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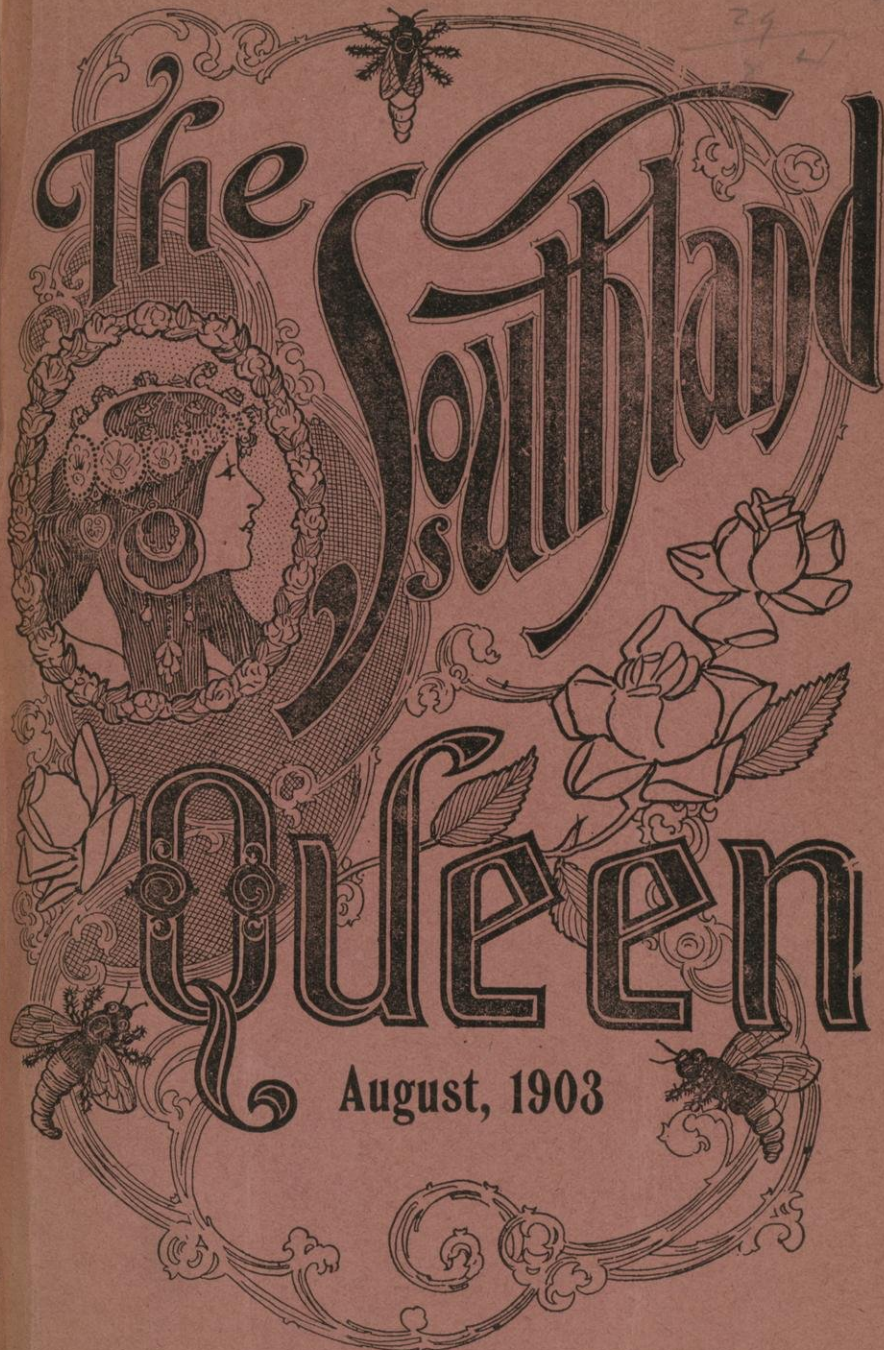
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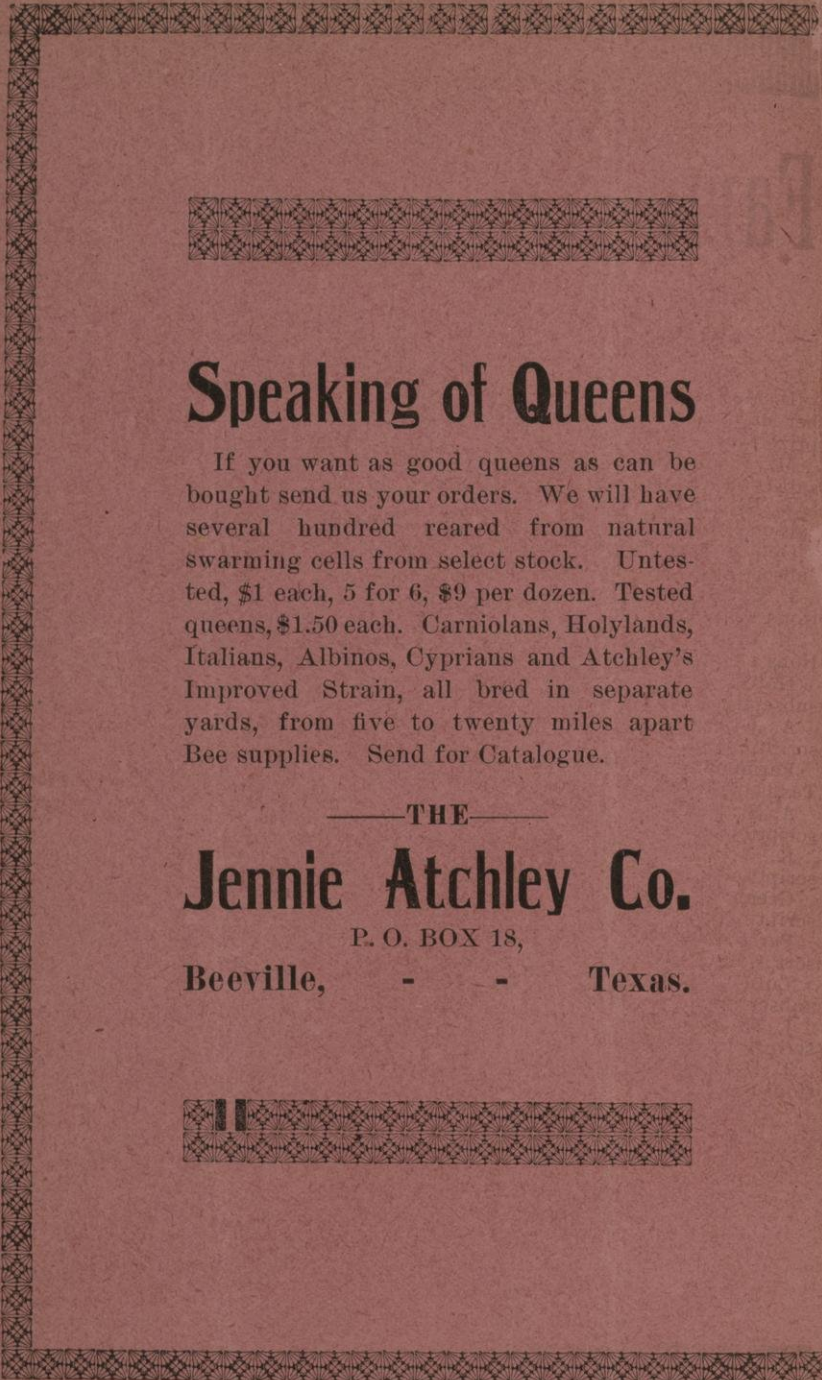
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August, 1903



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Volume 1.

Number 5.

The Southland Queen

DEVOTED TO THE EXCHANGE OF THOUGHTS
ON APICULTURE.

Published Monthly.

\$1 Per Annum.

BEEVILLE, TEXAS, AUGUST, 1903.

PROCEEDINGS

Of the Meeting of the Texas Bee-Keepers' Association.

Held at the A. and M. College, at College Station, Tex., With the Farmers' Congress Meeting, July 7-10, 1903.

LOUIS H. SCHOLL, Sec.-Treas.

The annual meeting of the Texas Bee-Keepers' Association was called to order by President Udo Toepperwein, of San Antonio, at 9 a. m., on July 8, with Louis H. Scholl, of College Station, at the Secretary's desk.

The first subject of discussion was that of the election of officers for the ensuing term. This, according to the printed program, was to be left toward the close of the meeting, but as some preferred to have the election of officers first, it was, after some discussion, put to a vote, resulting that the election be proceeded with. The result of the vote was: W. O.

Victor, of Wharton, president; J. K. Hill, of Uvalde, vice-president; Louis H. Scholl, of College Station, re-elected secretary-treasurer.

The following committees were then appointed by President Victor:

A committee of three to revise the constitution and by-laws of the Texas Bee-Keepers' association is composed of J. B. Salyer, Louis H. Scholl, H. H. Hyde, and to which was added the name of Prof. E. Dwight Sanderson.

A committee to inspect and report on the college experimental apiary consisted of J. M. Hagood, F. L. Aten, Udo Toepperwein.

Committee to judge the honey on exhibition—H. H. Hyde, J. F. Teel, J. K. Hill.

Committee on resolutions—O. P. Hyde, W. H. White and Z. S. Weaver.

Committee on program for the next meeting—O. P. Hyde.

