

You will generally note that beeswax is in demand in any quantity at 1/1 to 1/3 per lb. Well, you just try to sell it, and you will get a surprise. The highest price that will be offered is 1/-; at a stretch you may get 1/1. Let us now look at the price of foundation comb, 2/- and 2/6 super per lb. The making of wax into foundation is thus nearly or actually doubling its value. To make and sell foundation comb cannot be too bad at that rate, and beekeepers needing foundation, and having wax on hand, will do better if they sent their wax to be made into foundation at a charge of about 5d. per lb. extra. I give this information for the benefit of those who may not know it.

The Victorian convention of beekeepers has taken bee disease up at considerable length, and whilst I have made a short reply to Dr. Brown's report, I withhold reference to Mr. Laidlow's and Mr. Beuhne's treatsies till another issue; and if I do not entirely agree with either, it is only because I have had different experience, and time will tell who is right. So far, my contentions of years ago have not been contradicted or disproved; on the contrary they become the adoption of those then strongly opposing them years ago.

Messrs. Hawken & Vance wrote to me as follows:—"Re honey sent to London on consignment, we regret to say that although the "Suffolk" has discharged, we have not yet received any account sales from London.." The report is not favourable as they find it very difficult to beat down what they call "the prejudice against Australian honey on account of the flavour of eucalyptus."

We have no further particulars at present to hand, but will advise you as soon as we get them.

According to a matermalist, there are, in Germany, 2,600,000 hives of bees, each with say 25,000 workers. These 65 milliards of bees produce 300,000 centnars of honey, which means ¼ gramm per bee, or at one shilling per lb. 1-100 shilling. This small individual collection represents a national production of

one and a half million of pounds sterling, irrespective of the production of wax.

The sting of a bee has different effects on persons. I know several persons, my wife for one, when they get a bee sting, no matter where, in less than 10 minutes there is an irritation all over the body, irritating cough, shortness of breath, palpitation of the heart, etc., a choking sensation, and the face and neck becomes almost braun-red. Such persons should avoid getting stung.

W. Frisk recommends a cold shower every morning, to avoid tea, coffee, and anything else which excites the nerves. It is also advised to place the feet in cold water as soon as possible of being stung. The cold water draws the blood from the head and chest in order to counterbalance the difference at the feet.

EDITOR.

THE LATE R.A.S. SHOW.

Specially written for the "A.B.B.

By J. J. BRANCH.

[To the Editor.]

Sir,—

Your contemporary of May 15th, 1911, devoted a half-page to a prize competition on the subject of "Judging Honey, Beeswax and Queen Bees at Shows," without any specially informative results that need be noticed at this stage: while in the previous number (April 15th) he bewails the lack of exhibits and interest at the recent "Royal" Exhibition in these words (page 198): "I do not think beekeepers of N.S.W. will consider the apiary section representative of the honey production of N.S.W., and I don't know why the competition should be allowed to remain in the hands of so few. In only one class were there as many as eight exhibits—this is small considering there are three prizes in each class. A fine, large, well-lighted pavilion is devoted to bees and honey exhibtis, and the benches are mostly empty. Why? The butter classes bring big competition; why not honey? Will beekeepers answer?" Surely this is a writing up of "Ichabod" over the doors of the Fane of apicraft with a vengeance; but that phrase has become as mentally lame to the writer as "beware of the dog," and as belated as the information that "Queen Anne is dead," or that "the 'drumlic Dutch' have taken Holland."

As I have not noticed a very large number of replies by the "beekeepers," who seem very careful of their ink and paper, and I have had a direct personal experience in the work of exhibits and exhibitions, beginning as an artizan in the time of the late lamented Jules Joubert at P.A. Park, continuing still in the same employ at the Garden Palace under the esteemed personal direction of Mr. Commissioner Sasaki, in the framing of the art work in the Japanese Court, and thence running the gamut of experience in the Port Macquarie district; first in the poultry, and then in the bee section, where I had the good fortune to meet with an unqualified success during the years that I had the honor to exhibit; which was continued upon my being nominated as a judge, by beating the Mayor by nine votes at the ballot, and by my being called upon at the same show to father my own and the Rev. R. Davidson's recommendation of the individual judge system. I continued to act for the "Port" Show for some years in one capacity or other until rumour reached me that a section of the committee thought my annual appointment was becoming stereotyped, which, together with some ungenerous treatment meted out to the late John S. Dick and myself in the apiary section, decided me to return my appointment as judge and sever my connection with the Society; which was never resumed as a member, and only as an exhibitor

in the two sections named; upon the representation of the committee per special delegate that they had need of help by reason of the dry time. As my then employer confirmed the position and placed a man on my work, giving me a chance of a week to prepare my exhibits, I went on and succeeded in winning the two specials of the year in the apiary section, together with all the prize money in the classes, except 2/6. At a Gosford show I obtained twelve prizes out of fourteen. Then a necessary residential change—again transferred to the Metropolis, in the Poultry Section; once at the Poultry Club Show in the champion class for black Orpington, cock or cockerel; and such honors as the R.A.S. had to give, while they could be reconciled with the standard set-up by my own self-respect and a quarter of a century of familiarity with the high ideals set forth by Mr. Lewis Wright in his entrancing chapters on "Shows and Judging." The necessity for arbitrary standards," and the utility of fancy points," which, together with his scales for judging, and his destructive analysis of the point system of judging, form perhaps the most comprehensive reference that the student of the sister arts of showing and judging can find in the language, and without which the showman is but a plodder in the school of experience, and the alleged judge a mere empiric or worse.

Now to return to Mr. Pender's editorial comment above mentioned. Friend Pender says: "I do not think the beekeepers of N.S.W. will consider the apiary section representative of the honey production of N.S.W." Neither do I think so, Mr. Editor. Nor do I think it was ever intended to be, nor do I think it ever will be, so long as the R.A.S. permits the practice of indiscriminate selling to proceed at the "Trophy" stands, and sanctions the anomaly of a "non-competitive" trophy to be run by one of its sub-officials, with the same mercantile privileges as any other may have. As a matter of personal opinion and judgment the R.A.S. would be well advised to rescind the suicidal rule adopted some years back, that the judges were to be appointed upon the "ipse dixit" of the stewards who were set to observe the qualifications of the judges and report accordingly, which means, in plain English, that the Stewards were, or are, to judge the judges, and then "recommend" them, and after that indignity the judges were to be graciously permitted to judge the various exhibits —if they wefe sufficiently servile after having the luck to be appointed. For myself, I publicly decline the services of any official wire-puller, paid or unpaid, and am of the candid opinion that the sooner the R.A.S Council ends the Poo-Bah system of running the bees and honey department, and takes the men who know, and have no axe to grind, into its official confidence, the better. They have surely had sufficient public persecution, in the interests of the truth that is in them, and their declension of any laws, written or unknown, that the R.A.S does not make.

