

*

UMASS/AMHERST

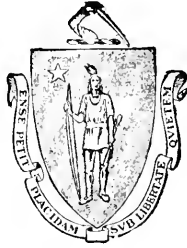
*



312066 0333 2757 9

LIBRARY

OF THE



M/

TTTS

A

RAL

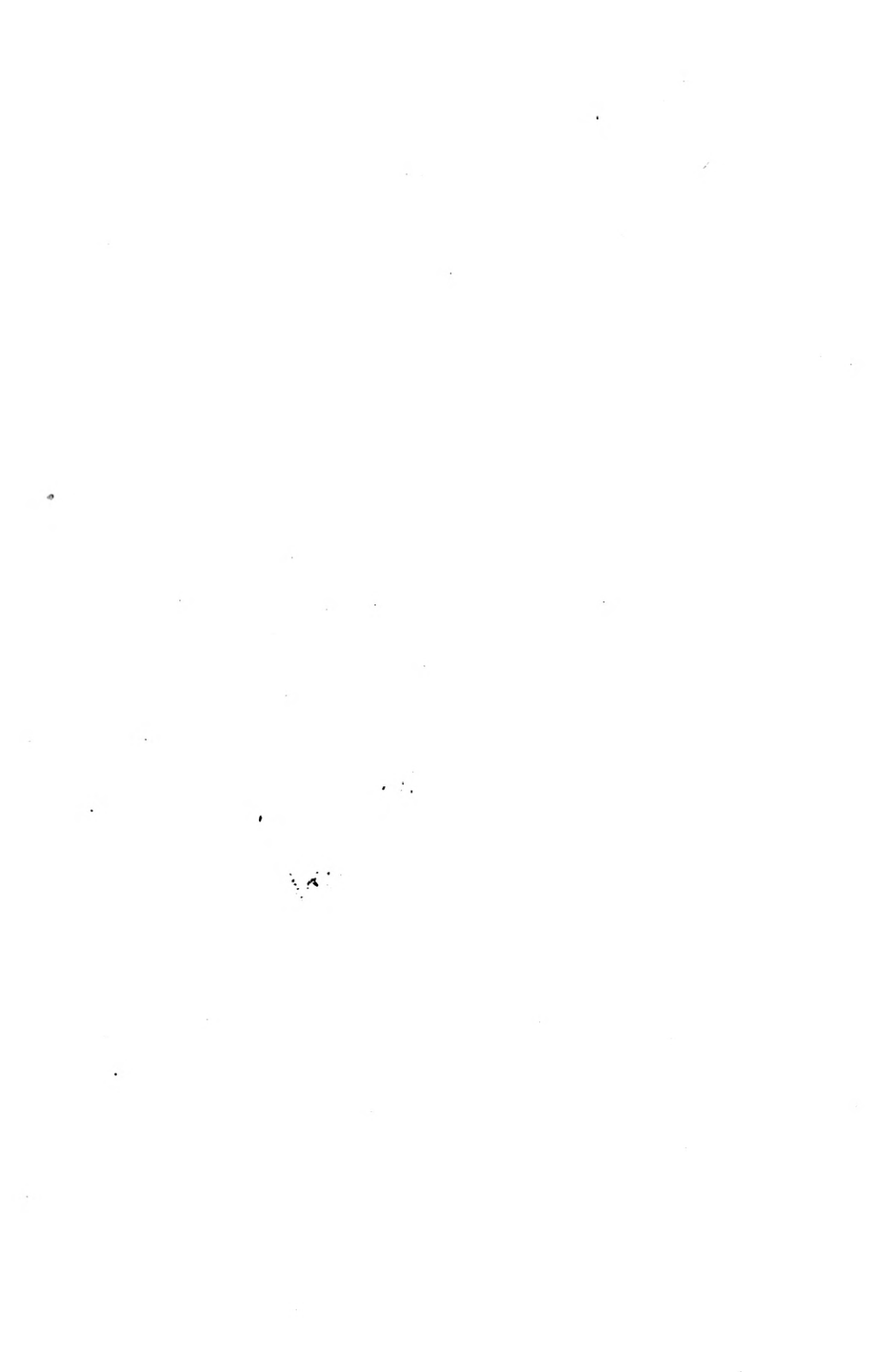
PER
SF
521
B47

SOURCI

unds...

1889

v.12



If the

REVIEW

Is mentioned when answering an advertisement in its columns a favor is conferred upon both the publisher and the advertiser. It helps the former by raising his journal in the estimation of the advertiser, and it enables the latter to decide as to which advertising mediums are most profitable. If you would help the Review, be sure and say "I saw your advertisement in the Review," when writing to advertisers.

Page & Lyon,

Mfg. Co.

New London, Wis.

Proximity to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

ORDER

EARLY.

There are indications that the demand for supplies will be very large this season, and everyone should order as early as possible. We have large facilities for manufacturing all kinds of *Bee-Keepers' Supplies*, and will serve our customers as quickly as possible.

Falcon sections are the finest made. 1899 catalogue ready Feb. 1st. Copy of the *American Bee-Keeper* (20 pages) sent free. Address

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wired*.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y.

YOUR PROFITS

Next season will depend largely upon how your bees come through the winter. Many beekeepers believe that after bees are put into winter quarters nothing more can be done for their welfare until spring has come. All who believe thus, and all who believe that care *is* needed, but are a little uncertain as to what that care should be, ought to buy the book **ADVANCED - BEE CULTURE**, and read the chapter entitled "Care of Bees in Winter." Remember, too, that the book contains 31 other chapters.

Price of the book, 50 cts.; the Review one year and the book for only \$1.25.

W. Z. HUTCHINSON,
Flint, Michigan.

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tens and tens of the very finest

FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

18



99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.50; 1,000 for \$2.50; 3,000 for \$6.75; 5,000 for \$10.00; 10,000 for \$17.50.

No. 2 sections are not made to order, but when in stock are sold at \$1.50 per M.

J. FORNCROOK,
Watertown, Wisconsin.

WINTER

Losses are not always the result of the same cause. They may come from starvation; from poor food; from improper preparations; from imperfect protection; from a cold, wet, or possibly, a poorly ventilated cellar, etc., etc. Successful wintering comes from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "ADVANCED BEE CULTURE." Five of its thirty-two chapters treat as many different phases of the wintering problem.

Price of the book, 50 cts.; the REVIEW one year and the book for \$1.25. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,
Flint, Mich.

Violin for Sale.

I am advertising for the well known manufacturers of musical instruments, Jno. F. Stratton & Son, of New York, and taking my pay in musical merchandise. I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Straduarinus," Red, French finish, high polish, and real-ebony trimmings, price \$14.90. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver shield, ebony screw-head, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this on fit, and would accept one-half nice, white-extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apiarian Supplies. Send for circular. 1-95-6

Please mention the Beeivee

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1.25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEAXES & MINER, Ronda, N. C.

Make Your Own Hives.

Bee-Keepers
Will save money by
using our Foot Power
Saw in making
their hives, sections
and boxes.

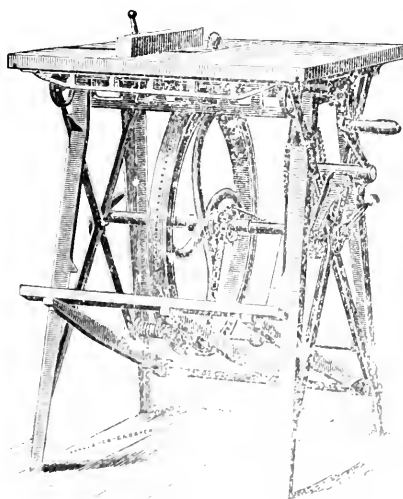
Machines on trial.
Send for Catalogue.

W. F. & JNO. BARNES CO.,

341 Ruby St.,

Rockford, Ills.

6-17-12



COMB**FOUNDATION**

WHOLESALE AND RETAIL.

Working wax into foundation, for cash, a specialty. Hives, Sections, and a full line of Supplies. The best of everything. Write for Catalog, with prices, and samples of Foundation and Sections. Beeswax always wanted for cash or trade.

GUS. DITTMER,

10-97-12t

Augusta, Wis.

The A. I. Root Co.'s Goods, WHOLESALE AND RETAIL.

Holy YOUR CHOICE Golden
Land **QUEENS.** Italian

1899 Send your address on a postal card for my 1899 queen circular and price-list. Parties wanting two dozen or more queens, write NOW. Satisfaction guaranteed to each and every customer. 1899

3-98-12t

E. R. JONES,
Milano, Texas.

Without Stopping

the machine to reverse the combs is the way you can work with the Williams Automatic

Honey Extractor.

Such an extractor will save you time and annoyance and it does not cost much more than an ordinary machine. Send for descriptive price list.

Read what the famous bee-keeper, N. E. France, says:

PLATTEVILLE, Wis., July 5, 1897.

Dear Sirs: To day I extracted 2,780 lbs. of honey with your Automatic Honey Extractor in 5 1/2 hours and could have done the same this afternoon but let the boys go to the city to play a game of base ball. Have extracted 27,135 lbs. so far with good prospects for as much more. My bees and State work keep me very busy. Hope to see you before very long - will write you later.

Yours truly, N. E. FRANCE,
State Inspector of Apiaries,
Platteville, Wisconsin.

We can also furnish choice queens, either golden or leather colored Italian, at 75 cents each, or two for \$1.40.