The next annual meeting of the National Bee-Keepers' association, to be held at Los Angeles, Cal.,

was discussed at some length, and also what had been done by several members of the Texas association in trying to get that meeting to be held in Texas and at San Antonio this year. Every effort was used to get the meeting, but as the factor of cheap railroad fare plays the greatest part in the selection of the place of meeting of that association, and as the meeting of the G. A. R. at San Francisco this year offered such inducements it was most natural that the National should follow them there. That left us Texans to come in second, and we are glad of that fact. What we now have for the National is a most urgent invitation to come to Texas with their next meeting, and if that cannot be, then we want them to come the next or the very first chance that they may get. The Texas Bee-Keepers' association is quite a portion of their body, and we certainly have the right to have them come to meet with us one time, any way. There are only about seventy of us who are members of that great association and we are growing in numbers, and we would grow much faster if that association would only come to Texas once, so that the bee men of this great state could get better acquainted with it and its objects. We are hoping that we shall see them soon. The Texas association will send several delegates to the Los Angeles meet-

ing, and they are, Udo Toepperwein of San Antonio; Louis H. Scholl, of College Station, and W. O. Victor, of Wharton, Texas.

Then the subjects of the regular program were taken up, and Prof. E. Dwight Sanderson, of College Station, the State Entomologist, addressed the bee-keepers present on the experimental apiary at the Agricultural and Mechanical College.

APICULTURAL WORK AT THE A. & M. COLLEGE.

E. DWIGHT SANDERSON.

First let me extend you a cordial and hearty welcome as you again assemble here to discuss methods for the improvement of Texas bee culture. Being charged with the direction of the experimental apiary here, it is with much pleasure that I meet this association for the first time, to listen to your discussions, and to learn from you those lines of experimental work which will be of most immediate practical value.

The apicultural work at the A. & M. College falls naturally under three heads, viz: 1. Investigation. 2. Police work. 3. Education.

1. The experimental apiary, founded through the efforts of this association and my predecessor, Prof. F. W. Mally, has been undergoing a steady process of development. In a little over a year it is impossible to fully equip such an apiary and secure large results

with but part of one man's time devoted to it. Furthermore, it requires time to become familiar with methods suited to the honey flow of the locality. I feel, therefore, that my former assistant, Mr. Wilmon Newell, has done exceedingly well, in view of the fact that it was possible to devote but a part of his time to this work. We lost his services reluctantly, but were unable to meet the inducement offered elsewhere. Mr. Newell will present the results of his work to you, so that any review by me is unnecessary.

It has been apparent for some time that for successful work the entire time of one man should be devoted to apiculture. We have, therefore, secured your secretary, Mr. L. H. Scholl, as assistant and apiculturist, who will give practically his entire time to apicultural work after the present summer.

We have also found that considerable additional equipment is needed at the beehouse. It is our purpose to add another room to the house, with cellar beneath it, and to secure all necessary apparatus and supplies for the lines of investigation outlined below. For this purpose we have set aside \$900, almost double the amount available during the past year. College Station is by no means an ideal place for bee keeping, and we have found the honey flow insufficient to supply over forty colonies at

most. This and other factors have led us to arrange two out-yards in the Brazos river bottom, some ten miles from the college, where experiments will be carried on at our direction, but without expense to us. Future lines of investigation proposed by Mr. Scholl and Mr. Newell, many of them already undertaken, may be briefly mentioned as follows: Comparison of hives and construction of improved and special hives; comparison of races of bees; comparison of methods of management; methods of preventing swarming; methods of running out-yards; studies of the home manufacture and styles of foundation wax; methods and profit of the manufacture of vinegar from cheap honey and waste; methods of bottling honey; planting for honey; native honey plants, etc. These and other problems which may suggest themselves will be taken up as fast as feasible. With the additions now contemplated we shall have the best apiary of any agricultural college or experimental station, and the only one to our knowledge with an apiculturist. We may, therefore, expect to secure results of value from these investigations during the next few years, which will be published upon completion.

2. Police work—Through the efforts of this association a bill for the suppression and control of foul brood and other diseases of bees

was introduced in the Twenty-Eighth Legislature by Hon. Hal Sevier of Sabinal, to whom we are under many obligations, and finally passed. The law covers the situation effectively, but most unfortunately provides no funds for its enforcement. The writer called the attention of the author of the bill and the officers of this association to the necessity of providing funds for the enforcement of the law if it were to become effective, but without avail. This is to be much regretted, and I believe shows the necessity for further strengthening this association, both as regards membership and organization, in order that the importance and size of the industry may receive better recognition. But no funds for the inspection work contemplated by this law are available, its mere enactment is a distinct forward step, and funds for its enforcement can doubtless be provided by the next legislature. Meanwhile we shall endeavor to do all possible toward the enforcement of the law where foul brood is known to exist by correspondence, and will prevent any knowing violations of its provisions as far as possible. This association can be of the greatest assistance in this work in creating public sentiment in favor of the most thorough treatment of diseased bees. It also seems to me that local or county associations

or sections of county farmers' institutes, could do much toward the discovery of diseased bees and securing their proper treatment.

3. Education—Two lines of educational work are in our charge—instruction of students at the college in apiculture, and the instruction of farmers and bee-keepers throughout the state by means of literature and talks at farmers' institutes and bee-keepers' associations. Until the present year no provision was made for instruction in apiculture in the regular agricultural course. It is now an elective study through the senior year, so that all who wish may obtain a full course. Special courses will be given to suit individuals whenever possible. Considerable student labor is also employed at the bee-house, and a boy interested in bees can thus acquire a deal of knowledge of them. Our equipment for the instruction of students is undoubtedly the best of any institution in the country. It remains for the bee-keepers throughout the state to make this branch of our work a success. Send us your boys and get your neighbors' boys to come to the college for a full agricultural course or a short course in bee-keeping and special subjects. Perchance older heads may also find it profitable to spend a few months here in study; one of our most enthusiastic students in the short course

in agriculture last winter had passed three score and ten years. Before many years go by we hope to send out from this institution some bee-keepers who will be a credit to the efforts of this association, and will do much for bettering the status of Texas apiculture.

We are won't to be proud of the fact that Texas leads all the states in amount and value of bees and their products. I have been studying the statistics of apiculture in Texas and other states as given in the 12th U. S. census, and have secured some facts on this subject which may be of interest to you. It seems that Texas bee-keeping is much like the live stock industry with the long-horn steer—large quantity and very little quality. We are proud to number some of the most successful and progressive bee-keepers of the country as Texans; but for every one of these there are a thousand devotees of the old box "bee gum," whose bees and their product vastly increase the quantity, but woefully lower the quality of the apiary products.

First, let us compare the industry of Texas with that of the United States and other states and sections. Bee-keeping is more popular here than in many states. Seventeen per cent of our farms have bees, while there are only 12.3 per cent of those throughout the United States. But in nearly all

other respects Texas stands near the bottom of the list.

The average amount of honey produced on farms reporting bees for the United States is \$6.5 lbs; for Texas, 79.5 lbs, slightly more than the average for the South Central, 66 lbs, and South Atlantic States, 62.4 lbs, but less than North Central, 85.8 lbs, North Atlantic, 106.9 lbs, and far below the Western States with 304.4 lbs per farm reporting. Likewise the average value of honey produced on farms reporting bees for the United States is \$9.42; for Texas, \$7.80; the South Central and South Atlantic being \$6.90 and 6.78; while the values are greater in the North Central, \$10.07, North Atlantic, \$12.50, and Western, 28.38. In the United States the honey product per swarm of bees averaged 14.9 lbs; for Texas, 12.2 lbs; for the North Central States, 16.9 lbs; for New York, 18 lbs; for California, 28.3 lbs; for Colorado, 29 lbs, and for Arizona 49 lbs. The average for Texas is slightly more than that for the Southern States, 11.3 lbs, but is exceeded by that of Arkansas, Kentucky, Virginia, West Virginia and Florida. The average production of wax per swarm for the United States was 43 lbs; for Texas, 41 lbs; for Arizona 69 lbs, and California, 89 lbs.

But the value of the product of the average swarm is the best indication of the quality of our bees

and status of bee-keeping in Texas. The average value of honey and wax produced per swarm for the United States was \$1.62; for Texas, \$1.19, lower than the average for all the Southern States, \$1.20, and exceeded by all other sections of the country, as follows: North Atlantic Division, \$1.94; North Central Division, \$1.98; Western Division, \$2.54; California, 2.56; Colorado, \$2.87, and Arizona, \$3.55. In other words, whereas, the Texas product was valued at \$568,527 in 1899, had the swarms been as productive as the average for the United States, would have been worth 637,363, and had they produced as much as those in the northern divisions it would have brought \$770,972, while had they averaged as well as the Western Division, the value would have been more than double and considerably over a million dollars.

The same point is brought out by a consideration of the average value of bees per swarm. For the United States this is \$2.42; for Texas but \$1.91, there being only seven of the States (mostly southern) having a smaller value, while the average for all Southern states was \$1.95; for the North Central, \$2.95; Western, \$3.10, and North Atlantic, \$3.31. Thus the total value of Texas bees, \$749,483, though about 50 per cent greater than that of any other state, would have been increased to \$973,000

had they been worth the average for the United States, and to about \$1,200,000 had they been worth the average value exclusive of the Southern States. Altogether, had Texas bees been of a quality of those of the average for the United States their total value, with value of their product, would have been about \$400,000 greater, and had they averaged with the northern and western states they would have had about \$750,000 greater value and been worth approximately one and a half million dollars.