Now for a few lines as to the Show itself, in which everything is subordinated to the lust for selling, and the making of floor-space for prospective customers, to the exclusion from their proper places of some of the classes, thereby robbing them of much of their educational value, and incidentally making dollar-slaves of their owners, for there is no time for explanation of anything while there is a chance to sell, thus the whole concern is not an exhibition, but in reality a fair.

Re Judging.—As I was busy with my own bees on the Friday and Saturday, I got no chance of seeing the apiary exhibits till Monday, after seeing the fishery exhibits, for which purpose I went there, as the two sons of the late J. S.

Dick were the principal exhibitors there in that section. Taking the exhibits as they usually appear in the Catalogue, and are taken by the judges. Beeswax, natural yellow: The wax awarded first prize was by far the best specimen of any staged, conforming exactly to my own standard for colour in yellow wax, and forming a clean, solid cake that appeared to fulfil the conditions as to weight. The second not quite so fine in colour, was still a good second. Third was a fine cake of good wax, not quite so good in colour.

Beeswax, natural white: First (described in the A.B.K. as asplendid sample) did not, in my judgment, fulfil the conditions as to weight, and was therefore disqualified, while doctors might differ as to whether it was natural or bleached white. As nearly as my memory serves me the other awards were in order.

Queen Bees and Progeny: There could be no mistake made here, as only one firm exhibited, and it was not material which got the principal award, as there was not even a hybrid to give a prize to this time, as I saw on one occasion. I am not writing of the mismated queen, commonly called a hybrid, but of a cross between the two recognised varieties, golden and ligurian.

Liquid Honey: In the class light colour it appeared that colour carried the day irrespective of other qualities. The other classes, as also granulated, there is perhaps little to say to criticise the awards.

Comb Honey (Sections): Here I must again disagree with the judge, obviously first quality of light sections being passed, though they were exhibited in metal cartons, and were all available to inspection for judging purposes, as against the closed up and elaborately lace competitors that received the award. In the dark honey class for sections, about the same thing happened, the metal cartons apparently causing the judge to shy, and almost leading one to believe that his work was to judge paper-hanging and not beecraft.

Frames: Here again there was room for difference. An entirely unnoticed comb in the large frame class being perhaps the best and most perfectly finished combs I have seen exhibited anywhere. The comb was perfectly finished and completely capped, the bottom of the comb above the bar being perfectly filled and rounded up, with not a single unfinished cell, while as a matter of fact the bloom on it was fresh, and exquisitely perfect, albeit the fact that it was in a Berlepsch frame proclaimed that it was not "Western," though for the life of me I do not know of any reason why a comb produced among thousands of acres of citrus orchards should play second fiddle to anything that bears the name of honey in perfection of quality; but perhaps the judge may do better next time.

The Trophies: This is a department of the Exhibition that usually causes more or less friction, as owing to the fact that the exhibitors are as a rule known by the positions of the respective exhibits, there is room for remark about the personal element in the matter, so I will just place a few data from memory before the readers, and let them judge for themselves. I was obliged to make my observations at a time when the building was thronged, owing to the rain, and as Mr. L. Wright affirms in a passage which I have before me doubly underlined, "It is impossible to judge calmly in a crowd," all due allowance must be made. In my judgment there was not even the semblance of competition, except between the first and second exhibits. At the time I made my comparison I had no idea of writing this, or would have made notes and taken more particulars. However, I proceeded to estimate the relative values of

the "single bottle departments" of each, and allowed them to be about equal in number and quality. I counted up the combs on No. 2, and made 24 combs of fair exhibition quality throughout, while the stand contained 178 sections, apart from papered packages for sale. I then went to No. 1, and got round the count of three sides as to sections, and made 27, when I was interrupted, and did not think it worth while to continue that line any further, allowing the other side to be equal in number of combs and value. Your readers may be left to decide upon the basis of comb-honey values which trophy should have been placed first, and which second. I may add that the light at that particular time was in favour of No. 1, but that circumstance should never be omitted in the calculation of a qualified judge.

Another thing I woul like to mention before closing, is the fact that not only are the beekeepers indebted to the editor of this journal for the fact that there are three prizes in each class in place of two but also that there are three trophy prizes in place of one, as was the case some years ago.

I may have the pleasure of placing my views on the subject of judges and their appointments, duties and qualifications, as they appear to me, on another occasion, possibly under the caption of Shows and Judging, when I shall possibly draw liberally upon the wealth that Mr. Louis Wright placed before the poultry world on these subjects.

J. J. BRANCH.

[The above reached me in the nick of time to forward to print; therefore, any further reference to the subject is left till next issue, and I assume that others will avail themselves of the opportunity to express their views. Mr. Branch's further contributions are awaited with interest, and he is the first to take up this matter in extense, any further ventilation should evolve a scheme to beekeepers' advantage.—EDITOR.]

PARALYSIS OR DYSENTERY OF BEES.

The beekeepers' thanks are due to Dr. Brown, Victorian Government Pathologist, for the investigations on behalf of bee culture as to the cause of the mortality of bees. Dr. Brown, to follow a plan propounded to himself certain questions, and these he answers in the negative. Questions 1-4 have been disposed of long ago as untenable. But when we come to further questions it must be evident to all careful observers that the great mortality must be due to factors, such as disease, though the weather may aid or check the malady. That it is a disease has been proved already without a doubt. The question to be further ventilated is: Prof. Dr. Zander attributes the effects of the disease to Nosema apis, while Dr. Brown states that Nosema seems to be a messmate of the bees, and that he discovered another organism which is the cause of all the trouble. Now, who is right? Prof. Dr. Zander, who has spent years to investigate the disease and blames Nosema apis, or Dr. Brown, who has found a new destroyer? Could the bacteria in bees in Australia be different to the bacteria of the same disease in bees in other countries? This point needs further explanation, so as to enable us to decide who is right. For the present I believe positively that bacilli or parasites—I do not know which, as I am no scientist—cause the trouble, and as Prof. Dr. E. Zander is quite in accord with my practical experience, I believe his investigation and proof is the correct one, unless Dr. Brown can show us more clearly that his investigation and conclusion drawn therefrom are absolute-

ly right. Dr. Brown's description of the intestine or central colon agrees exactly with that of Prof. Dr. Zander, therefore, the latter gains an important point; who also states clearly that nosema may be found in apparently quite healthy bees. Besides, Dr. Brown did not experiment sufficiently with bees, but with rabbits, guinea pigs, etc. Now, we do not want to discover a poison to kill rabbits, but we want a remedy for the bee disease, and this has not been given; and, therefore, we are no wiser than before.