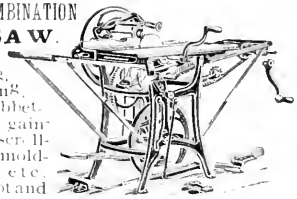
Van Allen & Williams,

6-98-tf.

BARNUM, WIS.

UNION COMBINATION SAW.

For ripping, cross-cutting, mitering, rabbeting, grooving, gaining, boring, serll-sawing, edge molding, heading etc. Full line of foot and hand power machinery. Send for catalogue A.



1-99-12t

Seneca Falls Mfg. Co.

48 Water St., Seneca Falls N. Y.

Free

1-99-tf

A beautiful present with every order. The cheapest place in Mich. to buy supplies. Send for explanatory price-list. W. D. SOPER, Box 565 Jackson, Mich.

The No-Drip Shipping Cases

Are what you need in marketing your honey. They are clean, neat and convenient, and a great help in making sales.

Root's goods at Root's prices. Cash paid for wax. We want your trade.

M. H. HUNT, Bell Branch, Mich.

Please mention the Review

Farm Bee - Keeping

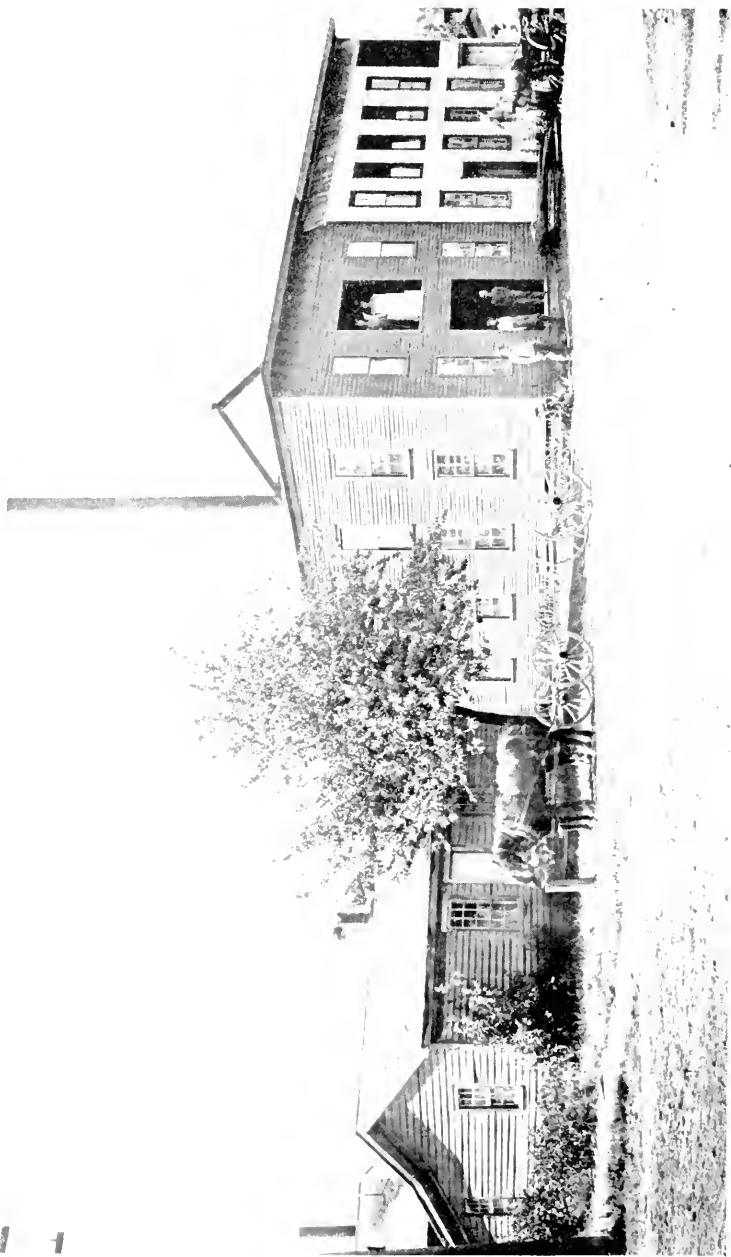
Is one of the leading departments in the *Modern Farmer and Busy Bee*, the best Farm and Bee paper in existence. Write for sample copy and for clubbing rates with any paper you want.

E. TAYLOR ABBOTT,

St. Joe., Mo.

SPECIAL OFFER—The price of the *Modern Farmer* and the *Busy Bee* is \$1.00, but I will club it with the *Review* for only \$1.00.

W. Z. HUTCHINSON, Flint, Mich.



Only Section Factory in Michigan—Wm. Bamber's.

The Bee-Keepers' Review

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL. XI FLINT, MICHIGAN, JANUARY 10, 1899. NO 1.

SECTION HONEY BOXES.

A few Particulars Regarding their Manufacture.

W. Z. HUTCHINSON.

"Great oaks from little acorns grow."



SECTION
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
177
178
179
180
181
182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
219
220
221
222
223
224
225
226
227
228
229
230
231
232
233
234
235
236
237
238
239
240
241
242
243
244
245
246
247
248
249
250
251
252
253
254
255
256
257
258
259
260
261
262
263
264
265
266
267
268
269
270
271
272
273
274
275
276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307
308
309
310
311
312
313
314
315
316
317
318
319
320
321
322
323
324
325
326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
347
348
349
350
351
352
353
354
355
356
357
358
359
360
361
362
363
364
365
366
367
368
369
370
371
372
373
374
375
376
377
378
379
380
381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408
409
410
411
412
413
414
415
416
417
418
419
420
421
422
423
424
425
426
427
428
429
430
431
432
433
434
435
436
437
438
439
440
441
442
443
444
445
446
447
448
449
450
451
452
453
454
455
456
457
458
459
460
461
462
463
464
465
466
467
468
469
470
471
472
473
474
475
476
477
478
479
480
481
482
483
484
485
486
487
488
489
490
491
492
493
494
495
496
497
498
499
500
501
502
503
504
505
506
507
508
509
510
511
512
513
514
515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559
560
561
562
563
564
565
566
567
568
569
570
571
572
573
574
575
576
577
578
579
580
581
582
583
584
585
586
587
588
589
590
591
592
593
594
595
596
597
598
599
600
601
602
603
604
605
606
607
608
609
610
611
612
613
614
615
616
617
618
619
620
621
622
623
624
625
626
627
628
629
630
631
632
633
634
635
636
637
638
639
640
641
642
643
644
645
646
647
648
649
650
651
652
653
654
655
656
657
658
659
660
661
662
663
664
665
666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716
717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753
754
755
756
757
758
759
760
761
762
763
764
765
766
767
768
769
770
771
772
773
774
775
776
777
778
779
780
781
782
783
784
785
786
787
788
789
790
791
792
793
794
795
796
797
798
799
800
801
802
803
804
805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845
846
847
848
849
850
851
852
853
854
855
856
857
858
859
860
861
862
863
864
865
866
867
868
869
870
871
872
873
874
875
876
877
878
879
880
881
882
883
884
885
886
887
888
889
890
891
892
893
894
895
896
897
898
899
900
901
902
903
904
905
906
907
908
909
910
911
912
913
914
915
916
917
918
919
920
921
922
923
924
925
926
927
928
929
930
931
932
933
934
935
936
937
938
939
940
941
942
943
944
945
946
947
948
949
950
951
952
953
954
955
956
957
958
959
960
961
962
963
964
965
966
967
968
969
970
971
972
973
974
975
976
977
978
979
980
981
982
983
984
985
986
987
988
989
990
991
992
993
994
995
996
997
998
999
1000

their manufacture will find occasion to use a "mighty deal of nice consideration" before he succeeds in turning out a first class article.

I'll tell you how I know. While taking a trip last summer through Northern Michigan I called upon my friend Wm. Bamber of Mt. Pleasant. I knew that he had a planing mill and did something in the way of making bee keeping supplies, but I was not prepared to find him mak-

ing sections upon so large a scale. His planing mill has been practically turned into a section factory. Mr. Bamber is an excellent mechanic and machinist, having a lathe and iron-working tool; in fact, he made with his own hands nearly every machine in his factory. He has gradually worked into the section business; in fact, he told me that had he, at the outset, realized the difficulties to be overcome he doubts if he should have ever gone into the business. I stayed with him nearly half a day, and he explained to me some of the nice points to be considered in the making of sections.

First of all comes the timber. Large, old trees will not answer. The wood is too dark. Young, thrifty trees must be selected in order to secure white wood. Then it must be cut in the winter when the timber is frozen. Not only must it be cut then, but it must be sawed then, before it thaws, and the lumber piled up. The coming of spring must find the little, short planks all piled up, but not too closely, or there will be mildew. If the timber is cut or sawed into lumber when not frozen, the color will not be white, but of a dark cream color. For making sections, the timber is not cut into long logs and taken to a regular saw mill, but is cut up into short

lengths, called bolts. These bolts are twice or three times (I believe the former) the length of a section. With a miniature saw-mill these bolts are sawed into planks a little thicker than the width of a section. They are sawed thick enough so that after being seasoned they may be planed on both sides and yet be as thick as a section is wide.