But let us consider apiculture in Texas locally, by counties, and we may possibly learn something which will throw light upon the above figures. I have compiled two maps showing the local conditions of apiculture in Texas. The first gives the number of swarms in each county, and is colored according to the number of colonies per farm in each county. The latter is secured by dividing the number of colonies by number of farms. It is to be regretted that the census does not give the number of farms reporting bees for each county. We see that 59 counties, mostly in the Panhandle country, have no bees. Of these forty have a considerable poultry product. Twenty-six counties have less than 100 colonies. East of Austin there is not over an average of one colony per farm. Twenty-eight coun-

ties scattered through the central part of the state have two to four colonies per farm. But 7 counties have 4 to 6 colonies per farm; five, Chambers, Dimmitt, Frio, Kinney and Kimble, have six to ten per farm, while Uvalde has 23 and Zavalla 35 per farm. These figures show that the swarms are pretty evenly distributed throughout the humid portion of the state, but that there are relatively many more per farm in Central and Southwest Texas. To appreciate the conditions, however, we must consult the second map, showing the pounds of honey produced per swarm in each county. The map is colored according to the honey produced per swarm. These figures show that the valuation placed upon colonies is very largely a local matter, and not related to the productiveness of the colonies, with the exception of Wharton, Dimmitt and Uvalde counties, where the price has clearly been raised by the introduction of improved bees. In four counties less than five pounds of honey is produced per swarm. In 56 counties from five to ten pounds of honey per swarm is produced, and in 41 counties between 10 and 12 pounds per swarm. Thus in over half the honey producing counties of the state (98 out of 180) less than the average of 12.2 lbs of honey per hive is produced. In 40 counties it is but little over the average, being 12 to 15 pounds. In

26 counties 15 to 20 pounds is secured. Six counties, Rains, Brazoria, Travis, Scurry, Winkler and Presidio produce 20 to 25 pounds, but there are only forty-five colonies in the last three counties together, so they are not to be considered. Seven counties, including Starr and Midland, which have but 12 colonies, Wharton, Menard, Live Oak, Dimmitt and Uvalde, produce over 25 pounds per hive. Thus but five counties have a production equal to the average of the Western States. Another map should show the total honey production for each county. It would reveal that the five counties of first rank as regards honey per hive produce 6 per cent of the crop of the state; that the three of the class producing 20 to 25 pounds per hive (excluding three with but 45 hives) produce 4 per cent of the total; that the 21 (excluding those with but a few hives) producing 15 to 20 pounds per hive, produce 19 per cent of the total, and that altogether these 29 counties having an average production per hive greater than that for the United States produce 29 per cent of the total production of the state. Of those counties producing 12 to 15 pounds per hive, over the average for the state, 35 (excluding 5 having less than 100 hives) produce 27 per cent of the crop of the state. Thus the 64 counties, or 33 per cent of the honey producing coun-

ties of the state, produce 54 per cent of the total crop. The remaining produce the other 46 per cent. This points to the conclusion that the bulk of Texas honey comes from counties east of Austin, which produce about the same amount as the average per hive for the state, 12.2 pounds.

It is to be regretted that the value of honey for each county is not given, and that the value of honey and wax is combined in the total for the state, as these figures would give us a better indication of the quality of the product of the different sections of the state. I am aware that the census was subject to much error, and that it is now three years old. But in comparing it with figures secured from bee-keepers in different counties, we are inclined to believe that the census is fairly accurate as a whole, and more to be relied upon than private information. Though a large advance has been made in apiculture in Texas in the last three years, and some shifting in the areas of greatest production, still the general conditions are practically the same. Those of you who are familiar with local conditions can doubtless better interpret the above statistics than I can, but one or two conclusions seem to me quite readily apparent.

1. The bulk of the bees and honey of Texas is of low grade.

2. The honey is produced mostly

east of the Colorado river.

3. In this area there might easily be supported five to ten times the present number of colonies.

4. By improvement of the bees and by better methods of hiving and management the average product per swarm might readily be increased 50 per cent.

It seems to me that these facts open up a large field for our apiculturist to do valuable missionary work in bettering apiculture in Texas. It seems to me that many a farm might support a number of colonies of bees, cared for largely by the women and children, which, like poultry, would go far toward furnishing the comforts of home and happier living. In connection with the development of large fruit interests there is also a chance for many moderate-sized apiaries, for fruit men are coming to learn that they must have bees to produce many varieties of fruit in perfection. Nor does it seem to me that professional bee-keepers need have any apprehension of an increase in the number of colonies and consequent product will have an undesirable effect upon the market for first-class honey. The market for honey is practically undeveloped, and the supply is far from filling the demand. As long as the market is not glutted an increase in production, providing the quality is maintained, exercises but little influence on the price of

the first class product. It seems to me that by bettering the methods of bee-keeping throughout the state this association will be doing much toward securing better prices for the products of its members. Unfamiliar with the conditions of apiculture in the widely varying conditions of this great state it is impossible for me to point out the local application of these statistics, but their significance will be readily appreciated by this audience, and as time rolls on we trust that Mr. Scholl will further elaborate this preliminary survey of Texas apiculture. We trust that with your co-operation and support we may do much toward bettering and furthering this most interesting and profitable industry.

In closing let me again welcome you here. Visit the bee-house and yard. Mr. Scholl will be glad to explain all details to your satisfaction, and we will appreciate all suggestions or criticisms. Let me assure you that, though not a practical bee-keeper by profession or training, it will be my constant endeavor to direct the apicultural work under our care to the best interests of the advancement of Texas apiculture. I trust that in a few years Texas may lead in the quality of her bees and their product, as well as the quantity, and that her experimental apiary and the organization of her bee-keepers may be the best possible. To these

ends we shall devote our best efforts, and with the continued assistance and support of this association do not doubt their achievement.

An unanimous vote of thanks and appreciation was extended to Professor Sanderson for the interest he has taken in our pursuit, that of apiculture of our state of Texas.

Some figures of Mr. Topperwein were very interesting, as they showed to some extent the great amount of honey that was produced in Texas. He reported that 13,000 cases of cans, of 120 pounds each, had already been sold, besides 190,000 sections. Of honey already shipped he says there was 1,560,000 pounds, both of comb and extracted.

The Hyde Bee company, of Floresville, report about twice that much more.

REPORT OF THE EXPERIMENTAL APIARY—1902-03.

WILMON NEWELL.

The experimental apiary was established in May, 1902, with an appropriation of \$500 for the first year's work, or until September 1, 1902. The itemized account of how this money was expended, as well as the work accomplished up to September 1, 1902, will be found in the "Report upon the A. & M. College Apiary," which was published during the past winter. Of

this report 1,500 copies were printed, but owing to the lack of funds copies were mailed to only a few parties in response to most urgent requests. Several hundred inquiries were received at the office of the entomologist for this report, showing that the bee-keeping industry in Texas is rapidly growing, and the demand for information enormous. Copies of this report may be had free of charge by applying to the secretary of the association or to the state entomologist.

For the year 1902 03 the sum of \$250 was available. This sum was totally inadequate for the work proposed, especially as the first year's work and funds were insufficient to build up the apiary to the proper size and condition for careful experimental work. The sum of \$250 was exhausted by March 1, 1902, and since that time the experimental apiary has been run mostly by main strength and donations from charitably inclined individuals. Running a private apiary purely for commercial gain to be derived therefrom, and running an experimental apiary with no possible source of revenue are two distinct and different propositions, which fact is not always taken into account by the outsider. A number of reasons, and chief among them, the necessity of a large and varied equipment, make the conducting of an experimental

apiary by far the more expensive of the two. The \$250 above mentioned was expended as follows: Bees and queens, \$45.40; hives and apparatus, \$64.39; tools, fence and accessories to bee-house, \$39.43; books and magazines, \$16.30; feeding in fall of 1902, made necessary by dry season, \$6; seeds and plants for experiments with cultivated honey plants, \$15.83; improvement in main building office, \$6; travel (foul brood inspection and assistance), \$21.10; freight and express, \$18.31; postage and telegrams, \$14.90; incidental, \$2.34; total, \$250.

Owing to the shortage of funds some lines of experimental work undertaken in 1902 had to be entirely abandoned, while the results with many other experiments were neither satisfactory nor conclusive, owing to the small number of colonies engaged in them.

HONEY PLANTS.

In the fall and winter of 1902 considerable attention was given in the current numbers of the bee journals to a California plant designated as "carpet grass," very flattering reports being given as to its honey producing qualities and resistance to drouth. We were unable to ascertain the species of this plant, and accordingly secured from Nicolaus, Cal., through the courtesy of Mr. J. H. Erich of that place, living "carpet grass" plants. These were planted out immedi-

ately upon their arrival and grew fairly well. Some time after securing these plants, its name, *lippia nodiflora*, was published in the bee journals. When the plants at College station began blooming in the latter part of May, they were not only found to be this species, but were identical with the form of this species occurring in Central Texas. This plant can be found along the banks of streams, and on the sandy knolls adjoining stock "tanks." As a honey producer, in Central Texas, at least, it is absolutely worthless. The bees visit it but rarely, and only then in the absence of all other nectar-yielding plants.

A small field of alfalfa was planted on the upland at College Station in the fall of 1902, and in spite of the abundant winter rains following, died out completely by May 1. The seed germinated and came up well, but the soil evidently was too poor for its growth.

The writer has often noticed that California privet, which shrub is largely planted for ornamental hedges in many parts of Texas, when in bloom, is visited by many bees, and the nectar secured is evidently considerable. With a view to determining the value of this shrub as a honey producer a small grove was planted last winter. Here, again, the lack of help asserted itself, and the work had to be abandoned when about one

acre had been planted out. It is proposed to continue this planting until the grove contains at least three acres, and this in three or four years should give a good indication of what may be expected from this plant.

In March the seed of several plants, including catnip, teasel, wilkweed and sweet clover (*melilotus*) were planted in carefully prepared soil. None of them grew.

Of over forty different plants tested during 1902 and 1903, only borage, mustard, mignonette, Japanese buckwheat, sweet peas, cow peas and California privet promise to thrive under soil and weather conditions existing at College Station. Of these only borage, mignonette, Japanese buckwheat and privet offer any prospect of being profitable if grown on a commercial scale for honey alone.

"PELLONCILLOS."