Let us take Dr. Brown's advice. It is absolutely inconceivable to me how he can say that hives from which affected combs are shifted should be disinfected, and not the combs and bees (if any bees are left) from such hives, since combs, stores and bees are much more apt to convey the disease, than the hive. And that combs, stores and brood from infected stocks may be given to normal stocks without risk, is quite contrary to my experience and knowledge of the disease, and such advice I shall certainly not follow in practice. I fancy I recognise in all this too much of Mr. Beuhne's fads, which have been the main spring to the the preaching of this gospel, whereas Mr. Beuhne is no authority on the subject, and his fancies have been exploded long ago as untenable.

Science is a marvellous study and deserves the respect of all others; but let it be science pure and simple. The practical beekeeper will then have a fair chance to test in practice what is thought by science. There is, therefore, much work for scientists in this matter, and it is to be hoped that the various Governments will facilitate such necessary undertakings, so as to arrive at a positive conviction. And this mild critic is meant as an inducement to scientists to continue in his most arduous work.

To beekeepers in general I would give the advice to prevent the robbing of stores by other stocks of hives depraved of bees by disease, as by this means infection is easily spread. This every beekeeper can avoid quite easily, whereas it is not within our means to prevent the spreading of disease in ordinary field work of the bees; but every little helps, and thus we must help where we can, so long as we know how.

W. ABRAM.

GETTING BEES STARTED IN SECTIONS.

R. D. Bradshaw, an Idaho beekeeper, reports in the "Beekeepers' Review," that in the year of 1906 he produced 34,000 pounds of comb honey; in 1907, 32,000; and in 1908 he produced 43,200 sections. When a man "does things" like that, his word is entitled to respect. So we are interested in knowing what are his views as to getting bees to start work in sections.

Plainly, not by the use of bait-sections. He says:

"I don't like bait-sections. Honey produced in them is usually inferior." Later on he says: "Give me thin top bars in brood-frames. I would much rather have a few burr-combs than not to have the bees readily enter the supers. We must have our sections as close to the brood as possible."

Mr. Bradshaw is not the only one who objects to using bait-sections. Probably no one denies that bait-sections will start bees to work in the supers as soon as any other means, if not sooner. So the objection to using them must be something rather serious. As to how serious, some idea can be obtained by considering what Mr. Bradshaw is willing to endure for the sake of getting the start made without resort to baits.

He depends upon nearness to the brood-combs by means of thin top-bars. He admits burr-combs as a result of

this ; but he evidently prefers burr-combs to the greater evil of baits. He does not mention it, but there is another evil that he endures with thin top-bars. The nearness of sections to brood-combs, while favoring early start in sections equally favours carrying dark comb from the old brood-combs to be used in sealing the sections; thus spoiling their snowy whiteness. This unless the brood-combs are new.

I don't know how thin are the top bars in question, but for years I used top bars ⅜-in. thick, and there was considerable sagging because of their thinness.

Clearly there must be something pretty bad about bait-sections to make one undergo increase of burr-combs, darkening of sections, and possible sagging of top-bars, for the sake of avoiding them. And yet, although I have been using bait-sections nearly as long as I have been using sections, I would regard either one of the three troubles mentioned as being greater than any trouble with bait-sections, to say nothing about taking the whole three together.

What is the objection to bait-sections? Mr. Bradshaw says, "Honey produced in them is usually inferior." I think I never heard of any other objection. Note, the honey produced in them is not always inferior, but usually inferior. One may fairly understand from that that some bait-sections are all right, and some are objectionable. So there is a difference in bait-sections after they are filled, and in that I suspect lies the secret of the whole trouble. If some of them are objectionable, I believe it is possible to have all so, and when any of them are objectionable I believe they were given to the bees as baits.

I have no desire to plume myself unduly as to the number of bait-sections I have used, but having used them for so many years, and having always used one or more bait-sections (usually only one) to get each colony started, I think I may speak with some degree of authority, and I do not hesitate to say that I can have bait-sections filled that shall be of first quality every time. If I can tell beginners how to avoid the bad and to secure the good, I may be doing a service.

If bait-sections are to be of best quality when filled, they must be of best quality when given. Some have used baits that contained honey from the previous year, and this honey not having kept in perfect condition, the result was unsatisfactory. I know that an eminent authority says that the bees will empty out such sections, and fill them with honey. I do not think I can trust my bees to do that.

Some have left sections on the hive in the fall until a good many days after the close of the harvest, and these sections have become darkened with travel-stain and bee-glue. Then they were used for baits the next season, and of course the product would be unsatisfactory.

Do not allow sections to stay on the hive to be spoiled after the harvest closes. When taken off there will, of course, be sections in all stages of progress, from those in which the bees have just begun to draw out the foundation up to those that are entirely finished. Any of these may be used as baits, the most satisfactory being perhaps those that have been about half filled, although without any sealing. Let them be emptied of honey and thoroughly cleaned out by the bees soon after being taken off, and if these are given as baits the next year there is no reason why they should not turn out as nice sections as their neighbours.

After all, it is not a matter of such very great importance that these bait-sections should be as good as the best.

Only one bait-section is needed for each colony, that one being given in the centre of the first super given. If that one section is not of the very best quality, the loss in value will be only about 2 cents. Better lose that 2 cents than to lose more by having a number of sections darkened by having the sections too near the brood-combs.

If one prefers, one may also extract the honey from the bait-sections, and they may be used as baits year after year. The darker they become the more attractive they seem to be to the bees. —C.C.M., in "Am. Bee Journal."