The first step in making these planks into sections is that of planing them on both sides. The next is to cut them up into lengths exactly as long as a section. Following this comes the cutting of the notches or dovetails in the ends. Next the insets are cut in the sides. Thus far, the wood has been kept in solid pieces; now these pieces are laid upon their sides, and sections sawed off their edges. But they are not *quite* complete, as they must be run through a sander in which they are sand papered on both sides; and then grooves cut where they are to be bent. The sander, or, at least, the one used by Mr. Bamber, is simply a double-surfacer planer in which the knives are removed and rolls covered with sand paper put in their places. Yes, and I must qualify this statement a little. These rolls must be made to *vibrate*; that is, have an end movement. Each roll must move slowly, and slightly endwise, and back again, keeping up this motion continually. Unless there is this vibratory movement the sand paper cuts little grooves or scratches in the surface of the sections. The process of sand papering or polishing the sections not only improves the appearance, but reduces them to a uniform thickness.

For the lighter work of section making, Mr. Bamber employs girls. One of them feeds the sections to the sander, another takes them away, feeds them to the groover, and sorts and packs them as they come out. It is astonishing to note the proficiency to which the eye may be brought in *quickly* detecting imperfections in sections. To illustrate this, Mr. Bamber very slyly picked up from the floor a section having one of the little

tongues at the end broken off, and, unseen by the sorter, introduced it among the unsorted sections. We then watched to see if it would be detected. With what seemed to us not even a glance, it was again thrown upon the floor.

There are eight different machines through which the wood must go before it comes out a perfect section; and there must be no mistake, not even of the 64th of an inch (in some of these operations) or the section is spoiled. There must be constant and careful watching, as a slight mistake, unless quickly discovered and corrected, runs on and on, and there is a loss not only of the work done by that particular machine, but of the timber and of all the work that has been previously done. The making of first class sections is more of a trade than some of the manufacturers imagined when they began their manufacture.

Mr. Bamber also makes other bee-supplies; the little house seen at the left of the factory (see frontispiece) is devoted to the making of foundation; and I take pleasure in saying that Mr. Bamber is blessed with a wife that is able to superintend the work of the girls who make the foundation.

By the way, this little house is where Mr. and Mrs. Bamber set up their household gods when, hand in hand, they started out on their journey of married life. Now they live in a "mansion hold," (of brick) in the suburbs.

FLINT, MICH. Dec. 20, 1898.



RENDERING BEESWAX.

Large Quantities are Lost by the Solar, Steam
or Boiling Process—How the Loss may
be Avoided.

A. W. BECKWITH.

WHEN the comb is new, and especially when it contains honey, and the weather is hot, there is probably no bett

method of rendering it into wax than by the use of the solar extractor; but, with the conditions reversed, the solar is "no good." In my experience with old black comb, I get little or no wax in this way; it being nearly all left in the residue, which, on getting cold, is as solid and hard as a lump of wax. One writer, I think it is J. P. H. Brown, of Georgia, says he thinks it is no loss to have this wax left in the refuse, because it makes such good fuel. It seems to me that wax at 25 cents a pound is rather expensive fuel; besides, the waste will burn just as well without the wax; and, as that from the solar extractor is nearly half wax; I propose to tell the readers of the Review how to save it.

For a press I take two pieces of 2-inch plank ten inches wide, and three feet or more in length, and cut them into the shape shown in the accompanying engraving. In the lower plank, near the wide end, I make a hole two by three inches in size, and across it string six or eight wires fastening them with nails or staples. Now lay one plank on the other, with some sticks between to hold them about $\frac{1}{4}$ of an inch apart, and hinge them together with a pair of six-inch, strap hinges; bending the hinges to fit. Tack a 6-inch piece of cloth around the wide end of the upper piece, letting it extend up as far as the narrow portion. This is to catch the wax that otherwise might fly out and soil clothing, furniture etc. This cloth is not shown in the pic-

ture, as it interfered with a clear view of the press. Get a tub—one ten inches deep cut from the end of a barrel will answer—fasten a bar across it three inches from the top and six inches from one side. Put the lower end of the press on this bar and the other end on some object that will raise it off the edge of the tub. Throw the upper handle back against the wall or some other object. Soak the tub, and have a little water in it. Warm the press just before using by pouring hot water on the inside

faces. Make a strainer - holder of a piece of No. 6 wire fastened to the tub so that the top ends will be about six inches apart and eight inches above the top of the tub. Make a sack - strainer nine inches wide and sixteen inches deep, of some strong stuff—I use a piece of seamless grain sack.

The method of operation is as follows: Put a boiler containing a pail of water on

the kitchen stove; and when it boils make the fire as hot as you well can; then stir in comb as fast as it will melt, but not much faster, continuing to do this for about fifteen minutes. Let it stand, stirring often, and when it boils freely set it by the side of the tub next to the strainer holder. Hang the strainer on the holder, hold it open with the left hand, and fill $\frac{1}{4}$ to $\frac{1}{2}$ full. The more liquid wax it contains the greater the quantity that can be put in. There is not much gained, however, by putting in a large quantity, while it increases the danger of



bursting the sack. Lay the strainer on the press with the bottom end next to the hinges, fold the top end back on the filled part, then bring down the handle and put your weight on it if you are not very heavy. As soon as the wax is nearly done running, dip your fingers in cold water, throw back the handle, lift the edge of the strainer which is toward you, fold it back on itself, and bring down the handle again. Throw back again, turn the strainer $\frac{1}{4}$ round, fold back and press again; each time making the fold as even in the center as you can. You will now have a cheese about four or five inches square, perhaps an inch thick, and in four equal layers.

If you have done your work well you will now have *no* wax in the residue; which will shake out almost like dry meal; while the strainer will be entirely free from wax except at the edges. If you have *cooked it too long* the cocoons will have become so viscid that when you bring pressure to bear they will stick to the strainer like a mass of glue and you can get nothing from it. I think the greatest reason why rendering wax by boiling is not more popular is that it is generally *cooked too long*; so, keep the fire hot, and cook only a short time. If the contents of the boiler are likely to become too cold while you are straining, put it back on the stove while you press; but you should not be more than two minutes filling and pressing a strainer full.

Don't put the hinges too near the corners, since the pressure is mostly near the middle, or you will be liable to split the plank.

Don't put much heavy comb in the boiler at one time, and leave it without stirring, or it will be liable to burn and so color the wax.

Don't put any lumps of wax in the boiler after any comb is in; as the lump will be so long melting that the cocoons will be liable to cook too long.

Save all the residuum from the solar extractor, and, at the end of the season,

chop it very fine, boil it and then run it through the press. The blackest comb will make almost as light colored wax as will the lightest combs, if it is not cooked too long.

Dr. Miller, in reply to the question "How can I keep the wax from sticking to a wooden mold?" replied, "Wet the mold." I will inform the doctor that no amount of wetting or soaking will keep the wax from sticking if the wax is put into the mold very hot and then cooled slowly; as the hot wax will drive all the moisture from the surface of the wood, leaving it dry, and then the wax will stick.

The doctor has also told us to cool the caking wax in any vessel very slowly to prevent its cracking near the edges. When convenient I set the the vessel of caking wax into ice-water, and if it shows a tendency to crack, as it seldom does, I run a thin knife blade between the wax and the tin, cutting no deeper than $\frac{1}{2}$ inch, and have no more trouble.

LANDER, Wyo. Dec. 9, 1898.



SEPARATORS.

The Hyde-Scholl Plan or Making Separators
That allow free Communication.

H. H. HYDE & L. SCHOLL.

WE wish to introduce to our fellow bee keepers a separator gotten up by ourselves. In fact, there are really two separators. The one shown at the left is for use in the old style of supers. It is made as follows: An ordinary separator, is divided into four divisions; each division has four slots; thus making sixteen slots to each separator; each slot being three inches long by $\frac{3}{16}$ wide. Between these divisions, just opposite of where the two edges of the sections come together, is an upright slot three inches long by $\frac{3}{8}$ wide. These separators are

to be used in the old style of supers in connection with the open all around, or open on four sides, sections. With this arrangement we get the advantage of free communication throughout the super from row to row and from section to section in each row; also from diagonally opposite.

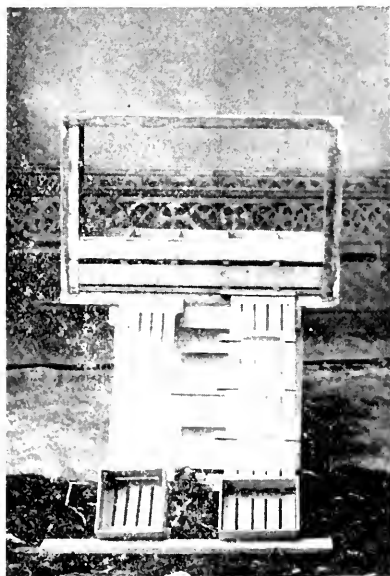
It will be seen that this arrangement gives a great deal freer communication than the plain section and fence separator; which give communication only from row to row; while the only cost will be for separators, as sections have to be bought any way, and the new sections can be gradually introduced if it is desirable to use the old ones already on hand. The same is true of the separators. The section holders are, of course, all right with this super. There will be but little propolis, and that only where the corners of the sections touch the separators; and in crating the honey, these corners can be easily split off, leaving the sections of the plain style. There will, of course, be less pop holes in these sections when finished, than with the fence separators; because there are no cleats on the separators opposite the edges of sections, as there are with fence separators.

With these separators there are no glue-traps to clean.