This, an unrefined sugar manufactured in Mexico, is familiar to the great majority of Texas beekeepers, and especially to those of the southwest, who have often used it for feeding in "off" years.

With a view to testing its food value for bees, and its cost, as compared to sugar, we secured last autumn about forty pounds of this sugar. The sugar, as ordinarily sold, is in small cones, containing about thirteen ounces each, wrapped with corn husks. In December several of these cones were

placed in an empty super over a strong colony in need of stores. The bees worked at it slowly but steadily, and at the end of a month over half the sugar still remained in the super. On February 10th, 11th and 12th, the weather being warm and sunny, out-door feeding was resorted to, as many of the colonies were short of stores. About one hundred yards from the apiary three feeders were placed. One contained dry pelloncillos, one syrup made from pelloncillos and cold water, and the other contained ordinary sugar syrup made from granulated sugar (in the proportion of one part granulated sugar to one and one-half parts water). The bees showed a decided preference for the granulated sugar syrup and took it fully four times as rapidly as the "pelloncic" syrup. The dry pelloncillos were visited by only an occasional bee. The day following many dead bees were found in front of all the hives, and in the afternoon a full quart of bees, dead and dying, were found bunched together by the "pelloncic" feeder. Analysis of the "pelloncic" syrup was made by Prof. H. H. Harrington, state chemist, and was found to contain a large percentage of acetic acid. The dry pelloncillos were then examined and were also found to contain acetic acid. The large organic content, aside from sugar, is most favorable for acetic acid fermenta-

tion. The presence of a considerable amount of water, for this fermentation to take place, is not necessarily essential. For this reason we must conclude that the use of pelloncillos for feeding bees is a most dangerous practice, and in no case should be undertaken without first testing the sugar for acid, and even while being fed it should be tested with litmus paper every day to be certain that no fermentation is taking place.

FEEDING EXPERIMENTS.

An experiment in stimulative feeding was undertaken the past spring, but owing to the limited number of colonies the results obtained were not conclusive.

In the experiment six colonies, each having six frames of bees, (practically six-frame nuclei) were used. Colonies 8 and 9, old series, were fed on February 13th to April 13th, with Doolittle (division board) feeders, at the rate of one-half pint of syrup per day (granulated sugar one part, to water one and one-half parts) the feeding being omitted on cool and rainy days when the bees refused to take the syrup from the feeders.

Colonies 2 and 12 were fed in the same way from March 6th to April 13th. Colonies 1 and 3, for comparison, received no feed. At the beginning of the experiment these colonies (six-frame nuclei), were, so far as could be determined, in the same condition. All were

in ten-frame hives, and all had three-banded Italian queens.

Summing up the results, Nos. 1 and 3 together produced, up to June 1st, 15 pounds extracted honey. Colonies 8 and 9 were fed in all 8.26 pounds of sugar, which at 6 cents per pound, cost fifty cents. These two colonies together produced a surplus of $23\frac{1}{2}$ pounds, a gain of $8\frac{1}{2}$ pounds over the unfed colonies. Honey of the same kind sold in Bryan, Texas, at this time for 7 cents. The gain over the unfed colonies was, therefore 59 cents, obtained at a cost of 50 cents; profit 9 cents.

Colonies 2 and 12 received in all 5.8 pounds of sugar, which cost 35 cents. These two colonies produced only 15 pounds surplus, which was the amount produced by colonies 1 and 3 without feed. Loss, 35 cents. The above results would indicate that the feeding commenced early, February 13, was far more profitable than the feeding commenced later, on March 6. The above amounts of surplus seem very small, but the fact that only nuclei were used in the experiment, readily explains that point. Had full colonies been used the total yields would have been much larger, and doubtless the benefit or loss have been more marked.

We are prone to believe from this experiment, as well as from previous observations that whether

or not stimulative feeding will prove profitable in the increase of honey production will depend upon the price paid for sugar, the selling price of the honey secured, and the length of time available for building up the colonies before the main honey-flow commences. For example, in the above instance it is seen that the colonies which were given from February 13th to April 13th to build up, not only paid for the sugar furnished them, but made a narrow margin of profit besides. On the other hand, the colonies which were given from March 6 to April 13 to build up, did not even pay for a part of the sugar fed them. As an illustration of the bearing of the prices of sugar and honey upon the results, suppose that in the case of colonies 8 and 9, the sugar had been purchased at 5 cents and the honey sold for 8 cents. The profit would have been 27 cents instead of 9 cents. Again, as a somewhat extreme case, suppose that the honey obtained were of good quality and retailed direct by the bee-keeper at ten cents. The profit due to feeding colonies 8 and 9 would have been (with sugar at 5 cents), 45 cents.

Two full colonies were also used in a similar experiment, one being fed and the other not fed. In this case the fed colony produced three pounds more surplus than the unfed colony, with a resultant loss of

12 cents. In the case of these colonies, had the sugar been bought for 5 cents a pound, and the honey sold for 10 cents, the gain in honey would have exactly paid for the sugar fed. In other words, neither profit nor loss. The value of the time necessary to do such feeding is not taken into consideration. These results are not considered by any means as conclusive, but are presented as showing how a very small variation in the price of sugar, or in the selling price of honey will determine whether stimulative feeding will return a profit or loss.

SECTION HONEY VS. EXTRACTED.

The present season has but confirmed our former opinion that the vicinity of College apiary is totally unadapted to the production of section honey. A slow honey-flow, an abundance of propolis, and above all, a dark honey, are the main deterrent factors. This makes the use of hives especially constructed for section honey production—such, for example, as the Danzenbaker—inadvisable. An interesting observation was made the past spring in connection with this hive. 4x5 plain sections with fences and foundation starters were placed upon one Danzenbaker and upon one ten frame dovetailed hive. The bees in both these hives were three banded Italians, and as nearly as could be determined, of the same strength. Now

as to results. The colony in the Danzenbaker hive produced eleven sections that graded No. 2, and thirteen partially filled sections that could not be graded other than culls. The colony in the 10-frame hive produced fifteen No. 1 sections and fourteen No. 3 sections. We have no explanation to offer.

On account of the abundance of propolis the use of closed-end frames in most parts of Texas is not practicable, and their use by beginners is not to be recommended. Among extensive bee-keepers, rapidity of manipulation is a most important consideration. With such a hive as the Danzenbaker rapidity of manipulation—as that term is commonly understood in Texas—is impossible.

In some localities propolis is so abundant as to make even the Hoffman frame an undesirable one. This is notably the case in the Brazos bottom, but a few miles from the college. It has been the custom of many bee-keepers to overcome this difficulty by the use of the "all-wood" frame, which must be spaced "by guess." For many reasons a self spacing frame is to be desired, and in localities where propolis is abundant we heartily endorse the metal-spaced frame. These frames may be seen in the experimental apiary.

BOTTLING HONEY.

It is a well-known fact that when

honey is bottled at a temperature of 160 degrees F., or thereabouts, and sealed while still at that temperature, it will remain liquid indefinitely. It seems likely that the temperature at which granulation can be prevented will vary with honey from different sources. At the same time, too high a temperature when bottling will impair the flavor of the honey. To determine at what temperature honey of different kinds could be bottled to best advantage, experiments were begun in February, 1903. Eysenhardtia honey, procured from Louis H. Scholl, of Hunter, Texas, was bottled and sealed at the following temperatures: 150, 155, 160, 163, 165, 168, 170, 173 and 180 degrees. Six bottles of each temperature were corked and sealed with sealing wax, the intention being to open one bottle of each temperature six months after bottling, one a year, one two years, one two and a half years and one three years after bottling, and make comparisons of the flavor and keeping qualities. A bottle of the honey, corked but not sealed and without being heated, was also preserved. Within three months the unsealed honey was thoroughly granulated. Up to June 1 none of the sealed honey had granulated. On June 17 the first series of bottles were opened and examined by Prof. Sanderson and Mr. Scholl, and upon these

Mr. Scholl reports that "the honey bottled at 150 degrees had retained its flavor, while the higher temperatures of heating had impaired the flavor." This was noticeable with only 5 to 8 degrees difference in heating, and that bottled at 180 was very strong and scratched the throat badly. In this lies the suggestion of future experiments with honey of different kinds. Experiments could also be conducted to ascertain the most economical methods and mechanical arrangements for bottling, and the profit to be derived from placing honey on the market in this form. There is no doubt that honey in small, neat packages will bring a better price than in bulk. Whether or not the increased price would be sufficient to make the increased work profitable remains to be clearly demonstrated.

WAX EXPERIMENTS.

A series of experiments were undertaken recently to determine the proportion of wax in comb of different ages, and the best methods of removing same. The intention was to make the tests accurate and extensive, but the scheme was not entirely completed, and it is hoped that this work will be continued to an exhaustive degree at the experimental apiary. The details of these experiments would be somewhat cumberson, and as they will be submitted for publication elsewhere, only a summary of the re-

sults thus far obtained will be given here.

Old brood comb, the age of which was undoubtedly five years or more, was analyzed and found to contain 36.3 per cent of wax, 17.3 of soluble (in condensing steam) matter other than wax and 46.4 of solids (insoluble).

Brood comb two years old was found to contain 47.2 per cent of wax, 21.1 per cent of soluble matter and 31.6 per cent solids. One-year-old brood comb contained 57.8 per cent wax, 22.1 per cent soluble matter and 20 per cent solids. "Slum-gum" (refuse from solar wax extractor) contained 24 per cent wax, 40 per cent soluble matter and 36 per cent insoluble matter. New comb, built upon full sheets of thin super foundation the present season, and which had never contained brood, contained 88 per cent wax, slightly over 11 per cent solids, and less than 1 per cent soluble matter.