HONEY.—

Choice quality is selling fairly well at 3d. to 3¼d. per lb., but other grades are slow of sale. Good is moving off quietly at 2½d. to 2¾d., while inferior and medium is selling at 1d. to 2d. per lb., according to quality. Candied is worth 2d. to 2½ per lb.

BEESWAX.—

There is a good demand for best bright at 1/3 per lb., and dark is selling at 1/- to 1/1 per lb., according to quality.

Victorian Apiarist's Association.

FORRESTRY—ITS EFFECTS ON RAINFALL AND CLIMATE.

MR. HUGH MACKAY
(Conservator of Forests).

Read by MR. A. D. HARDY.

Several years ago I had occasion to sift and prepare a large mass of information bearing on the general climatic effect on the destruction of forests and the denudation of tree cover. Part of this matter was afterwards used by me for a Parliamentary report, but as the ascertained facts hold good to this day, and as they are dealt with in regular order, I repeat here the more noteworthy passages for the benefit of the association:—

The Climatic Influence of Forests.

Few subjects have caused in our generation more difference of opinion among students of physical science than the question of the influence of forests in rainfall. On the side of those who maintain that this influence exists in a marked degree there is abundant historical evidence that in past centuries the destruction of forests in many of the countries bordering the Mediterranean, such as Palestine, Asia Minor, Greece, Dalmatia, Italy, Sicily, Spain, and Northern Africa, was followed by marked changes in the climate, by periods of drought and flood, by the desiccation and erosion of the soil, accompanied by loss or diminution of fertility. It is not to be wondered at, therefore, that contemporary observers, remarking these physical changes, have, in chronicling them, attributed their occurrence to the removal of the tree growth, which is was early recognised plays so important a part in modifying extremes of temperature, in binding the soil on slopes and hill-sides, and in regulating the flow of streams and springs.

Humboldt, when at the end of the eighteenth century he visited the Valley of Aragua, in Venezuela, remarked that the inhabitants were alarmed at the gradual diminution of the waters of Lake Valencia. After comparing its condition with the descriptions of older writers, he became convinced that the area of its waters had very much diminished. Subsequently, he made a most careful examination of the circumstances, and came to the conclusion that the serious shrinkage was due to the extensive clearings of the surrounding forests which had been made during the previous half century. In discussing the matter in his Travels, he makes this pregnant observation:—"In felling the trees which cover the tops and sides of mountains, men in every climate prepare two calamities for future generations—a want of wood and a scarcity of water." Some 25 years afterwards, M. Boussingault visited the valley. The inhabitants informed him that not only had the shrinkage ceased but that the lake had risen perceptibly. But in the meantime great political changes had occurred; wars had ravaged the country and greatly reduced the inhabitants, the tillage of the soil had been almost abandoned, and the tropical forest which so quickly reproduces itself on abandoned clearings had regained possession of the soil.

In the island of Ascension, it is said, there was a fine spring, which was situated at the foot of a mountain originally covered with trees. The flow from this spring gradually shrank and dried up after the trees clothing the heights were felled. When Dr. Hooker visited the island in 1843 there was only one tree on it and owing to the want of water scarcely enough vegetables could be grown for the commander's table. In 1861 a large still for sea water was erected, and pro-

gress was made in planting trees and shrubs, which had to be grown in nurseries and watered by hand. The mountain was gradually replanted and in a few years the spring reappeared by degrees and soon regained its former abundant volume. In 1865 there were copses and thickets of some 40 kinds of trees, in addition to shrubs and fruit trees; the water supply was ample, while ships calling at the island, as well as the garrison, could depend on regular supplies of vegetables. The island of St. Helena was formerly covered with forest trees, but these were soon destroyed by wood-cutters, while the ravages of goats stripped the shrubs and brush wood from the rocky heights. The denudation of the island was followed by serious droughts which caused great losses of live stock and crops. About the close of the eighteenth century great efforts were made to restore the vegetation, and as a result, it is stated, the climatic condition of the island was greatly improved. In Mauritius during the period 1842 to 1852 some 70,000 acres of land were denuded. Several streams became greatly reduced in volume, while droughts, alternating with floods, frequently occurred. A local authority, writing in 1871, says that "until recently" the island was a mass of verdure. "But," he proceeds, "when the forests were cleared to gain space for sugar cultivation, the rainfall diminished; the rivers dwindled down to muddy streams, the water became stagnant in cracks, crevices, and natural hollows; while the equable temperature of the island entirely changed; drought was experienced in the midst of the ocean, and thunder showers were rarely any longer witnessed. The lagoons, marshes, and swamps along the seaboard were no longer filled with water, but gave off noxious gases, while the river waters became impure from various refuse. After a violent inundation in February, 1865, fever of a low type set in." This serious change in the climate led to replanting on a large scale, and after over a million trees had been restored the streams began again to reach their former volume.

And now let us turn to recorded observations in India in our own day:—Mr. Macartney, the agent of the Sandur state, Bellary district, in Madras Presidency, holds that during the last decade the rainfall in his district has become lighter and more irregular as the forests have gradually been destroyed by wood-cutters and charcoal burners, and the indiscriminate grazing of cattle, goats, and sheep. His experience extends over 22 years, and on this point he says:—"In the first decade of my residence here, the tank near my house used to be regularly filled every year and to be running over for several weeks at a time. Latterly, though, it has accumulated an immense amount of silt, and is now, consequently, of diminished capacity; it rarely fills. The same remarks apply equally to the Ramandrug tank, and to that of Singankeni."

Major-General Fisher, R.E., an old resident of the same district, referring to the period 1856-64, states that when the hills were covered with jungle there was always a heavy cloud resting on them during the night and for the greater part of the day; rain, sometimes light and at other times heavy fell at frequent intervals, and the average fall was found to be 45 inches a year. The hill-springs and small streams ran freely, and the water supply was most abundant during the whole of the hot weather. In the year 1864 he left the district, and did not return till 1879. In the interval the face of the country had changed; the jungle had been almost entirely destroyed, the annual rainfall was most precarious, and had fallen to under 24 inches; the tank had not been filled for three years, the springs were almost always dry, dribbling at the best, while the main feeder

of the Darojee tank dried up by the end of February, and its tributaries had no water in them.