For those who wish to take better advantage of the plain section, we have a separator made on the same principle as the one just described. It is shown at the right in the cut. (The one shown is for the Ideal super, but when made for 4 $\frac{1}{4}$ section it would, of course, be the same in principle). In place of the projections on the corners of the sections, little pieces are glued on the top edge of the separator. These pieces are 1 inch by a little over $\frac{1}{3}$ of an inch thick. They are saw-kerfed in the center to the depth of $\frac{1}{4}$ of an inch, and slip over the upper edge of separator, leaving 1-6 of an inch on each side. These pieces project $\frac{1}{4}$ inch above the top of the separators, and the top of the sections come up even with the top of the pieces. The pieces on the

bottom edge of the separator are 1 $\frac{1}{2}$ inch long and saw-kerfed back $\frac{3}{4}$ inch and slip on the lower edge of separators. The bottom of pieces come even with bottom side of the slats, which leaves $\frac{3}{8}$ passage way under the edge of separator.

The end cleats on these separators are the same as those used on fence separators. Six separators are used in each super, with a follower at one side; one has little pieces 1-6 of an inch thick glued on to correspond with the pieces on the separators. The other side of the follower is smooth and a wedge is used behind it.



THE HYDE SCHOLL SEPARATORS.

In the cut the super is shown above the separators, sitting on edge, with the bottom towards the front.

With this arrangement there is secured the advantage of the plain sections and freer communication from brood nest to bottom of super.

We hope bee keepers will give these arrangements careful consideration before buying new goods. Remember *we*

are not selling them, but they can be obtained from any of the manufacturers. If you desire information, you can address either of us as follows: H. H. Hyde, Hutto, Tex., or L. Scholl, Hunter, Tex.

Oct. 12, 1898.



AN ENTRANCE CLOSER.

An Arrangement that Enables one to Close the Hive with a Simple Twist of the Wrist.

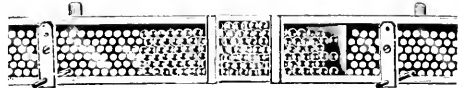
L. KREUTZINGER.

EDITOR Review, Dear Sir, responding to your request to contribute some article to the Review, while renewing my subscription, I beg leave to state that, although no writer, I think I have found a subject which will meet your approval. As you do not care so much for the form it is put in, as for the *idea*, I shall with pleasure meet your request. It is the *idea*, then, which causes me to write, and, owing to its originality, it may, perhaps, deserve a small space in the columns of your journal.

Nearly every bee-keeper, especially those who own a large apiary, or several of them, experience the troublesome preparation for transporting their hives during spring and fall, while getting them out of the cellar, repository or yard, to and from the out-apiaries or yards. We all know the difficulty in getting in shape the bee-entrances, for which purpose we have to be prepared with wire-cloth cut to the size of the entrance, nails, hammer, etc., not speaking of the disturbance to the bees arising from the noise and jar of tacking on the cloth. We all know that this expense and labor is to be repeated as often as we have bees to move, and that such material is rendered useless after once used.

To avoid all this difficulty, labor and expense, once for all, I wish to submit to you and the readers of the Review, for

criticism and trial, a design of a so-named "Extension Closer for Bee-entrances," of which a cut and sample follow herewith. This "Entrance Closer" is made of perforated zinc in two parts sliding against each other so as to be of use for any kind of entrance, whether narrow or high, short or long; whether for 8, 9, or 10-frame, or the old box hives. To attach it to the hive requires almost no explanation is needed, as this is very simple and easy. After the rear cranks or slats of the "Closer" are slid into the bee-entrance, turn the two cranks upright, then screw by hand both the screws tight against the hive, and the entrance is securely closed—with plenty of air and ventilation to the bees. No tool of any kind is necessary, as all the operation can be done with the hand alone. There is no hammering, nor wasting of any material, as this Closer can be used for many years.



KREUTZINGER'S ENTRANCE CLOSER.

With this "Extension-Closer" not less than sixty hives can be closed up per hour; and, considering its durability and saving of time, labor and material, an expense of twenty cents per closer appears very reasonable and fair.

CHICAGO, Ill., Jan. 7, 1899.

[Accompanying the foregoing was a private letter asking me to give my opinion, impartially, of the entrance closer. It is certainly a handy and effective arrangement for closing the entrance of a hive, and to the man who moves bees about a great deal very early in the spring or very late in the fall it might be useful. In hot weather more ventilation is needed than what can be given by the way of the entrance. The whole top of the hive, and sometimes the bottom, and a space above and below the frames, as well, are needed. In such cases, a simple strip of wood tacked over the entrance answers every purpose; in fact, that is the way I

usually close the entrance, as I seldom have occasion to move bees at a time when the entrance alone will afford sufficient ventilation. In some cases the entrance might be large enough to furnish sufficient air if the bees would keep away from it; but they crowd against it so closely as to practically close it. With a large surface of wire cloth is the only way that bees can be given sufficient ventilation when moved in warm weather. — [Ed.]



A TALK ABOUT HIVES.

A Veteran Describes the Brood-Chambers, Covers, and even the Box-Hives that he Prefers; and gives Reasons.

C. DAVENPORT.

I HAVE been engaged to write a series of articles for the Review, giving the main details of the methods which I practice in producing that matchless sweet—comb honey. While I appreciate the honor of being asked to contribute to a journal holding the place occupied by the Review, I have, upon giving the matter mature consideration, some regret that I entered into such an agreement. This feeling arises from a doubt of my ability to write any thing that will be of much value to the advanced class of bee-keepers who, I believe, largely compose the readers of the Review. To be sure, I have, for many years, produced comb honey by the ton each season; last year having a trifle over 4,000 pounds, it being the smallest crop I ever had since being engaged in the pursuit in a large way, but I feel that my success is largely due to a good locality and hard work rather than to any special ability on my part. But, as I have learned much about bees from the writings of others, I am willing, in turn to write any thing that may be of benefit to others. These "others"

will, I fear, be beginners; or, at most, those who have been in the business but a short time; therefore, in this first article, it will, perhaps, not be out of place to say something about hives.

Hives are a very important factor in our pursuit; and, with a first class modern hive, I believe that a skillful apiarist, one who thoroughly understands his locality in respect to the time and duration of its honey flows, can, as a rule, secure at least *three times* the amount of surplus than he could with old fashioned box hives. With a modern hive the apiarist not only has control of the brood chamber, but the improved surplus arrangements, especially the tiering up feature, by which we can give the right amount of room as needed, enables bees to store larger quantities of honey. Often, in this locality, at least, when honey is coming in freely, the weather, especially at night, is so cool that, with a large amount of surplus room given at one time, it would not be possible for the bees to keep up the necessary degree of heat for comb building. On the other hand, in hot weather, our present surplus arrangements give so much better ventilation that the bees are able to continue their work at times when they would be forced from the old style of surplus arrangements on account of the heat.

The best size of hive is a subject that was much discussed some time ago; and, to some extent, the discussion is kept up right along, for, like a well known ghost, it seems to be a subject that "will not down." I believe that the majority of the large, practical bee-keepers of the Northern States prefer a small, or medium sized hive for the production of comb honey. Aside from the size, there are a number of kinds or styles in use; all of which, no doubt, have both good and bad points. I never used many double-walled hives; as my experience in the out-door wintering of bees convinced me that, for my locality, it is safer and cheaper to winter them under ground. As to protecting colonies in chaff, or double-walled

hives, after they are set out in the spring, the difference with me in favor of colonies so treated was so slight that I was unable to detect it, hence I use nothing but single-walled hives. I envy those, however, who use them and make a success in wintering bees on their summer stands; for the hardest and most disagreeable work about out-yards is the hauling of colonies back and forth. If one is running a number of out-yards it is not practical, for many reasons, to have a suitable wintering-cellar for each yard.

The hive I have most largely in use, and the one I prefer as a single-story brood-hive, is a plain eight-frame hive made on the same principle as the dovetailed hive. Of course, dovetailed corners add nothing to the convenience or utility of a hive; still, I consider the dovetailed or lock-corner joint the strongest and most durable joint possible to be made for a hive; and my locality, subject to profuse dews at night, hot sunshine and drying winds in the day time, is a good place to test the hive joint question, especially if the hives set right out in the sun unprotected as most of mine do the greater part of the season.

In my opinion any one who follows our pursuit in a large way for the profit to be derived from it, will ultimately come to the conclusion that he wants a single-walled hive without porticos or beveled joints. One feature that I would not like to dispense with is to have the brood-chambers so made that they can be readily tiered up.

I consider any covering above the brood frames and sections, except a flat board cover, as entirely unnecessary, except under some conditions when it pays to use a shade-board.

I want thick top bars for brood-frames, and no honey-boards. With thick top-bars honey-boards are unnecessary. I know there are able men in our ranks who prefer to use honey-boards; but how or why they can if they have given thick top bars a fair trial is something I can not understand.

I consider the money well invested, and the time it takes well spent, to have hives and supers painted. However it may be with others, with me an unpainted hive made out of ordinary lumber is not in use more than seven or eight years before the corners gape, the wood checks and begins to decay, so that, as a whole, I find it pays to paint. For reasons that I will not take space to explain, I will admit that my locality is undoubtedly a very hard one on hives; still, I own some painted ones that have been used by myself and others for about twenty years, and they are in good condition yet. As for bees doing better in unpainted hives, I have never been able to observe anything in their favor in this respect; although I have used both painted and unpainted hives ever since I have kept bees.