In a test of the Root-German steam wax press, this machine, under full head of steam and careful operation, removed from the old brood comb (5 years old or more) 86 per cent of the wax contained. From 2-year old brood comb the machine removed 89.5 per cent, and from new comb 90 per cent of the wax contained therein. From slum gum the steam press removed 75.5 per cent of the wax therein.

The solar wax extractor was

tested with brood-comb one year old, and removed only 77 per cent of the wax contained. It is also worthy of note that even from very old comb bright, yellow wax was secured by using the steam wax-press, especially if the melted wax, as it comes from the press, be allowed to drip into cold water. The results of these experiments, when tabulated, appear as follows:

Description of comb.	Per cent wax contained.	Percent soluble matter	Per cent solids,	Per cent wax removed by steam press.	Per cent of wax removed by solar extractor.
5-year-old brood comb	36.3	17.3	46.4	80	§
2-year old brood comb	42.7	21.1	31.6	89.5	§
1-year old brood comb	57.8	22.1	20	§	77
Slum-gum	24	40	36	76.5	§
New comb built on thin super foundation	88	**	11	98	§

** Less than 1 per cent.

§ Not determined.

NOTE—Per centage of wax in capping under the above headings, and wax removed by pressure under hot water not determined.

The above table indicates also what points remain to be determined in order to make the series complete.

HIVE COVERS.

Six different hive covers were tested to determine their resistance to heat, when placed in direct sun-

light. As the bees in any colony always attempt to maintain the normal temperature within the hive, a comparison of covers, made upon hives containing colonies, would not be accurate, accordingly six empty supers, each having upon it a different cover, were exposed May 30th and June 1st to steady sunshine from 8 a. m. to 7 p. m. At no time during the day were they disturbed, nor was any circulation of air allowed inside of them. Each super contained a tested, self-registering thermometer, which registered the highest temperature attained during the day. To ascertain the outside temperature, that is, in direct sunlight, a similar thermometer was placed on top of one of the covers. The covers tested were as follows:

Excelsior cover, manufactured by the A. I. Root company; Excelsior cover with shade-board made of one-inch pine, 24x30 inches, raised three inches above cover by means of cleats, thus allowing a free circulation of air between cover and shade board; ventilated gable cover, manufactured by the A. I. Root company; double paper-covered, with dead-air space between two portions of cover, designated as "flat cover," manufactured by the same firm. "Hill" cypress cover, made of a solid one-inch cypress board, with heavy end-cleats, manufactured by J. K. Hill & Co., of Uvalde, Texas. "Lewis"

cover, made of half-inch pine, covered with tin and allowing a contained space of about two inches above top bars.

All of the above were covered with two coats of white paint. The highest temperatures attained under these covers are given below:

Cover.	Date.	Temperature in sun	Maximum attained under cover.
Excelsior.	May 30	102	93.8
Excel'or with shade board.	May 30	102	93.4
Ventilated gable.	May 30	102	93.5
Double cover, dead air spaced.	May 30	102	94.5
"Hill" cypress.	May 30	102	97
"Lewis" metal covered.	May 30	102	94.2
Excelsior.	June 1	103.5	93.8
Excel'or with shade board.	June 1	103.5	92
Ventilated gable.	June 1	103.5	92.5
Double cover, dead air spaced.	June 1	103.5	94
"Hill" cypress.	June 1	103.5	96.9
"Lewis" metal covered.	June 1	103.5	93.5

For two days it will be seen that the temperature under each cover averaged as follows: Excelsior with shade-board, 92.7 degrees; ventilated gable cover, 92 degrees; Excelsior, 93.8 degrees; "Lewis" metal-covered, 93.85 degrees; flat cover (dead air) 94.25 degrees; "Hill" cypress, 96.95 degrees.

It is regretted that warmer weather was not immediately at hand for a more crucial test, and

it is hoped the experiment will be repeated during the hottest weather.

Normal Temperature of Brood-Chamber—In order to determine the normal temperature of the brood nest, for comparison with above results, a self-registering thermometer was placed in a five-frame nucleus and left twenty-four hours. Another was placed in a full colony (crowded with bees forced down from the super into the brood-nest for the purpose) and left the same length of time. Both nucleus and full colony were protected from the sun. The maximum temperature attained in the nucleus during the twenty-four hours was 94 degrees, and the maximum in the crowded colony was 94.5 degrees. We conclude, therefore, that the normal temperature is between 94 and 94.5 degrees. Any cover that in the hottest weather will not allow an inside (of an empty hive) temperature of more than 94 degrees may be considered a safe cover. Any cover allowing a higher temperature than this, even if no more than one degree, is detrimental. It is much easier and more economical for the bees to raise the hive temperature to their normal of 94 degrees by heat production than it is for them to lower the temperature to 94 or 94.5 degrees by ventilation.

Any tight/wooden cover, sub-

stantially made, with a shade-board above it, is a better protection from heat than complicated or high-priced covers involving "new principles." We do not sanction such as the latter, for shade-boards are cheaply and easily made (where it is necessary to place colonies in the sun) and the ordinary cover and shade board together usually cost less than the "special" covers designed for future protection from the sun.

FUTURE INVESTIGATIONS.

Perhaps no industry can show more rapid progress and development within the past thirty years than apiculture. Indeed, present methods, making possible the profitable production of honey on an extensive scale, are the developments of recent years. The bee-keeping industry is peculiar in that the greater part of its development has been due to private enterprise and experimentation, rather than to scientific study by government experts or others employed especially for that purpose. The bee-keeper has received practically no assistance, aside from some very creditable work done by the United States Department of Agriculture, and a few insignificant spurts by several experiment stations. Several of the latter have started off in apicultural work with promise of attaining good results, but the majority of them have allowed the work to lapse, either from lack of

funds or disinclination, or both, before they had really gathered together sufficient equipment for real investigation.

I think I stand without fear of contradiction when I say that today Texas has the best equipped experimental apiary in North America. The A. & M. College promises very liberal and material support for the future, and the management of this apiary is in most competent and careful hands. We are justified, therefore, in expecting most definite and profitable results in the future from our experimental apiary.

The problems which present themselves for investigation are both numerous and varied. I will not occupy more space than is necessary to call your attention to some of the more important ones.

Races.—Prof. Frank Benton, of the United States Department of Agriculture, has made a careful study of the traits, characteristics and advantages of the principal races. His published works are familiar to all of you. However, much remains to be done along this line. It does not necessarily follow that a race adapted to northern or eastern states will be found well adapted to Texas conditions, and it is not likely, either, that a race giving best results in one portion of Texas will prove the race best adapted to all portions of that state. There is a large field

for experimental work in hybridizing these races and testing the crosses thus secured. Taking the five races, Italian (for the present purpose the three banded Italians, Golden and imported, or "leather," Italians are considered as one race), Cyprian, Holyland, Carniolan and German (black). We have by combination the following ten possible crosses: Italian-Cyprian, Italian-Holyland, Italian-Carniolan, Italian-German, Cyprian-Holyland, Cyprian-Carniolan, Cyprian-German, Holyland-Carniolan, Holyland-German and Carniolan-German. However, in many forms of animal life the female is known to transmit to the offspring certain prominent characters or characteristics, and the male certain other characters. This is notably the case in the breeding of fancy poultry. The same principle is recognized by many bee-keepers in producing crosses between the races. If this be true, and we have no evidence that it does not hold true, each of the above crosses, or hybrids, is capable of producing two strains, in all probability distinct, more or less, from each other. As an illustration, the Italian-Cyprian cross could be produced in two ways: First, by mating Italian queens with Cyprian drones; and secondly, by mating Cyprian queens to Italian drones. The same holds true of each of the above ten crosses,

making possible twenty different strains.

But if it is true that queens transmit certain characteristics and drones certain other characteristics to the succeeding generation, then the above mentioned ten crosses are not true hybrids. A true hybrid could only be produced by the following procedure, taking the Italian and Cyprian races as an illustration: An Italian queen mated to a Cyprian drone will give a resultant strain which, for convenience, we will designate as Italian-Cyprian. A Cyprian queen mated to an Italian drone will result in a strain which we will designate as Cyprian-Italian. If, now, an "Italian-Cyprian" queen be mated to a "Cyprian-Italian" drone, or vice versa, the resulting strain will be a true hybrid, possessing the "drone characteristics" and "queen characteristics" of both races. This gives us ten more possible strains, or a total of thirty strains theoretically possible from the five principal races. It is, of course, true that owing to the close similarity to each other, of certain of the five races, many of the above mentioned strains might be practically identical with each other. Theories are not always borne out in actual practice, however, and the above will give an indication of the possibilities along this line.

Queen-Mating—Closely connec-

ted with the above, is the problem of successfully controlling the mating of queens to such drones as may be desired. The Manum giant mating cage, and the use of the glass carboy, have come very near to a solution of the problem, but its ultimate solution will come, as will also a means of mating queens more rapidly than by the use of nucleus boxes.

Honey Plants—These were mentioned in some detail at the beginning of this report, and it is here sufficient to reiterate that many prominent foreign and American plants remain to be tested, and the regions of Mexico, New Mexico, Arizona, and even parts of Texas, may possibly yield native honey-plants worthy of cultivation.

Honey Vinegar—It seems probable that the cheaper and darker grades of honey, produced in several Texas localities, and which now rarely net the producer more than $3\frac{1}{2}$ to 4 cents per pound, could be converted into a high grade vinegar at a considerable profit, and this with but a small amount of labor. There is room for profitable development along this line.

The ideal bee hive has not yet been constructed, but a careful study of conditions, and of the bees themselves, together with careful experiments, should result in much better equipment than is now used.

At every turn the experienced

bee-keeper meets unsolved problems and questions which he cannot answer. Most of these offer suggestions for experimental work which the individual can not take up owing to lack of funds and time, but which can be considered at the experimental apiary.