In the same way, we might cite scores of instances recorded by observers in Pennsylvania, in New York, in the Upper Mississippi states, in New Hampshire, in Ontario, and in South Africa where the destruction of large areas of forest, especially in mountainous or upland regions, has been followed by diminished rainfall, and the shrinkage or drying up of streams and springs.

On the other hand, there is a school of inquirers, who, while admitting that forests serve a useful purpose in regulating the flow of streams and springs within their recesses, deny, or at any rate question, their power to materially affect the general climate of a country or its rainfall, holding that the latter is mainly determined by large expanses of sea and ocean, and by currents of air moving rapidly from one region to another. Thus, Oskar Peschel, while conceding that forests may have a local influence on precipitation of moisture, says:—"The amount of rain depends on the extent of oceans and seas, on the degree of heat, and on the rapidity with which the air moves over the surface of the waters. None of these conditions are changed by the extent or absence of forests. All air-currents blowing from the sea are year by year charged with the same amount of moisture, which precipitates as soon as the air is cooled below the point of saturation. If such precipitation be caused by forests, the air-currents reach the regions behind these forests drier and unable to yield a further supply of water." But, as Mr. Ribbentrap (late Inspector-General of Indian forests) well points out, he does not take into account re-evaporation of moisture precipitated on the land, which especially in hot climates, is very great from lakes and streams as well as from the soil and from the crowns of trees.

But, without founding any general deduction on the recorded facts, we need not go beyond Victoria to find noteworthy instances of the difference of rainfall in fairly open or treeless districts, and in thickly-clad forest regions. The greatest precipitation in this State is in the Beech Forest, south of Colac, at an elevation of only 1,400 to 1,800 feet, the average annual fall being over 70 inches, while the maximum fall registered is 89 inches. But at three coastal stations surrounding this forest the hihgest records are only 42, 50.33, and 38.66 inches respectively. On several parts of the Dividing Range, where the country is fairly open the annual fall is from 30 to 35 inches; in some parts of the open, undulating, or plain country of the northern areas 20 to 25 inches; in other parts 15 to 20; while in the wettest parts of Gippsland moderately close to the coast line, but chiefly in hilly forest-clad country, or settled country with a fair proportion of wood-land, the average fall varies from 43.16 to 67.73 inches.

With respect to the influence of forests in absorbing and generally distributing rainfall, in preserving by their leaf cover and undergrowth the soil in a spongy and porous condition, so that the water precipitated in rain and snow is given out again in the form of small streams and springs, there is practically no difference of opinion. The contrast between the effects of a thunderstorm falling on bare hill sides, or in open country where the rainfall is quickly carried off to the lower levels in torrents and freshlets, and the same storm discharging its rainfall over large expanses of tree-clad country, with the deep absorbent mould below protected from the direct action of the sun, is too plain to any observer to admit of dispute. And while the local evaporation is always

greater in open country, it must not be overlooked that in addition to the heavy transpiration of moisture through the leaves of the trees, there is a steady though moderate evaporation from the surface of the forest-clad soil also, thus restoring to the air for future precipitation a proportion of what had been absorbed in the form of rain, Evermayer, in recording the result of observations made in Bavaria on this subject, says: —"The forest alone, without the cover of dead leaves, diminishes the evaporation by 62 per cent. as compared with that in the open. Evaportaion is consequently 2.6 times less in forests. A covering of dead leaves and vegetable mould diminishes evaporation by a further 22 per cent. Forests with an undisturbed covering of dead leaves and vegetable mould lessen the evaporation as compared with that in the open by 84 per cent."

In 1898 we sent to all the municipal councils of the colony a schedule of questions relative to the condition of the timber lands, the progress made with the planting of trees on streets, roads, and private lands, and the condition of the natural water supply in the territory under their control. On the subject of water supply, the information asked for was as follows:—

> Has there been any marked diminution (beyond the annual shrinkage in the dry season) in the volume of water flowing in rivers or creeks, or from springs, since the lands were occupied by settlers and the live timber cleared or otherwise destroyed?
>
> Are there any authenticated instances in your municipality of streams, creeks, or springs, formerly perennial, on lands now denuded of live forest or covered with ringbarked trees only, having completely dried up?

The replies in some instances were exceedingly vague, in others fairly definite in the opinion expressed, while in some cases these particular questions were not answered. Of the 41 answers collated below, 21 support the theory or belief that destruction of live timber has caused shrinkage in the rivers and streams, eleven are opposed to this belief, and nine are doubtful or hold a balanced opinion, It is clear, however, from the nature of many of the replies, that but little attention has been paid to this important question, and that no regular observations have been made and recorded. One fact seems to be generally admitted, and it is supported by our own experience and observation, viz., that the destruction of live timber along the courses of streams has resulted in frequent erosion of the banks, while the silt thus carried down has filled up numberless pools and deep water-holes which formerly held supplies of water in the dryest seasons. As to the breaking out of small springs in some cases after the destruction of live timber, the fact is easily accounted for. Many of the eucalypti have great absorbent power, although a large proportion of the water or moisture drawn up by their roots from the soil is exhaled through the leaves into the atmosphere, and, like that drawn from seas, lakes, and streams by evaporation, returns to the earth in the form of rain or dew. But, naturally, any small bodies of water lying on impervious strata near the surface of the ground, which have been absorbed by the roots of live trees, rise in the form of springs when such trees are killed. Such occurences, however, are purely local, and confined to very small areas.

We may also quote an instance mentioned by Mr. Clement Hodgkinson of the effect on a fine mountain stream of reckless denudation. He says:—

> In another part of the colony, where the clearance has been more extensive, a creek, which, when I visited it short-

ly after my arrival in the colony in 1852, was a beautifully permanent stream, with musk and fern trees, was, owing to the cutting down of the large timber, when I saw it again in 1873, converted into an ordinary water-course; all the luxuriant vegetation had disappeared, and the people here told me that instead of being a permanent stream it was a torrent after rain, and it was dry in summer. This was in a locality where there had been a great struggle among the saw-mill owners for some coveted portions of forest, and not only did they fell a quantity of trees for the use of their mills, but they made a most reckless slaughtering of the timber upon the ranges to obstruct the tracks, the consequence was the forest was just destroyed. I may mention that that was upon the northern slopes of Macedon, and this creek was one of the tributaries of the Five-mile Creek.