The cover is an important part of a hive. I like a cover that is flat on both sides; and the best one of this kind I have found is made of two boards, either matched, or with a tin joint held in place by a saw-kerf in the upper edge of each board. With two boards I find them less inclined to warp or check than when made from one wide board. Then there is the Higginsville cover; a number of which I have in use. This cover is flat on the under side, but partly gabled on top; made so by the outer edges of the two boards of which it is composed being beveled or thinned down to about half the thickness they are in the center. This I consider a poor cover; for, aside from the fact that, here in this country, bees should be protected in the spring and fall by a cover the whole of which is at least $\frac{7}{8}$ of an inch thick, with me this cover warps and twists badly. Sometimes these thin edges warp up in the center when the ends are held true by the cleats. It is no more than fair, however, for me to say that mine is not the *Improved* cover, of this style, as made during the last year or more. Another thing that I do not like about covers of this kind is that it is more difficult to tier hives up with them in use. It is true that hives with this cover can be

tiered up if the bottom boards have cleats at the extreme ends, both front and rear, although each hive must be placed very accurately; but, when tiering up hives six or seven high in the cellar, if the bottom boards are left on, it is much easier to do so if they have flat covers, and bottom boards with cleats back an inch or so from each end. Such a board gives a much better chance to handle a hive with a loose bottom, not only in tiering up but at any time they have to be moved. Sometimes it is very convenient in the yard to set, and leave for a short time, hive bodies or supers containing honey upon top of other hives, and if placed on a *flat* cover, and covered up, the contents are safe from robbers. As to the advantage of a gable cover in shedding rain, it is very slight; for a hive in a yard should always have the rear end a trifle higher to prevent rain and snow from running or beating in at the entrance, and this makes it an easy matter for water to run off a flat cover. I believe that a flat cover made of matched pieces about two inches wide would be superior, so far as warping is concerned, to any cover now made. I have a number made out of matched pieces about four inches wide, which have proved very satisfactory. Such a cover, if well painted, and then covered with zinc, would, last indefinitely.

Before closing my remarks about hives I would like to say a few words about divisible brood-chamber hives; for these hives, when rightly and accurately made, are, in my opinion, one of the most practical hives made for the production of either comb or extracted honey. A few years ago I had about 60 of these hives in use, and, although they were simply half-depth bodies containing ordinary shallow extracting frames, I was well pleased with the results; and it was easy for me to see and understand how better results could be more easily obtained from hives of this character when properly made—like the Heddon. Of course, the use of these hives entails a different management in many respects from that

of single-story hives. I have none of these hives in use at present, as, two years ago, I sold the out-yard in which they were. At one time I was strongly inclined to gradually change and use this style of hive exclusively, but I finally decided against them. One reason for this decision was on account of their cost. If a man makes his own hives it is, aside from the cover and floor, as much or more work to make one of these as it is to make two single-story hives.

I am, however, at present, using a number of divisible brood chamber *box-hives*. These are very cheaply and easily made, and, for *some* purposes, or, perhaps I should say, under *some conditions*, I consider them superior to frame hives; and, as I shall have occasion to refer to these hives in the future, I will briefly describe how they are made. Their length and width is the same as the eight-frame hives; so that they can be used with them and with eight-frame hive-supers in any combination of tiering up that may be desired. The bottom boards to these are also made with strips on the sides and back end, which gives an entrance, in front without cutting the hive. The top-bars are made of lath nailed in so as to leave a bee-space above them. No foundation is ever fastened to these top bars, the bees being allowed to build comb to suit themselves. As there are no bottom bars, I expected, when two or more were used as a brood-nest, that the combs in the upper ones would be fastened to the top bars of the one below, but I have never, as yet, found *one* fastened enough in this way to break the comb loose from the top bar when separating them. I have them of various depths, but six or seven inches is about right for the use that I make of them.

Now, "suspend judgment" as to the value of these hives until I describe, later, how they are used, and if any have followed me this far, no doubt they will be pleased to know that this, for the present, at least, concludes what I have to say about hives.

SOUTHERN, Minn. Dec. 3, 1898.

GETTING USED TO CRITICISM.

Do Open Separators Really have any Influence upon the Filling of Sections?

E. A. DAGGITT.



BEING one of those whose writings were first criticised in the Review's Department of Criticism, I had intended before this to give my opinion of the department, but have failed to do so, owing to absence from home, and other things. At first the new department seemed to stir up so much strife that I did not hold a high opinion of it; but after it had continued a while, and I became better acquainted with it, and I had read the critic's defense of his criticisms, my opinion of it changed; and I now consider it a valuable feature of the Review; and hope it will be continued. Mr. Taylor I have held in high estimation as a bee-keeper and as an apicultural writer, and I would like to see him have a proper latitude in his new field of labor. After the department becomes better understood, all opposition to it will undoubtedly cease. It is not always pleasant to have one's errors in composition pointed out in a public journal, especially in the one in which they are committed; still, it may be best to do so. I would be glad to see our apicultural journals brought to a high literary standard if it can be done without losing some of the best apicultural thoughts. If we can attain the former without sacrificing the latter, right and well; but, if not, we would better lower the literary standard.

There are those who have good ideas but do not have facility in expressing them. These should not be deterred from writing if they can write reasonably

well; in fact, there ought to be some way to get such ideas for our journals even if the editors have to re-write the articles containing them. Then, too, there are, no doubt, those in the ranks of apicultural writers who, like myself, are sometimes absent minded. Such are very likely to make mistakes, and fail to see them until too late. Such need forbearance on the part of the critics. The writer of this has, besides, to suffer from the strange fatality of the compositor making mistakes in putting his writings into type. I seldom have an article published that does not contain at least one mistake of the type-setter. Then, again, we may sometimes get a little careless or indifferent when writing our articles, and if we make mistakes and they are pointed out we may not like it. Strange beings we are. Mr. Taylor will have to do the best he can with us, making due allowance of course, for our infirmities.

One thing in the new Department of Criticism had a particular interest to me, because it was an old idea of mine. I refer to the plan of putting combs above the brood nest in the spring so as to encourage brood rearing by supplying any deficiency in stores and by affording a place to store honey taken from the brood nest to make room for the laying of the queen. I conceived the idea in this way: About ten years ago I had several hives of bees packed in chaff in a receptacle for the purpose, and they had built up strong early in the spring. When the fruit bloom came I gave each colony a super of partly finished sections. When the season of fruit bloom ended it seemed as if the bees had stored quite a little surplus of fruit bloom honey, but when the sections were removed from the hives and examined I found the honey to be in part *buckwheat* honey. As there was no buckwheat bloom at this time of year, the bees must have carried this kind of honey up from the brood nest to make room for brood rearing.

From this experience I developed a system of building up colonies by putting

shallow frames above the brood nest for the double purposes mentioned and to encourage the bees to occupy space above the brood nest before the main honey season opens, and not below it, as some have wrongly advised. The hives should be warmly packed when this system is used, or failure may result. At some future time, and after some future apicultural experiments, I hope to fully describe the system, but will do so in connection with a system of management of bees during the spring and summer, of which it is a part. Probably others have made use of the same principle in building up colonies. If so, it would be interesting to know their opinion of it.

It seems to me that we are not learning as much about "fences" and other perforated or open separators as we should, considering the advantages claimed for them before the last honey season opened. I fear they are not going to be the panacea for that ill of bee-keeping that they were claimed to cure. I never looked favorably on such separators. The whole matter seemed to me like this: If separators with openings through them were better than closed separators, then wire cloth separators would be still better, for they would give freer communication between the combs, and *no* separator at all would be best of all, for there would then be no obstructions between the combs. Now, wire cloth separators were one of the features of the Betsinger supers introduced by F. A. Salisbury in his catalogue for 1887. Besides this feature, these supers were made to take *tall* plain sections 3 9-16 by 4 5/8 inches. I have secured comb honey both with and without separators, but I have never noticed that the comb was any better attached to the wood of the sections when secured one way or the other. It stands to reason that if closed separators discourage the bees from properly attaching the combs to the sections, that the less of them we have the better; and if we have none at all, still better.

The filling out of the sections next to the wood in sections where open separa-

tors have been used is due, I think, to other causes than the open character of the separators. It seems to me that closed separators would be best when only starters are used in the sections, for they would aid in taking away the empty appearance of the supers, and they would help the bees to keep up the necessary warmth for comb building; in fact, I am convinced that bees would build comb better if supers were divided into narrow cavities by thin partitions, and the cavities were open only at the bottom; *provided*, only starters are used in the cavities. It is to be hoped that we will be able to arrive at the truth of these things in the near future.

WHITE HOUSE STAY, N. Y. Nov. 19, 1898.



Department of criticism

R. L. TAYLOR.

Blame where you must, be candid where you can,
And be each critic the Good-natured Man.
GOLDSMITH.

TRUSTS AND COMBINES NOT WHOLLY UN-
MIXED EVILS.

In the Review, page 362, Doolittle, after settling old scores with me, proceeds to point out the ridiculous character of the loud claims that have been made in regard to the "facing" of comb honey having done more to lower the price of the same than have all other evils. Moreover, he has his own ideas as to the causes that have lowered the price of honey to such a degree as he claims as to "rob bee-keepers." As I gather his view, it is that honey is not too low, strictly speaking, but too low comparatively. In other words, the price of honey has taken its natural course downwards while the price of many of the necessities of life have been prevented from taking that

natural course by the power of monopolies. After eloquently giving an apt illustration of what a monopoly is, he cites as instances the Glass Trust, the Nail Trust, the Oil Trust, the Match Trust, the Screw Trust, the Sugar trust and others; and mentions the enormous capitalization of these companies. He takes a vastly popular view of the matter; so popular that he did not deem it necessary to offer any evidence that Trusts in general, or any one of them in particular, is a monopoly. He relied, as he safely might, upon the crowd holding up both hands in his support. Perhaps this view of Trusts is popular because it furnishes people a scape-goat that is at hand all the year around. However, though it is a tempting thing, it is a pernicious thing to get into the habit of charging one's circumstances and failures to some one else. So it may be worth while to call attention to what I think is a fact, that Trusts are not properly chargeable with any of the ills of bee-keepers.