It seems but pertinent also that we should call your attention to the advisability of this association taking steps to disseminate among our farmers and fruit growers reliable information on up-to-date bee-keeping. Such measures could not but accrue to your individual benefit, and to the benefit of the state as a whole. Judicially managed, such steps would rapidly increase the membership of the Texas Bee-Keepers' Association, would prevent the marketing at low price of "strained" and "log-gum" honey, and would make possible an annual output of honey at least four times as large as present crops, and that without the least fear of glutting the market.

June 29.—The Association assembled, tendered a vote of thanks to Prof. Wilmon Newell, who was the former assistant in the Department of Entomology and apiarist in charge of the college apiary, for the good work he has done while at the college, and they regret that he could not remain at his place at the apiary at the college. The secretary of the association was instructed to inform Mr. Newell of

these resolutions of the members of the Texas Bee-Keepers' Association.

It was also the sentiment of the members of the association and the bee-keepers at large that they were well pleased to see the position now filled by one of their own state, and one of their own number, Louis H. Scholl, formerly of Hunter, Texas, and well known to all the bee-keeping fraternity.

BEE-KEEPING FOR WOMEN.

MRS. BEN D. BURROW, NAVASOTA, TEX.

Ladies and Gentlemen: For years past women have taken an active part in nearly every branch of the commercial world, pressing out into most every known occupation which tends to the well-being of our great and prosperous country, and to-day we have the pleasure, as honorary members, of meeting with the men in their association to discuss the feasibility of "Bee-keeping for Women."

Now, we are well aware of the fact that each year there are many of our sex thrown upon their own resources and compelled to grasp the oars of life's frail bark and stem the ocean tide. Some, I say, are compelled by circumstances, others choose such a course rather than consent to be the heroine of a pure and peaceful home, as beyond a doubt was the Divine purpose. When a woman realizes that she is dependent upon her own abili-

ties, the first question that confronts her is, What can I do? What can I do to win a livelihood and thereby be independent? The first thought usually is, "I'll teach or clerk," or something just as confining, and we may say, ruinous to health and usefulness. Why did she not think for a moment of the possibilities which lie before the American woman of today in some out door vocation, and especially bee-keeping.

One reason, if she did think of it, such an idea was immediately dismissed as being impossible for women. Yet it is by no means impossible, for there are many lady bee-keepers just as successful as men, and more so than some men, but we will not charge that to the man's incapacity, though it could be the case, for there is room for such argument in some cases. surely bee-keeping was not slighted on such a plea. The pleasures it affords and the healthful influences, together with the monetary results, recommend it to the consideration of every energetic young woman.

What is more enjoyable than to walk into your cool, shady apiary with smoker in hand, on some fine May day, and hear the happy hum of the little bees as they come tumbling and crowding into the hives, laden with their dainties from field, forest and glen. Such sweet peace and pleasure may be

any woman's for just a little time, patience and trouble. And then it is not only pleasant, but very profitable. Like poets, bee-keepers are born, not made, but almost any live, energetic person can, in time, become a successful bee-keeper.

Again, it may be truly said that it is no lazy man's job. Many hesitate because they have no experience in the work. If you have none of your own, falter no longer, but fall in line and appropriate some of your fellow-workers. You may be able to pay back some day. That is what we are here for today, to help one another. This is a men's association, but I am glad they have thought of us lady bee-keepers, and consented to take us in as honorary members at least.

Bee-keeping is becoming more and more scientific, though there are some "way back younder" farmers who are contented to have a few log gums. In a few years it will not be so. Ladies, take the matter in hand yourself. Mr. Farmer will be too busy and sleepy over the subject to object. Transfer the bees into nice, neat hives, and some morning he will open his eyes to see those neat rows along the front walk, and hear the bees with renewed energy humming on the near-by clover. There are other things he will think of, too, when there are a few nice, clean sections of honey to market, and then next time more and still more. He will

doubtless remember that he was once owner of these bees, yet he would never know it from their appearance now. Then there was honey for Sunday only, and it dark and thick, not the nice, clean sections that now grace the table almost daily.

Let us arouse some of the men, too, on the subject. I suppose my father would never have thought of being a bee-keeper if his wife had not had a few standard hives when they were married.

The expenses of a beginner need not be great. Hives, frames and other fixtures do not cost much now. A lady with a little help could make them herself. So, if one has not the means for securing these necessities, they can easily be made on the farm. Most every farmer's wife or daughter raises some chickens for market each year. Why not invest the proceeds in bees, so that in time you may make more than mere "pin money."

True, all localities are not adapted to the production of honey. In such cases queen-rearing might be followed with success, since fine tested queens are in demand all the time. Then the production of wax is another feature not to be overlooked. I think if the ladies who have time to canvass their neighborhood with teasetts or patent medicines would establish an apiary they would find it more

pleasant and far more remunerative. There is here, in connection with other studies, an apiary for the boys who wish to study this branch of the course. Have you ever asked yourself why the boys should have advantages over the girls? Are not the girls equal to the task? If so, then in the Girls' Industrial School at Denton let there be an apiary. Yes, let the boys learn to care for the Jersey, Durham, Hereford, etc., and the girls to keep bees, and then will we truly possess "a land flowing with milk and honey." There was a day when girls knew not the fret and worry of securing a livelihood. But then we saw "as through a glass darkly," now face to face, and we are brought to realize that institutions whereby young women may be equipped for the struggle are a real necessity, and as we are called the weaker sex, why not help the weak? So let us think of getting an apiary at the girls' school. Not only think of it, but get it. We hope to hear of many ladies taking up bee-keeping, not only to add to their "pin-money," but to become an auxiliary to the wealth and income of the farm, and we wish to see in this assembly room at our annual meeting many lady bee-keepers fully interested in this new calling to our girls.

(To be continued).

THE SOUTHLAND QUEEN.

PUBLISHED MONTHLY.

E. J. ATCHLEY - - Editor and Publisher.

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As our apiary work has been light this month and the bees quiet, there is nothing to offer that would likely be of general interest this issue.

I would like to have a report from the bee-keepers of the south for the September and October issues of the Queen, and see if we cannot get at an average and see what has been done this year.

I am going to try to gather matter from different localities, that we can have a bee-paper for the generality of bee-keepers, and especially beginners, as this paper's motto is to help the bee-keepers

and general public on to success, and with the co-operation I ought to have I can get out a paper that will be of great help.

Editor Morehouse, of the Rocky Mountain Bee Journal, wants to know what has become of the new Southland Queen, and thinks that new papers have a hard pull up hill. Please allow me to inform you, Brother M., that the Queen always starts right down hill after she is ready for the mails, as she is printed on top of a high mountain, and it is an easy pull.

I am sorry that I could not attend the meeting of the National Bee-Keepers' Association at Los Angeles this month, but perhaps the National will come nearer some time in the near future and be in reach of the Texas bee-keepers. Why can't we get the National to meet at San Antonio next year.

The printer and I are going to do our utmost to get out the September Queen on time, which is, on the 15th of the month. It seems we began running behind from the start, and we could hardly figure out how to catch up before the September issue, under the circumstances which prevailed since the paper started.

We make this issue 32 pages, and the September issue will have to be also, and may be for several issues in the future.

It will be well for South Texas bee-keepers to look sharp for bees robbing for the next sixty days, for once started no telling where the end is.

Do not try to raise queens these dry, hot days, as they will be runty in spite of all care and caution. We have often tried it. Better wait until about September 15th, then queen-rearing will go O. K. again.

We are now having some dry weather, and the bees are rather quiet, but with the exception of some few colonies, breeding is yet going on as much as it ought to.

Where queens stop off laying all of a sudden paralysis may be the result, as bees hatching in great numbers ought to have some larva to feed.

Mr. C. B. Bankston has sold out his bees in this locality and gone back to rockdale, his old home, to continue his queen rearing business.

Honey has a downward tendency on account of fruit on the market, and every bee-keeper has pushed his crop forward, bringing to bear on the dealers that there is a big yield, when in fact there is scarcely a half crop over the state. I think honey will be a better price in September and October.

On account of so much sickness, occasioned, likely, by the excessive rains this year, it is thought best to postpone the September bee meeting till later in the autumn, say about Christmas. This will bring cooler weather and people will feel better on account of the malarial season being over. The day and date will be given later.

I have begun the proceedings of the Texas Bee-Keepers Association in this issue, and will likely conclude in the next. I print the report in full, as I think this is the only way for best results in information.

Mr. Louis Scholl is now assistant entomologist at College Station, and has charge of the experimental apiary at that place. Louis is a worthy boy, and of course we know he will give the business proper attention, and bee-keepers will get the benefit of his experiments. Anything you send to the Queen will be given to its readers. Here's my hand, Louis.

The Texas Farmers' Congress.

The Texas Farmers Congress, at its last meeting, held at College Station, July 7th, passed a resolution postponing the awarding of the corn prizes offered yearly by the congress until fall on account of corn being late, and on vote of the executive committee this award

was to be made and corn shown at the San Antonio International Fair, to be held October 17th to 28th.

The corn prizes are as follows:

First—Best acre of corn grown upon one acre of black land, unfertilized, \$25.

Second—Best acre of corn grown upon one acre of sandy or chocolate land, unfertilized, \$25.

Third—Best acre of corn grown upon one acre of black land, fertilized, \$25.

Fourth—Best acre of corn grown upon one acre of sandy or chocolate land, fertilized, \$25.

Fifth—Best five ears of corn, \$25, \$10, \$5.

Special premium, offered by Tom Frazier, of Kopperl, Texas: One pair of Duroc Jersey pigs for best acre of corn grown on black land unfertilized, and one pair of Duroc Jersey pigs for best acre of corn grown on sandy or chocolate land, unfertilized.