Finally, on the general question, we may cite the opinion of the late Government Astronomer, Mr. R. L. J. Ellery, who for many years also discharged the duties of meteorologist in this colony, and whose views, therefore, are entitled to great weight:—

A mere glance at the rainfall tables for any month shows us that the great precipitation takes place at our highest altitudes; our great coast range is the gathering ground of rain-producing clouds, and it is the fall on the tops of our mountains and ranges that keeps our creeks and rivers running, by slowly delivering their stored-up water through numerous and often perennial springs. Wherever destruction of the forest has occurred on the ranges, these springs have all seriously diminished, and in very many instances ceased altogether, lessening the annual flow in the chief arteries of the country. Therefore the reckless denuding of our higher forests is absolutely robbing the country of water. Should this destruction continue, a seriously diminished flow of our rivers, dry creeks, and scarcity of water over formerly well-watered districts will become inevitable.

During the past eight years I have, in the course of duty, travelled frequently over the greater part of Victoria, making at times long journeys on foot through the rougher mountain districts. Wherever extensive clearings, in the course of settlement, have been allowed in elevated regions, I have witnessed one unvarying result: shrunken and muddy streams in summer, carrying in their bed shingle and sand, as well as large bodies of silt, when in flood in winter; diminished or dried-up springs in the hot season; the gnawing away of hill-sides by the winter rains; deep ravines in the lower valleys; a harsher and colder climate in winter, and a very irregular one in summer, with sudden freshlets. These ill-results are most noticeable in Southern Gippsland and the Otway Peninsula, both districts which once bore great hardwood forests of enormous value, but which long since in the course of indiscriminate selection have been almost destroyed by the axe. Much of the fine volcanic land of the Western district is still under sheep and cattle, while selectors have been too often driven into the densest forests to make homes for themselves in small clearings. And yet frequently the selector who blindly occupies such timber lands has a hopeless task before him. His rough clearing in the course of years may cost him from £10 to £40 an acre, while the timber he destroys, if it is blue gum or ash of good quality, may be worth to the State from £80 to £150 per acre. It is to be wondered at that some selectors are now offering to sell their leasehold rights back to the Forests Department at a small advance over the pound an

acre for which the State undertook to give them the Crown grant? In such country there is little hope of railway construction, or even of good roads. The unfortunate settler has destroyed what he could not keep if he wanted crop or grass, the timber which formed the greatest and most valuable of all crops. In its place, in default of crop or useful pastures, he often brings up the most inferior undergrowth or scrub. Let anyone with open mind travel over our denuded tablelands on the approach of autumn or late spring. He is met by harsh biting winds, where once was warmth and shelter and a humidity which promoted the growth of all plant life.

In closing this short paper, let me make it clear that I am no advocate of the retention of forest on areas at low elevation, which by the richness or strength of their soil are naturally fitted for successful settlement. When, however, settlement with extensive clearing or killing of timber is allowed on our mountain slopes and plateaus, not only is the general climate and rainfall affected, but in time the best soils, which produce such fine tree and plant growth, are washed away, filling the beds of streams with silt and sand, and leaving the hillsides a mass of scarred rock unfit to support any vegetable life. This has been the result in older countries where man recklessly destroyed the hill forests. We have not profited by the example of Europe and America, and the same penalty will inevitably follow.

We have in Victoria controlling and advisory commissions and committees without end. We have also an elaborate law dealing with the control of our water supply, but we have no law or no commission to control with sufficient powers the great store-house of our rivers, streams, and springs—the mountain forests. Without this store-house irrigation would be practicably impossible, and successful settlement in the drier districts, through which the streams flow, a very difficult problem indeed. The full and permanent protection of all our unreserved mountain watersheds throughout the State is imperative if we are not to face in the early future diminished stream-flow with irregular periods of drought and flood.

Mr. Beuhne: There is (?) a creek running through Tooborac called Mackiver creek. Twenty years ago enough fish for breakfast could be caught in the morning; now there are a few waterholes, and in the rainy season a big torrent of water rushes through. This is caused through the denuding of the hills of its timber. When the timber was there, there was an undergrowth of herbage, etc., to retain the moisture. It is a rocky place and now the rain washes what soil there is, leaving the rocks and the land in a deteriorating condition. When land is of more value for agriculture than timber, then the land should be given to agriculture, but there is much land not good for agriculture which should be retained for forests, and thus have timber reserved. He alluded to Florida as an example of indiscriminate clearing of country of pine trees; what do we find there now? Serious frosts every year or two that do so much damage. The American Government now recognise the mistake, and are replanting the country with pine trees.

Mr. Bingham in bearing out Mr. Beuhne's remarks, said in 1866, 45 years ago, a creek ran through the property he now owns; it was a big stream, never flooded, never small; but now it gets very small, and during rains floods with much damage. Frosts are now heavy, but were not so years ago. As the forests disappeared the climate became more severe; as to planting he can't get anyone to listen to the idea. When rain falls now torrents run down

and the soil washes from the cultivated land leaving large ugly tracts.

Mr. Frost: In forty-six years in the State he had travelled the whole of it. In Mt. Cole district, what used to be beautiful forests are now one mass of low scrub, he also instanced great waste of timber. In other parts, Bradley Creek, for instance, was a beautiful forest; it is now a useless scrub. He suggested that for every tree cut down by a selector he should be compelled to plant two trees. As regards rainfall he can endorse all that has been said.

Mr. Bingham: In Sweden he understands two trees have to be planted for every tree cut down.

Mr. Beuhne: In some countries application has to be made to the Government for permission to cut down a tree, even when it is on that person's privately-owned property. The only way to prevent this waste of timber is to educate the rising generation. Two things the present Australian [illegible] one is, if he empties a bottle he will break it and scatter the glass to the detriment of cattle, bicycles, etc., and the other if he has an axe he would cut down a tree. If we don't take steps to counteract this proclivity we will lose all our trees. An attempt is being made to instil into children the protection of native birds; perhaps something might be done to educate children about tree preservation. When Mr. McKay was asked to prepare a paper the object was that its contents might be distributed by beekeepers all over the country. He advised beekeepers to preach about streams drying, erosion, short rainfall, get people interested and so enlist their sympathy.

Mr. D. Morgan: It is not altogether the fault of the settler that so much timber is destroyed and wasted; it is the land laws. The settler is compelled to put certain improvements, and one of the improvements insisted on is clearing. There is much land on which the settler would like to save the timber, but cannot, for fencing, building homesteads, and similar improvements are not sufficient to satisfy the Government, and he is thus forced to ring and clear to get the required value of improvements in the required way.