A monopoly is the exclusive possession of anything, as a commodity or market. There may be a Trust that has some such exclusive possession, but I do not know of one. In some cases competition may be smothered to some extent, but it is open to all the rest of the world. Trusts generally are monopolies in the sense that the A. I. Root Company is a monopoly. Competition is open, alike in both cases, but in each case competition is difficult. Why? *Chiefly because the commodities are in each case sold at such a low price.* Doolittle relates that in '74 he sold his honey at 28½ cents; say, two and a half times what it would bring now. I judge the prices of necessaries, on the average, have been reduced at least in a like proportion. Nails are 1½ cents, or less, a pound; good illuminating oil, at this distance from its source, 8 or 9 cents a gallon; and matches almost nothing, notwithstanding the Trusts. At all events, I am surprised that the price of honey has not been reduced more than it has been. Look at its history for the last twenty

five years. It has been a time of expansion; I may say of forced expansion. Manufactories of supplies have sprung up; numerous apicultural journals have been started; and many works on bee-keeping published. As was natural, the people financially interested in these things were anxious to increase their clientelage, and so preached the doctrine that nectar was going to waste everywhere in our blessed country; that it ought to be saved, and that the country ought to be stocked with bees to save it; that, in fact, almost every body in the country ought to keep a few colonies of bees, for their product was clear gain. Conventions were instituted, and, wonderful to tell, all bee-keepers, from the goodness of their hearts or the simplicity of their heads, turned in joyfully *to increase competition in their own business.* Of course, the nail maker was not hurrahing for more competitors; neither was the maker of bee-supplies, nor the apicultural publisher. "The profits on supplies were *very* close, and it would be nothing less than suicidal to attempt to publish a new bee journal." Then, honey is in no sense a necessity. There has never been an urgent demand for it. Under such an increased production the only wonder is that the price is so high as it is.

Then, bee-keepers labor under another great disadvantage. Their conventions and Unions, as compared with Trusts engaged in the production of manufactured articles, afford them no advantage in economy of production. It is this point of economy of production and distribution that makes companies with great aggregations of wealth. Trusts, if you will, are necessary in this age. We must have the cheapest possible distribution. We cannot flourish without them; and can get them only through enormously strong companies. The fact that Trusts so operate as sometimes to drive weaker companies out of business, incontrovertibly attests the fact that they are putting goods upon the market at a lower

price. I hear no complaint against the large department stores in the city; yet their effect is the same as that of Trusts; though, perhaps, not to the same beneficial degree. They drive weaker companies to the wall sometimes, but they lower prices. Now I have said nothing in favor of monopolies. Some of the Trusts in which we are most interested I know are not monopolies. The oil Trust has at least one vigorous competitor in this State; and only the other day Arbuckle Bros., sugar refiners, reduced the price of sugar 3-16 of a cent, and sell direct to retailers.

Doolittle says "it now comes out that the full cost of the best refined granulated sugar is only 2½ cents a pound." If he means in this country, it is incredible; and the laws of trade are such that it is impossible that it is a fact. But what a sad blow it would be to us honey producers if it should prove to be true; and in some way it should come to be sold for what it is worth. For our financial good, it is much too cheap already.

"No man can get \$1,000,000 without a similar monopoly," says Doolittle, referring to his illustration. Unlike Doolittle, I have no curses for the millionaire; and I do not believe there is any truth in his statement. I saw it stated recently that there were forty-four millionaires in this State. I don't believe one of them got any considerable amount of his wealth by any sort of monopoly. This illustrates the traits of men who become millionaires: General Alger, many years ago, came to this town from Pontiac, nearly forty miles away, and back again, a-foot, because he could make better time than the stage coach and save \$3.00 fare. Close management and energy did it. I do not envy them on account of their wealth, nor the little additional comfort they get out of it. I don't believe it would be safe for me to be possessed of \$1,000,000; and most of us have probably all that is good for us. Let those who can bear wealth have it. Neither our State nor country could well spare them.

SUGGESTED CHANGES IN SHIPPING CASES MAY NOT BE REAL IMPROVEMENTS.

Mr. Aspinwall in Review, 360, recommends a shipping case, with some new features, for its "simplicity of construction and beauty of finish," as well as because the lack of the "no-drip" feature further lessens the cost." I can see that putting the covers and bottoms inside the sides and ends might add something to the beauty of finish, and that laying aside the no-drip feature would lessen the cost a little, but that there is any sum total of advantages I fail to discover. It seems to me certain that glass which must rely upon the first section to hold it in must sometimes find room to work in and slide down. Then, judging from the bottoms and covers I have seen, which are furnished by the makers of supplies, considerable more care must be exercised to make them sufficiently exact to be used in the proposed case; this would add something to the expense. Again, the putting together of such a case, especially the nailing in of the bottom, could not be done so rapidly and would require a fairly good mechanic to do it well; all of which deserves consideration. As to the no-drip feature, I question the wisdom of dispensing with it. Some sections could be shipped with it that could not be safely shipped without, and a more careful person would be required to pack honey without it than with it.

WHAT INDUCES BEES TO REAR BROOD FREELY.

In Review, 366, Hasty quotes Aikin as saying "that it seems to be an undisputed fact that bees will not rear brood freely unless they have on hand plenty of stores to back them," and he then goes on to say: "I guess that's about so, although hard on the doctrine and practice of stimulative feeding." He further says it is "not quite *always* true." It seems to me that the kernel of the nut is that under otherwise proper circumstances they will rear brood freely either if they have plenty of stores or a presently bright pros-

pect of a good supply coming. A few days of steady feeding, or a few days of steady gathering from flowers, furnishes the prospect. They are, like spendthrifts with easily gotten wealth, prodigal of honey just brought in, though they have not a pound of stores in the hive; while they are very careful of stores on hand; especially if scant, unless more are coming in. These facts furnish what ground there is for stimulative feeding to stand on.

REVIEW HAS A FAULTY INDEX.

There is nothing more valuable about a book or a journal, which is to be preserved for future reference, than a good index. Without close examination I presume the index to the last volume of the Review is full and complete with the exception of the part relating to the December number. That by some mischance appears to be so defective as to be of little value.

THE DISADVANTAGES OF LARGE HIVES.

It will be well for those who are meditating adopting a larger hive to move cautiously. The editor of Gleanings has become enthusiastic on account of his supposed discovery that a hive of two bodies of a hive, one on the top of the other, is better than any other, large or small; and he has already quite a following. Of course, his idea has been opposed; and when crowded by the arguments of his opponents, he has appealed from time to time to Dadant, who has always been uncompromisingly in favor of a large hive. He is a producer of extracted honey. The editor has at last induced him to write a series of articles on hives; and it turns out that he has little sympathy for the "double-deckers." Indeed, he condemns them unsparingly. (Gleanings, 871) But the editor is after information, and inquires of Dadant whether his own large hive is adapted to the production of comb honey. In Gleanings, 907, he proceeds to reply, giving the disadvantages of large hives. "They cost a great deal of money." "They are not suitable for comb honey unless

under special management." "Those large hives are very cumbersome. It is out of the question for one man to carry one of them from one place to another in the apiary unaided even if it does not contain any bees." "But the worst thing is transportation;" either by rail or wagon. "We consider a hive a fixture after the bees have been put into it, and we see no more need of transporting it about than a house." "I want the hive to stay there like a hog-shed or a chicken-house." Mr. Dadant feels somewhat diffident about "putting the case before the jury" against himself; but there is no necessity. He grants about all the small-hive, comb-honey people claim. Scarcely any one would claim that, for extracted honey, with his methods, he should change his hive.

BOILING HONEY IN A VACUUM.

According to a "straw" (Gleanings, 905) Mr. Hooker, in the British Bee Journal, reports having removed ferment from honey without injuring its aroma by boiling it *in vacuo*. Dr. Miller thinks possibly that is no better than giving the honey its time on the reservoir of a cook-stove. Boiling in a vacuum is the method largely used in the production of sugar. By it, boiling takes place at a comparatively low temperature, and I am inclined to think Mr. Hooker has suggested a valuable thing.

POPULOUS COLONIES GREATLY GIVEN TO SWARMING.

Mr. Cloverdale reports (American Bee Journal, 805) having given each of ten colonies an extra hive body filled with worker comb in May. When white clover began to bloom he says they were chock full of brood and bees. Supers were put on both single-deckers and double-deckers and he was interested to learn whether they would work or swarm, and he says "As the harvest came on they began to swarm, and, I must confess, to my surprise, these 16-frame colonies rather too badly." This must be so as a rule when comb honey is made the object. The stronger

the colonies the greater the inclination to swarm, seems to me a matter of course. The proper method of procedure is to accept one swarm and prevent more.

HOW LONG IS THE LAYING SEASON?

In response to a question in the American Bee Journal, 775: How many months in the year should a good Italian queen be laying? Dr. Miller says somewhere from seven to nine months. That reply would be likely to unduly alarm a novice in this part of the country when he found that his queens under normal circumstances were laying only about five months. My queens at least can be relied on to lay only from April 10 to September 10—five months; although they frequently lay a little sooner and a little later, five and one half months would be a full average. Can it be possible, doctor, that at Maren-go queens sometimes get in nine months of labor in the year?

LAFER, Mich., Dec. 31, 1898.



EDITORIAL offerings.

TAKE nothing for granted.