The executive committee of the Texas Farmers Congress will meet on "Farmers Day" during the San Antonio International Fair and pass on this corn. As Texas has one of the most magnificent corn crops on record this year there ought to be hundreds of entries in the above contest. Farmers' Day at the fair ought to see one of the largest gatherings of farmers ever brought together in the state, for there will be speaking by a num-

ber of men prominent in agricultural interest in the state. And the agricultural exhibit promises to be the best ever shown in the state, and worth coming hundreds of miles to see.

Teachers Wanted.

We need at once a few more teachers for fall schools. Good positions are being filled daily by us. We are receiving more calls this year than ever before. Teachers free of cost. Enclose stamp for reply.

AMERICAN TEACHERS' AS'N,

J. L. GRAHAM, LL.D., M'g'r.

152-154 Randolph Building, Memphis, Tenn.

Came Very Near Starving.

I failed to get the Queen for July. Please send me one as I want to keep all the numbers. That will be all I will get out of the bee business this year is what I read and gather from the bee journals, as the honey crop is a total failure in this country. Our bees came very near starving through June and July, the very time we usually got some of our finest honey. They are getting a little now from cotton bloom, but they are so run down that they are not strong enough to do anything at storing surplus.

W. M. BAILEY.

Spartanburg, S. C.

Friend B.—I am trying to arrange so that we can get the Queen out on time hereafter.—Ed.

OUR SCHOOL

BY THE EDITOR.

Dear Editor Queen: I will be very grateful to you for any information you will give through "Our School" pertaining to successful bee-keeping.

MRS. ANNA ELLIS.

Anadarko, O. T.

Mrs. Ellis—I could hardly give in this department everything that would go to make bee-keeping a success, but I will say, get a few colonies of bees as near home as you can, study them well, read some good bee-book and learn by practice how to manage them, and when to get them ready for the honey flows, and you have then made a good start.

Would you advise requeening every fall for best results in honey? Don't you think that Holyland bees are about the best bees for an out-yard? Is comb honey made by Holylands as good or as salable as that made by Italians? Do you think that a divisible brood chamber is better than a ten frame L hive.

WALDO C. COURADS.

Goodwin, Texas.

Friend C.—I think that requeening every fall would increase the output far beyond the expense and trouble of requeening, still if one is so very busy that they can not attend to it properly this matter of requeening can be left to the bees, but it does not pan out with me. Yes, Holyland bees will be

all right for an out-yard, in as much as they are somewhat more vindictive than other bees. Thieves would not molest them so easily.

The comb honey made by Holylands is, to my notion, as fine in appearance as that made by other bees, especially if the quality of the honey is clear. They place the cappings right on to the honey, giving it a clear, watery appearance, and looks rich. Of course the honey itself is the same as that gathered by other bees from the same source, the difference only being in the way the capping is done. No, I do not like the divisible brood nest, and a ten-frame hive with full-depth frames, L size, is much better for this locality. The division is only so much loss, as the dividing space is in the way.

I wish to ask your advice about the Carniolan, Holyland and Cyprian races of bees. Which race is the best and most prolific? Which race will build up quickest in the spring; also which will stand the winters best in this northern climate? I have the black, native bees and the Italians, but they do not build up in the spring fast enough. I work for extracted honey.

CHAS. L. TODD.

Hartwick Seminary, N. Y.

Friend Todd—I think the Cyprians, Carniolans and Holylands are much more prolific than Italians. I could not keep bees to near as much profit with Italians as with other races. If you will

get a cross between Carniolans and Holylands you will have a strain that will be ready for business when any flow comes. You can get a Carniolan and a Holyland breeder and raise your own queens and soon catch a good cross by raising from each and allowing them to mix at will.

Teachers' Interstate Examination Course.

Teachers wishing to prepare for examinations should write at once to Prof. J. L. Graham, LL. D., 152-154 Randolph Building, Memphis, Tenn., for particulars concerning his special Teachers' Examination Course.

This course is taught by mail, and prepares teachers for examination in every state in the union. Leading educators pronounce it the best course ever offered to the teaching profession, and all teachers wishing to advance in their profession should immediately avail themselves of it. Enclose stamp for reply.

Good Season.

We have had the best honey flow here I ever saw. It began May 23, and up to the present, August 7, there has not been a week but the bees stored some surplus, and one week they stored 1440 pounds, fifty colonies, spring count. We

have taken 6400 pounds white clover honey. But what I started in to tell you about is the honey package I am using. I get five-gallon candy pails for ten cents each, and dry them out well, drive the hoops tight and wax well with parafine. Then I put in 50 pounds of honey and nail the covers on. This makes a very handy and cheap package to sell to families who eat honey every day, and at present I am selling them to my neighbors for \$3.50 per pail. This nets me about 6 $\frac{3}{4}$ cents for the honey. I also use the 10-pound friction top syrup pails. They cost me \$6.80 per 100 laid down, and I retail them at 95 cents. I intend to put up a little bulk comb honey in these next years for those who want comb honey.

S. F. TREGO.

From Stone Point.

It is a source of much pleasure that I can once more be permitted to read your valuable little paper. We Van Zandters have just enjoyed another re-union of the old settlers and ex-Confederates of Van Zandt County.

I could say much this time in regard to the little bee. I will give my views as to the cause of the much-dreaded disease known as foul brood in the near future.

I will send you the names of all the bee men in this section as soon as possible who would be likely to

subscribe for a bee journal. My bees have done better this season than for three years past; they made more honey and the increase is double what it has been the past two years. A. M. BARFIELD.

Miller's Cloth-Paper Hive-Cover.

A. C. MILLER IN GLEANINGS.

Here is a description of an improvement in hive-covers which I know is good. It can be applied to any style of cover, but is particularly adapted to flat ones.

On top of the cover lay four to six thicknesses of newspaper. Over this stretch one thickness of cotton cloth (cheese-cloth is too thin). To this apply a coat of thick flour paste, using a paste brush for the purpose. This "sizes" and shrinks the cloth. When it is dry apply two coats of thick paint. The newspaper serves the double purpose of a poor or non-conductor, and prevents the cloth adhering to the cover, and wrinkling and cracking with the shrinking and swelling of the cover. In an attempt to get a simple flat cover which would not "twist" I have had some made of four strips, each four inches wide and tongued and grooved together. The ends of these are held in grooved cleats after the well known manner. Before the cleats are put on the paper is put on top and extends only to where the cleats will come, but folds over the two edges of the cover. The cloth is next drawn tightly over the cover from end to end, and the cleats forced on and nailed through from top to bottom. This binds the boards in tight. Then the cloth is

drawn over the edges and held down by narrow strips of wood. If such a cover twists I shall try two inch strips.

The paper-cloth paint combination produces a sun-and-water-proof cover which takes but little paint, is quickly made, is light and exceedingly cheap. Mine cost me just 11 cents each, without the paint and nails.

The only thing in the foregoing which is in any way experimental is the narrow strips to get rid of the "twist." All the rest has been well tried, and is all and more than I have claimed for it.

Commercially such covers should find a big sale. I find that with such a covering I can use common $\frac{1}{2}$ -inch box lumber so long as it has no loose knots. End cleats are all of clear pine of $\frac{1}{2}$ -inch thickness and two inches wide.

Providence, R. I.

[This is very similar to one we have made and illustrated in one of our older catalogues, with the exception that the board was $\frac{1}{2}$ -in; and instead of cloth for a top covering, we used a heavy roofing paper. We considered this a good cover, and only abandoned it for one embodying the same principle, made up of a double thickness of $\frac{3}{8}$ -inch boards, air-spaced between. Its outside appearance is exactly the same as the Miller cover. Seven eighths boards are bad enough to wind but $\frac{3}{8}$ would be a little bit worse. But lumber has become so scarce now that the time is shortly coming when bee-keepers who desire to make their own goods will have to buy up dry-goods boxes for material. When Mr. Miller says his cover is a good one I am quite prepared to believe him.—Ed.]

The International Fair at San Antonio.

We are just in receipt of the Premium List for the Fifth Annual International Fair, to be held at San Antonio, Texas, October 17th to 28th, next. The premiums offered this year by this Association are very liberal, and have been increased considerable in live stock and agricultural departments, which ought to encourage the farmers and live stock breeders to make an effort to show the best they have. The premiums in the agricultural department cover both dry and irrigated farms, also very liberal premiums are offered for county exhibits. This ought to bring together one of the grandest displays of agricultural products ever seen in the State, for with the magnificent crop prospects this year farmers ought to be able to make a mammoth exhibition. The different cattle associations of America have recognized the good influence the San Antonio International Fair has had on the different breeds of live stock in the State, and to give encouragement to this Fair, have offered very liberal special premiums for their respective breeds.

The roping contest this year will be on a grander scale than ever before. This includes several roping contests, also relay races and broncho riding.

Any one desirous of obtaining a copy of this premium list can do so by addressing J. M. Vance, Secretary, San Antonio, Texas.

INSTRUCTIONS

HOW TO GRADE AND PUT UP COMB HONEY.

No. 1 Comb Honey—Sections should be well filled and capped; honey and comb must be white and not protruding beyond the wood; sections must be scraped clean, so as to make a nice appearance.

No. 2 Comb Honey includes all white honey where sections are not so well filled and capped, and honey tinged with amber.

Cases of separated comb honey should not weigh less than 21-22 pounds net to the case of 24 sections.

Do not put up poor or cull comb honey, but dispose of honey of this kind at home.

When grading honey do so by day time and near a window.

We advise having all cases marked on the side with owner's name only, put on with a small rubber stamp, not the town or state.

On some of the honey we received last season we noticed that papers on top of the cases were protruding from the edges, which mars the appearance of the package. It is just as easy for you to get paper the exact size of the box as it is to have it larger.

We also caution producers against using too large a package, as it will necessitate placing a follower in the back of the case, which often becomes loose and causes breakage and leakage to the honey in transit. This has been our experience in the past.