Mr. Beuhne knew Mr. Morgan had a piece of land and spoke of ringing and clearing. There was no other way to put improvements on it than by doing so.

Mr. F. Barnes gave an illustration of where in Victoria a large tract of land had all the timber destroyed with the object of having a reservoir filled with water, as if the water could not run to the reservoir while the trees remained standing.

Mr. Cottman: There is one point not touched upon: In Eastern Gippsland there is very little settlement and so not much is destroyed by settlers, but the Lands Department let out large tracts of land—from fifteen to twenty thousand acres in a block, to graziers; these put a fire through the [illegible] to sweeten the grass and enable it to carry more stock. Fires have a two-fold effect—they destroy all the young timber as well as burn off the rubbish. Again the sawmiller, when he cuts down a tree, takes the butt only, the head and branches are left, which, when dry, takes fire. These men should be compelled to burn up these tops to prevent future damage. In a place near Orbost where there were large timber trees it is now useless scrub, this is the result of fires causing a stunted growth of trees.

Mr. Beuhne: Referring to Mr. Barnes' remarks, the theory was to get water supply for the reservoir, it was necessary to prevent soakage and get the surface supply. In a state of nature the water soaked and oozed out in time, but instead of soaking it now runs over the surface and gets there quicker instead of by percolation.

Mr. T. Bolton, in confirming Mr. Morgan's remarks of improvement value, gave as an illustration, Mr. Taverner reserved the Blue Blocks from ringing. One grazier rung his timber and had to forfeit his lease for so doing. This land was thrown open for selection, and when it was before the Land Board it was rated £50 higher on account of it having been ringbarked. He said there was a lamentable want of common sense in connection with the administration of the lands of the State. He moved: "That this association warmly appreciates Mr. McKay's paper and to thank him very heartily for it." Mr. Best seconded the motion, and suggested that the paper be printed and circulated among the people, especially on ' Day. Much good might then be done.

The motion was carried by acclamation.

Mr. Hardy, in reply for Mr. McKay, said as railways open up the country much timber is required for sleepers, fencing, etc.—this will use up a large quantity of timber. When once in the country he saw some men about to fell a tree; he asked them how long it would take to cut it down? he was told an hour. He afterwards estimated the age of the tree by allowing one ring per year. It took two hundred and eighty years to grow, and only took one hour to destroy.

AMONG THE BEES.

BEE TEACHING.

By. D. M. Macdonald, Banff.

Our Apicultural Colleges are doing good pioneer work in disseminating a knowledge of beekeeping on up-to-date lines. One of the Aberdeen Lecturers (Mr. A. Manson), went all the way to Gloucester to secure an expert's certificate, and since then the College has been sending him round some ten countries in the North and East to deliver illustrated bee lectures. Mr. Manson is a practical beekeeper, having been familiar with bees from his boyhood, and so his instruction is first hand, and therefore most valuable. He is at present finishing off a tour during which he has delivered over thirty lectures. In very few centres has the attendance been small, whereas in general the gatherings have been large and enthusiastic. Everywhere he discovers beekeepers anxious to learn all the latest and best as to devices, hives, appliances and manipulations. I have no doubt the good seed sown will bring forth good fruit in the future. The college pays all expenses and invites all beekeepers, and non-beekeepers, to the lectures free. I believe the East of Scotland and West of Scotland Colleges have also lecturers covering at least a part of each district, but the area is wide and the labourers are few. It is, however, in contemplation to appoint a qualified expert in each district who would devote his whole time to lecturing, giving demonstrations and visiting apiaries to give advice, especially in combating bee disease.—"British Bee Journal."

[When is N.S.W. to do likewise?—ED. "A.B.B."]

RIPENING HONEY.

On the Hives is the Only Place Where this can be done Perfectly.

The days for extracting honey will soon be here, especially in the southern part of the country. If you have not supers and combs enough to allow the honey to ripen on the hives, I beg of you to get them. Of all things, don't extract "green" honey. To be sure, it can be evaporated outside the hive, but evaporation and ripening are two distinct processes. As well pick green fruit

and lay it away to ripen, as to extract green honey and expect it to have the rich, smooth, delicious taste of honey that has really been ripened naturally on the hives. I thought I had tasted ripe honey, but let me tell you something. Last summer and fall I was sick and my supers of clover honey were left on the hives until the cool days of fall. The honey was so ripe and thick that it had to be warmed up before it could be extracted. If poured from one dish to another it would pile up in a heap, and it would be quite a while before it would flatten out level. Then the flavor! Any one who ever tasted that smooth, rich flavor could never be made to believe that "green honey "evaporated" could be made to taste like that.

No man who has ever had experience in these matters would ever think of extracting "green" honey, and I know of no man who has had more experience in handling both "freen" and "ripe" honey than has Mr. W. P. Southworth, manager of the Western Honey Producers' Association, and he covers this whole matter in an exhaustive, masterly way in a paper that was read last fall at the Albany meeting of the National. So good and sensible is the advice there given, that I feel it is worth while to copy the whole essay. Here is what he wrote:

"Ripening honey on the hive, or the best method of producing honey that will 'taste like more' to the consumer is a subject to which I have given a good deal of time and thought, and I wish that I could be present in person to defend the stand that I take.

"I contend that it is not enough that honey be entirely sealed in the comb to be ripe and ready for market, but I hold that honey should age in the hive. I can not say how long a time should be allowed for this aging, as much depends on locality, the kind of bloom, and the atmospheric conditions.

"My opinion is that this applies to both comb and extracted honey, but it is not so important to age comb honey, because it must be sealed in order to be marketable, and its attractive appearance has much to do with its ready sale. Therefore, we must consider this point and not allow it to become dark and travel-stained. No doubt most of us have seen the nectar in the open cells of our immaculate sections become bubbly and sour, and the faces of the sections become watery and greasy appearing, even when kept in a warm, dry place. This shows that the preserving properties are not complete.

"In the production of extracted honey the perfect ripening is more essential, as the extracting process causes the honey to take in the ferment germs that attack the particles that are not thoroughly inverted or changed from nectar to honey.