If there is no bright side to your life, polish up the dark side.

SECTIONS 15, wide, used with separators, are the most popular in Canada.

RAMBLER really has a vein of humor; and it is not so deeply buried, either, as it often comes to the surface.

HIVES that have contained colonies infected with foul brood need not be disinfected, says Mr. McEvoy, Inspector of Apiaries for Ontario. If the hive becomes daubed with honey or there are attached

to it brace combs containing honey, he would have the honey cleaned off and the hive scalded at the spot where the honey had touched it. Said he, at the last Ontario convention, "If the hives need disinfecting, so do the bees; and if the bees need disinfecting, the Inspector needs—to be burned up."

FOUL BROOD is on the decrease in Ontario, Canada, if we are to judge by the report of Mr. McEvoy, Inspector of Apiaries for that Province. In his report for 1898 he reported that in 1890 he examined 160 apiaries and found 150 of them that were infected with foul brood; while, in 1898, he examined 150, and found the disease in only 35 apiaries.

SWARM CATCHERS are used with excellent success by Mr. F. A. Gemmill of Canada. He keeps several of them scattered about the apiary, and, as soon as a swarm is seen issuing, a catcher is placed at the entrance. If the caged swarm is allowed to stand an hour or two in the shade, until the bees cluster, it may be hived upon any stand—by the act of clustering the bees give up their old location. Bro. Holterman also reported at the Canadian convention that he had used the catchers and found them practical.

COMBS that have never contained foul brood, simply been used as store combs, and are free from pollen and honey, and have been licked clean and dry by the bees, may be used with no fear of their communicating foul brood; at least, so says Mr. McEvoy, Canada's Inspector of Apiaries. A man who uses queen excluders, and thus keeps the queens out of the supers, need not sacrifice his extracting combs if they are absolutely free from honey—been licked clean by the bees. An instance was mentioned where a man in Vermont saved 2,000 such combs and used them with no bad results.

MOTHS will not attack clean, dry combs that have never been used for brood rearing, and contain no pollen. Mr. J. B. Hall told me this over at the Canadian convention. By means of an excluder, he keeps the queen out of the extracting combs. At the end of the season, after the combs have been emptied, the bees are allowed to lick the combs dry and clean. In this condition, free from honey, pollen or cocoons, they may be hung in hives and stacked up out of doors, and, even with the hives left open, there is no trouble from moths. I presume the secret is that the bee moth's larvæ find no nitrogenous food, in a perfectly clean comb, hence can not develop.

HASTY SAYS GOOD BY.

In almost every number of the Review since it began its career, something more than ten years ago, there has been something from the pen of Hasty. When you think of this, how he has twined himself around our hearts, you can realize something of the regret with which I make place for the following:—

RICHARDS, Ohio, Dec. 26, 1898.

Friend Hutchinson;

I think I must bring my long series of the "View" to a close. Many reasons combine in this conclusion—of which it is only necessary to mention one. I can't *read up* my journals evenings—have lost hope of being able to do so. The result of this is that whenever a "View" *has to be* made out, the reading first has to be done, all in a pile, and the time for it taken out of the few hours each day when I am at my best. The *net result* is that the number of days it takes to make out a "View" is unreasonably great, and has come to be unendurable.

Regretfully; E. E. Hasty.

Bro. Hasty, I know that all of my readers join with me in regrets at the step you feel compelled to take, and hope that this isn't really good by for *good and all*; that occasionally, at least, when the spirit moves, you will send something to the Review.

THE WESTERN BEE-KEEPER is the name of a 50-ct., semi-monthly just started at Denver, Colorado. Gordon and Bailey are the editors and publishers. Attention is called to the climatic differences between the East and the West, necessitating a difference in management; and our western brethren expect to find a field for their labor in furnishing instruction that is especially adapted to that particular locality.

PROPOLIS is often mixed with wax when it is used. Mr. D. W. Heise, at the Guelph meeting of the Ontario Bee-keepers' Association, showed a neat little cake of wax secured from chips of propolis that he had taken the pains to pick up one by one, so as to make sure no pellets of clear wax were mixed in by accident. Repeated meltings were necessary to finally separate the wax; and even then there remained a strong odor of propolis. According to this, we are losing a little wax when we throw away the propolis scraped from our sections.

WEDDED IN WASHINGTON.

The Review has frequently referred to that hustling young man, Mr. Charles Koeppen, who, with no help, manages several out apiaries for comb honey, this year producing 20,000 pounds of fine, white comb honey, and it takes pleasure in copying the following from the local paper:

"Charles Koeppen, of this city, and Miss Virgie Tyler, of Fredericksburg, Va., were united in marriage at the residence of Rev. Dr. C. C. Meador, pastor of the Fifth Baptist church at Washington, D. C. on Thursday of last week. The wedding was a quiet one and was a surprise to many of the bride's friends at her home. The happy couple left for Philadelphia and Ridgley Park, Pa., and will return to Fredericksburg to spend the Christmas holidays before coming to Flint to reside. The Washington Star says: 'The bride is the accomplished and attractive daughter of Mr. and Mrs. M. J. Tyler, while the groom is a promising and prominent young citizen of Flint and

is largely engaged in bee culture. We wish them success and happiness.' "

I saw "Charley" a day or two ago. He has just returned from his wedding trip, and, although I have known quite a long time, I never saw him look younger.



THE HELP THAT MAY COME FROM LETTERS

I have several times referred to the help that the Review has derived from the letters sent in by its readers. Some have written as though fearing their chatty letters might bore me. Nothing could be further from the truth. They may not be read the very day they are received, but they are all eventually read; and usually within a day or two after they arrive. Seated in a big rocking chair, with the lamp light falling over my shoulder, and the coal fire glowing at my feet, the reading of long letters from my subscribers is a real treat. It is more than that. Here is the point: An editor keeps too close to his business. He sees the inside of it, but not enough of the outside. If he could only step back and view it from a distance, look at it from the subscriber's standpoint, he might discover many an error that can not be seen from the inside. Then there is another point: If an editor can get right up *close* to his readers, be able to see as they see and feel as they feel, to enter into their hopes and fears, their desires, aspirations, and ambitions, their joys and sorrows, he becomes better fitted for making a journal that is adapted to their needs. So I repeat what I have said before: Tell me about yourselves. Tell of your family, of your bees, of your plans, your hopes, yes, and even of your sorrows. Tell me what other bee journals you read besides the Review. In short, let me come in and sit by your fireside. One thing more: Don't neglect to *criticise* the Review. If you like it, say so; and tell why. Don't forget the *why*. If it has faults, tell me what they are. The man who sees a fault in the Review, and has the courage to point it out, is ten-fold my friend.

WELL FILLED SECTIONS—HAVE WE YET LEARNED THE SECRET OF THEIR PRODUCTION?

Some of us have thought that the better filling of the sections secured by the use of plain sections and fence separators, was the result of the freer communication afforded by the openings in the separators. Mr. Daggitt in this issue of the Review asks a very pertinent question. He says, in effect, if the open separators allow freer communication, then no separators at all allow still freer communication; and, if better filled sections are the result of freer communication, then the laying aside of separators entirely *ought* to result in the best filled sections, but *does* it? No; it doesn't. I honestly believe that, as a rule, the combs are more perfectly attached to the sections when separators are used than when none are in use. This seems to be one of those cases in which the fallacy of a theory is most easily shown by following it out to a logical conclusion. Over at the Canadian bee convention several spoke of the advantages of separators in securing more perfectly filled sections. When no separators are used, the bees are more inclined to spread out, to begin work on more sections. This is particularly noticeable at the beginning and near the end of the season. Separators seem to fence off the super into several compartments, so to speak, and when the bees begin work in a few of these they are inclined to finish up what work they begin, rather than to start more work in adjoining sections, as they are prone to do when no separators are used.

I am not condemning plain sections, nor "fences," but it does really seem to me as though there is yet some factor that has eluded our grasp.



AN OPPORTUNITY TO HONOR THE MEMORY OF FATHER LANGSTROTH.

I have received the following most earnest appeal to the bee-keepers of America, and it is with the greatest of

pleasure that I lay it before the readers of the Review.

Having been placed on the Langstroth Monument Committee, I wish to make this final appeal to the bee-keepers of America, before erecting the slab that is to mark the resting place of the most noted character and best loved bee-keeper in our country.

It seems to me that if we neglect this opportunity to do honor to his name we shall always regret it.

Bee Keepers ought to esteem it not only a matter of loyal duty, but a loving privilege to contribute to a suitable monument to one whose services to American apiculture have been so universally acknowledged.

It is one of the strange things in this world, that very often the inventor of useful appliances fails to receive the rewards due to his genius. Thus it was in Langstroth's case. He builded, we occupy.

The world now recognizes his services, but robbed him of the material fruits thereof when needed.

Will this generation be satisfied to let him lie in an obscure or forgotten grave when it is understood that the ingratitude, selfishness, and cupidity of jealous rivals darkened for a time the lustre of his achievements, and marred the happiness of a grand good man?

The committee has in preparation an inscription to be engraved on the monument which recognizes the great services rendered by Father Langstroth, and which attempts to pay loving tribute to his memory. It is to be dedicated to him by the bee-keepers of America.

It is neither just nor wise that a few men should erect this memorial, when everyone interested in bees or bee-keeping is reaping the fruits of Langstroth's genius.

A large number of subscriptions in amounts not to exceed \$5.00 would be a better recognition than a few large contributions.