It is also advisable to nail or paste the trip sticks to the bottom of the cases, as it will prevent their sliding out of place, which often results in damage to honey.

What we want to call your attention to particularly is to have your honey graded the way it should be, both as to weight and quality.

S. T. FISH & CO.,
Chicago, Ill.

189 S. Water St.

—PRICES OF—

Bingham Smokers and Honey Knives

Smoke engine { largest smoker }	Per doz.	Each.
4-inch stove. } made. }	\$13 00	Mail, \$1 50
Doctor, 3½ inch stove	9 00	" 1 10
Conqueror, 3	6 50	" 1 00
Large, 2½	5 00	" 90
Plain, 2	4 75	" 70
Little Wonder, 2	4 50	" 60
Honey Knife,	6 00	" 80

All Bingham Smokers are stamped on the metal, "patented 1878* 1892—Knives B & H. The four large sizes have extra wide shields and double coiled steel wire handles. These shields and handles are an amazing comfort—always cool and clean. No more sooty or burnt fingers. The plain and Little Wonder have narrow shields and wire handles. All Bingham Smokers have all the new improvements, viz: Direct Draft, Movable Bent Cap, Wire Handles, Inverted Bellows, and are in every way absolutely perfect. Fifteen Years for a Dollar! One-half Cent a Month!!

DEAR SIR—Have used the Conqueror Fifteen years. I was always pleased with its workings, but thinking I would need a new one this summer, I write for a circular. I do not think the 4-inch smoke engine too large. W. H. EAGERTY.

T. F. BINGHAM, Farwell, Mich.

ARE YOU LOOKING FOR IT?

WHAT?

Are you looking for foundation to use this year? Then don't look any farther, as Dadant's has now been before the bee-keeping world for many years, and stands without a rival today. If you never saw any of Dadant's foundation, send a postal for free sample, together with their catalogue. They guarantee every inch of their foundation to be as good as sample sent, and no complaints ever come against it. They have also revised Langstroth on the Hive and Honey Bee, and you can scarcely afford to do without this large and valuable book. Postpaid \$1.25. We sell everything needed in the apiary.

CHARLES DADANT & SON,

Hamilton, Illinois.

Grace Cell Compressor

A handy little machine for quickly forming wax cups by pressure for queen rearing by the Swarthmore plan. Queen cells will be constructed from these cups fully equal to the natural kind.

Each cell can then be separately removed for examination, caging or placing in nuclei, without lifting combs or opening the hive. The cups will last for years, and can be grafted over and over with increasing success. Used and highly recommended by many well known apiarists.

PRICE OF COMPRESSORS.

- | | |
|-----------------------------------|--------|
| 1 Compressor complete, postpaid, | |
| by mail | \$2 00 |
| Same by express or other goods... | 1 75 |
| Blank Shells, 1 cent each. | |

Swarthmore Nursery Cage.

For receiving the started Queen cells in full colonies (containing a laying queen) for completion, incubation, hatching or confining a number of virgins until they can be introduced to nuclei. By the use of this cage cells may be placed directly in the midst of the brood chamber in such convenient position that the cells may be removed without opening the hive proper or in any way disturbing the bees, thus saving much time, labor and excitement.

PRICE OF CAGES.

- | | |
|---|--------|
| 1 cage, complete, cells compressed, | |
| postpaid..... | 75 |
| 1 cage, cells not compressed, postpaid..... | 50 |
| 2 cages, cells compressed, with holding frame | \$1 25 |
| 2 cages, not compressed, with holding frame..... | 1 00 |
| 6 cages in flat, blank shells included. | 2 50 |

E. L. PRATT, Swarthmore, pa.

A Live Bee Journal

Is a necessity to every bee-keeper. You will find such a one in the **Rocky Mountain Bee Journal**. Send for it. It will keep you from going to sleep. Send 10 cents for three back numbers of different issues, or better still, fifty cents for a year's trial. Address the publisher, **H. C. MOREHOUSE**, Boulder, Colorado.

Advertisers' Editorial Page.

N. B.—A page under this heading will be open to our advertisers, and they will be allowed to make—free of charge—any announcement of special importance to their customers, such as change of prices, reference to regular ad, arrival of new goods, etc.

American Teachers' Association,
J. L. Graham, LL.D., Manager, 152-154 Randolph Building, Memphis, Tenn., places an ad in this issue.

Here's a Pointer for You

I am now better prepared to supply you with queens and bees than ever before, as I have more bees now, and double my regular number of queen-rearing yards. I can supply you with queens and bees of almost any kind, which I breed in separate yards from six to twenty miles apart. Three banded Italians, five-banded goldens, Holylands, Cyprians Albinos and Carniolans. Send for price list.

WILL ATCHLEY,
Beeville, Texas.

"THE QUEEN BEE"

Is receiving words of highest praise from the prominent bee-keepers who have read it. Thousands upon thousands of dollars saved directly and indirectly to bee-keepers if its teachings are followed. Order copy today and get your money back if you are not pleased with it. Price only 25 cents in stamps.

Don't fail to send for **World's Fair** edition of my catalogue, to be issued in January next.

T. K. MASSIE,
Tophet, W. Va.

Farm and Ranch Contest.

WINNERS IN THE CONTEST.

In the \$250 contest for local agents, which closed January 1, 1903, the winners of the prizes were as follows:

D. M. Jordan, Oglesby, Texas, number of yearly subscriptions taken, 75, prize \$50.

M. A. Brown, Stone Point, Texas, subscriptions, 61 3-4, prize, \$30.

A. E. Edwards, Greenville, Texas, subscriptions, 31 1-2, prize \$20.

Geo. B. Simmons, Ben Franklin, Tex., subscriptions 26, prize \$10.

L. Childs, Fairfield, Texas, subscriptions 13, prize \$10.

M. Lister, Cleburne, Texas, subscriptions 11, prize \$10.

Hattie B. Christie, Hammond, La., subscriptions, 10 3-4, prize \$5.

A. J. Reeder, Granger, Texas, subscriptions, 9, prize \$10.

Farmersville Times, Farmersville, Texas, subscriptions 8, prize \$5.

A. S. Davis, McGregor, Texas, subscriptions, 7 3 4, prize \$5.

K. McGinnis, Terrell, Texas, subscriptions 7, prize \$5.

Green W. Butler, Mexia, Texas, subscriptions, 6 1-2, prize \$5.

Perry Clements, Forney, Texas, subscriptions 6 1-4, prize \$5.

Lulu M. Brewington, Rosebud, Tex., subscriptions 6, prize \$5.

J. M. Fletcher, Atlanta, Texas, subscriptions \$6, prize \$5.

T. L. Haynes, Tioga, Texas, subscriptions 6, prize \$5.

Sherman Democrat, Sherman, Tex., subscriptions 6, prize \$5.

E. K. Rudolph, Van Alstyne, Texas, subscriptions 6, prize 5.

The remaining ten prizes of \$5 each, amounting to \$50, were divided among the following agents, each of whom secured five subscribers: E. G. Armstrong, Bartlett, Texas, \$3.57; Minnie F. Armstrong, Gainesville, Texas, \$3.57; T. D. Ball, Decatur, Texas, \$3.57; H. A. Carpenter, Franklin, Texas, \$3.57; Clarksville Times, Clarksville, Texas, \$3.57; Thomas M. Danforth, Goliad, Texas, \$3.57; A. F. Ernest Senior, Texas, \$3.57; B. G. Haskell, Stockdale, Texas, \$3.57; T. M. Harrison, Centerville, Texas, \$3.57; A. J. Keith, Mabank, Texas, \$3.57; C. A. Moore, Poolville, Texas, \$3.75; Florence Sheasby, Elgin, Texas, \$3.57; J. T. Triplett, May, Texas, \$3.57; W. H. Weber, Lampasas, Texas, \$3.57.

In making the awards two six-months subscriptions or four three months subscriptions counted as one yearly subscription.

It will be noted from the list above that in many instances the commission and prize money received by the agent amounted to as much or more than the total sum sent him to Farm and Ranch.

Write for particulars of the new \$250 contest, closing June 1, 1903.

ADDRESS

Farm and Ranch

Dallas, Texas.



Italians Cyprians Carniolans

Tested.....\$1.50
Untested... 1.00
Breeders... 5.00

E. C. GOODWIN
Dinero, Texas.

Beeville, Tex., is my money
order office.

QUEENS.

If you wish the very best queens to be had I have them at the following prices: Untested, after April 15th, \$1 each; tested \$2, or good breeders \$3 each, one year old. Safe arrival guaranteed. Queens raised from imported Italian mothers. Let me have a trial order.

L. B. SMITH, P. M.,
Rescue, Lampasas County, Texas.

HELLO!

Did you know
that we can
furnish you
queens much
cheaper than

you can get them elsewhere, as good as the best. The Laws famous golden strain, three-band Italians, Atchley's fine strain of Carniolans, Cyprians and Holylands. Untested of any race, 50 cents; tested 3 and 5 band Italians, 75 cents; all other races \$1. Quick shipment. Send for circular.

New Century Queen Rearing Co.
Berclair, Texas.

HONEY CANS.

The new 3-6 and 12 pound friction top honey cans have been made the standard honey packages for Texas by the Texas Bee-Keepers' Association. Write me for the name of carload dealer nearest to you for all kinds of cans. Let me know your wants, as the honey season is coming on. I am also in the market for whole crops of first-class honey.

UDO TOEPPERWEIN,
438 West Houston street,
San Antonio, Texas.

BUY YOUR
**HIVES AND
FIXTURES**
FROM THE

White Manufacturing Co.

They will save you money.
Best for least price. Catalog and price list free.

The White Manufacturing Co.,
Blossom, Lamar Co., Tex.