"In my position as manager of the Western Honey Producers' Association, 200,000 pounds of extracted honey come under my observation annually. The first two years of our existence as packers and distributors nearly all the honey came in small lots, and we noticed that there was quite a difference in the quality and density of the honey. This led to close examinations and tests, and the cause was soon located. Some of the honey had been extracted too 'green.' One such lot that was received in the fall of 1908 showed signs of outgrowing the cans soon after it was placed in the warehouse. Some of the cans were hissing quite loudly when it was discovered. This honey was at once treated by our clarifying process to see if the fermentation could be stopped. We succeeded in putting it in a condition so that it would keep indefinitely, but the flavor was injured so that it could not be used as table honey.

"Last season we were offered some carload lots that were slighted fermented, at half the price good honey was bring-

ing, but we could not use it. A large grocery house bought it, and by cooking it in a steam kettle made an ingredient that they sell for pure honey. It will pass the pure food inspection, but it will not pass the lips of the consumer the second time. It is such honey as this, put up by ignorant persons (in the case mentioned above I think it is largely ignorance and a desire to get a large package for little money), that is ruining the honey market.

"Give the consumer that rich, thick, delicious honey, that is extracted later in the season, and it will tax the bloom of our fertile fields to supply the demand.

"Our honey business has expanded in the past four years more than we anticipated, and this has been brought about by our putting out the best honey. We have secured this best honey by getting next to the producers, and showing them where they are making their mistake. As a result, they were anxious to please the consumer, and to-day our warehouse is full of extracted honey, every can of which will test perfectly in density, formic acid and flavor.

"The question will be asked, 'how are we to let all of our honey ripen or age on the hive?'

"My answer to this will depend much on the locality and kind of bloom. If the flow is principally light honey, then tier up and leave it until fall. If there is a light honey-flow followed by a dark autumn flow from buckwheat and other blossoms, that impart a strong flavour, I would say, leave the light honey until the dark honey begins to come in, and if a little of the dark is mixed in it, it is not so serious a fault as to extract green honey or nectar.

"I have read with interest the articles written by G. C. Greiner, E. W. Alexander, and others, on extracting often during the season, and their methods of artificial ripening. At the same time I have considered what constitutes honey, and would refer my hearers to the bulletin published by the Agricultural Department at Washington, D.C., entitled, 'The Chemical Analysis and Composition of Honey.' In this we find the following:

" 'In the modification of the nectar by the bees several changes in the composition are produced. Among the most important of these is evaporation of the nectar to a water content of about 20 per cent. This is effected in the hive by the bees exposing the nectar in thin layers to the action of a current of air produced by the fanning of the wings. This evaporation is further hastened, according to some, by a process of regurgitation, the nectar being continually thrown out from the honey-sac on the partly-doubled tongue, and then drawn in again until, by the movement of the heat and air of the hive the nectar is sufficiently reduced to be deposited in the cells of the comb.

" 'Another change of considerable importance which takes place while the honey is in the honey-sac of the bee, and also probably during evaporation and storage in the comb, is the inversion of a considerable part of the sucrose in the nectar through the action of the inverting enzym secreted by the bees.

" 'Another modification produced in the nectar by the bees is the introduction of a minute quantity of formic acid. This acid is wanting in the pollen and nectar of the flowers, and is supposed to be introduced into the honey by the bees just before the capping of the cells. The formic acid thus introduced by the bees is supposed to act as a preservative, and prevent the honey from fermenting.'

"I am a great admirer of E. W. Alexander, and have his writings that I have studied carefully.

"As far as I have tried his methods I find them well suited to the conditions in this locality, with one exception, and that is his method of extracting the nec-

tar from the combs before it is sealed, or even well evaporated.

In Mr. Alexander's locality, and with his equipment and methods, this process may work out; but in this locality, and with the equipment that the average or even extensive beekeeper has, I believe the plan is worse than a failure—it is a damage to the honey market. I am of the opinion that no producer of extracted honey should try it unless he wants to enter quite extensively into the manufacture of honey-vinegar; and I doubt if the nectar would make a good vinegar as ripe honey would.

"Some beekeepers favor the frequent extracting of the green honey on account of the apparent economy, believing that it will save them something in the way of investment for fixtures, such as extra supers, frames, foundation, etc. But from the economical standpoint alone, to say nohing of the quality of the honey, I find that it is easy to prove that having the extra fixtures and allowing the honey to stay on the hive until the end of the season, and then making a business of extracting it at one time, rather than to be dabbling in it at intervals during the season, is the cheaper method, for much more time is sure to be wasted at each small extracting than would be wasted if the work was left to be done all at once.

"Some argue that frequent extracting of honey from the combs stimulates the bees to greater effort to gather more honey to replenish their scanty store. On this question Mr. Dadant thinks that the more stores the bees accumulate, the more they will continue to gather, provided they have the combs to store it in; that is, they are not unlike human beings in that they work the hardest when they are prosperous; but if their hard earnings are taken away continually they become discouraged, and are more likely to give up trying to get ahead.

"The all-important question with the consumer is the flavor of the honey that he is eating; and if we want him to eat more honey, we must give him the thick, delicious honey with the bouquet of the flowers in it; and we can not get this from nectar, nor can man ripen the nectar so that it will be equal to the honey that the bees have finished. There is a fair demand for good honey, and I predict that the consumption of honey will not increase until a good article is put on the market universally.

"Four years ago I extracted a lot of choice clover honey which I supposed was ripe enough, and I wanted to get it out of the hives before it should become mixed with the dark fall honey. This honey was put into cans and pails very soon after it was extracted, and sold. Later in the fall I was trying to sell some honey to a man to whom I had sold some of this choice early honey, and he objected very strongly, saying that the other honey that I had recommended to him so highly, had fermented, so that he had to throw it out. This was where I got my first intimation of what it means to produce good honey. Some of that nice clover honey that I had in the house I noticed was changing rapidly, and it soon spoiled. I know know that I can produce good extracted honey, and I know that all the beekeeping fraternity can do it. The majority of the beekeepers will be glad to do it when they have their attention called to the importance of his part of the work.

"It is not more beekeepers that the country needs, but more careful, painstaking honey producers that are willing to sacrflice quantity for quality, and give to the consumers Nature's richest sweet properly prepared, and then we will see the condition that I referred to before, when the bloom of our plants will be taxed to supply the demand."—"Beekeepers' Review."