If every reader of these lines who has not already done so would immediately send in his or her contribution to this fund, it would relieve the committee from the embarrassment of erecting a monument which they feel is in no sense an adequate expression of the admiration and love felt for the Father of American Bee-Keeping.

The committee will proceed in the spring to erect such a memorial slab as the funds in hand will warrant, and if the reader does not in the next few weeks

send in his mite he will miss the opportunity and privilege of being counted as one of the donors.

Sincerely, Eugene Secor,
Forest City, Iowa.

I most heartily second every word written by my friend Secor. Especially do I commend the idea that the monument should be built of the mites contributed by many loving friends, rather than by large contributions from a few. Brother, in memory of that grand old man who did so much for you, give something, no matter how little. If more convenient, remittances can be sent to this office. When sending in your renewal, don't forget to send your mite for the Langstroth fund.

AN IMPROMPTU, OR "MOCK" BEE CONVENTION.

Perhaps some of you have at least heard of such a thing as a mock-trial. I believe a mock trial often takes place on board a ship that is crossing the ocean. To make the hours slip by more quickly, the passengers, in sport, accuse one of their number of some crime, place him under arrest, choose a judge, jurymen and lawyers, summon witnesses, and proceed to carry out a mock-trial.

So much by way of introduction, and now I will say that a few "choice spirits" over at the Guelph meeting of the Ontario Bee-Keepers' Association took part in a somewhat similar proceeding—that of a mock bee convention. One evening a large number of the members attended an entertainment out at the Agricultural College. Returning about eleven o'clock, a dozen, or thereabouts, gathered in the reading room of the hotel for one of those long-drawn-out chats in which bee-keepers are prone to indulge. Finally some one said "let's have a bee convention." The idea took at once. A President and Secretary were elected forthwith, topics selected for discussion, and at it they went, hammer and tongs. There was a freedom about the whole proceedings that was never seen in a formal conven-

tion. Even the President felt perfectly at liberty to call a member to order if he wandered from the subject. In fact, I doubt if a convention was ever held in which the speakers were kept so strictly to the topic under consideration. Perhaps if a *real* President of a *real* convention should attempt to be so strict he would give offense, but this was "just in fun, you know." The members gave their views in just that same free way. They said exactly what they thought, no matter whom it hit it "was all in fun you know." That is the way everybody felt, yet the information brought out was really reliable and valuable; in fact, those in attendance asserted that this impromptu affair surpassed the regular convention in bringing out practical truths and facts. Honestly, it was *four o'clock* in the morning before the "Senators," as they now call themselves, decided to adjourn and go to bed for a little nap. I may say in conclusion, that this little party has really organized itself into the "Senate of Federal Parliament of Canadian Bee Keepers!" There are an even dozen members, and they expect to each year hold an evening session that *may* extend into a *morning* session ere the hour of adjournment arrives.

WHAT ORGANIZATION MAY ACCOMPLISH HOW DISCUSSIONS ARE STARTED.

Mr. Doolittle, in the last Review, gave a very graphic description of what organization might do in the way of controlling prices; and in this issue Mr. Taylor very clearly points out how it may cheapen the cost of production. Right in this line I may say that the *Cosmopolitan* for January has a very interesting and instructive article by Charles R. Flint upon "Great Problems in Organization." In years gone by, organization in commercial enterprises was almost unknown. Occasionally there was the old-fashioned partnership, which was a combination of the capital and abilities of individuals. Following this came the business corpo-

ration, consisting of the aggregation of many capitals. Let me quote a few lines:

"This is the highest type of business organization. The bringing together of these small capitals; the employment of large bodies of men with highly differentiated duties; the control and direction of these by boards of directors, and supremacy over all of the officers of the corporation its president and manager—have resulted in making possible the performance by private corporations of work which was impossible to have been done even by the strongest government 150 years ago. . . . The result was the creation of many corporations for like purposes, but in strong antagonism and with bitter competition between them. But this competition could lower prices only slightly, unless it went so far as to ruin one or the other of the competitors. The problem of low prices was to be solved by the economies of larger organizations. . . . Further consolidation became necessary, and then came into existence the so-called 'combinations,' or more frequently and quite improperly called 'trusts.' . . . The trouble with the enemies of the higher economic organization is that they live in the past and are sadly ignorant of the present. . . . Plenty and low prices were to come with the organization of industry and capital, until to day, thanks to this fact, more than to any other, the workman gets more for his money and more money for his work than ever before. And yet the yellow journals tell him to rebel against the inevitable social and economic order, and thus stand in the way of his own advancement. The destruction of large corporate capitals would compel a return to the era of lower wages and higher prices."

There is much more that might be quoted, but lack of space forbids. Those who are specially interested are referred to the *Cosmopolitan*. Evidently, there are two sides to this question. Organization has done much good. The good that it has done has greatly over-balanced the evil. Organization has greatly improved many things and greatly lowered prices, but I think there will be found only a few who will deny that the formation of a "Trust" is often followed by a stiffening of prices. Perhaps, however, this raise in prices is needed. Trusts are not often absolute monopolies, but

the methods that they employ in crushing competition are often such as to make them practically into monopolies.

But, friends, I believe that the Review better not follow this politico-economical discussion any further. It is a vast and important subject, one worthy of our highest thought and consideration, but in the columns of the Review is scarcely the place to discuss the matter. Perhaps some will ask why I allowed it to be commenced. No one who has not been the president of a bee-keepers' convention, or the editor of a bee journal, or in a similar position, knows how difficult it is to hold all hands strictly to the question. It is so easy to wander. Mr. Aaron Snyder condemned in vigorous terms the practice of facing comb honey when crating it for market. He thought it did more than anything else to lower prices. Mr. Doolittle thought otherwise, and went on to show what *he* thought had had been the greatest factor in bringing about the low price of honey. Mr. Taylor thought that Mr. Doolittle was greatly mistaken, and proceeded to defend *his* views; and, lo, and behold! the Review has a full fledged politico-economical discussion on hand that, if allowed to run on, would fill number after number for months to come. It is a difficult matter to keep all in the beaten track, and it may be advisable to allow occasionally some kicking over the traces, or even the nibbling of choice bits by the roadside, but I think we better try and stay inside the road fences.

PRESSURE MUST BE USED IF WE ARE TO
GET ALL OF THE WAX.

In this issue of the Review there appears a most excellent article by Mr. Beckwith on the subject of rendering wax. Mr. Beckwith took the pains to mail me a small box of the residue left after he had squeezed out the wax with his press. It is exactly as he expresses it—dry and mealy. With the ordinary methods of rendering wax, who has seen any such "slum-gum," as it is sometimes called?

As a rule, it is as hard as a cake of wax. The boiling process comes the nearest to getting out all of the wax; but even that fails with old combs. The solar extractor is the worst arrangement that there is for rendering old combs. For cappings, or for new combs, or for those that have never contained brood, it matters little in regard to the process employed; but the cocoons of old brood-combs become literal sponges in the way that they soak up and retain the wax. Suppose a sponge thoroughly saturated with wax as it may be saturated with water; a portion of this wax might be removed by putting the sponge in the solar extractor; perhaps a larger portion by steaming; and a still larger one by boiling; but pressure alone would remove it entirely.

This matter received a most thorough discussion over at the Ontario convention that I recently attended; or, to be more exact, Mr. F. A. Gemmill gave his experience in the use of pressure in rendering wax. He secured pressure by means of a screw. He had taken twenty-one pounds of the slum-gum left by the steam process, and by boiling it and then pressing it, he had secured seven pounds of the finest wax. With the press he had secured three pounds of wax from eight Langstroth combs. These combs were built upon foundation, and contained perhaps a pound and a half of wax in the foundation given, and the rest had been supplied by the bees. This is, of course, a very large yield of wax, and could not be expected in most cases. Mr. Gemmill puts the old combs into a gunny sack, sinks the sack and contents in a boiler containing water, putting on weights to keep the sack under water, and then boils it and skims off the wax. The refuse is then put through the press.

I know that the use of pressure in rendering wax is not a new idea, but, for some reason, it has been woefully neglected. There is not a particle of doubt, however, that the man who renders old combs in the solar extractor loses one-half or two-thirds of his wax. The one

who employs the steam process loses at least one-third; while he who boils the old combs probably loses as much as one-fourth.

.....

BOILING FOUL BROODY HONEY.

Dr. Miller still argues in Gleanings in favor of boiling foul broody honey more than fifteen minutes in order that it may be a safe food for bees. He would boil it two and one-half hours. If I understand him aright, he bases his belief upon the experiments of Dr. Howard of Texas and Prof. Mackenzie of Canada. These gentlemen made cultures from the contents of test tubes that had contained spores of foul brood and been heated. Some of these tubes had been kept at or near the boiling point for a short time only, others for a longer time, and others for a still longer time. Judging from the results of these experiments one would be inclined to agree with the doctor, but I can remember when the late Mr. Corneil of Canada argued that in the making foundation the wax was not sufficiently heated to destroy the spores of foul brood, and in proof of his position, cited experiments similar to those mentioned by the doctor. Cheshire also reported that the spores of foul brood were to be found in the eggs layed by a queen taken from a foul broody colony.

These scientific experiments may be all that they are reported, but the stubborn fact remains that, so far as reported, foul brood has never been disseminated by the use of foundation; and the feeding of foul broody honey that has been brought to the boiling point has never resulted in a case of foul brood, and the giving of a queen from a foul broody colony has never carried that infection to the colony to which the queen was given. So far as the scientific experiments have gone, they are probably correct; but there are probably some yet undiscovered factors that have a bearing on these matters.

The foregoing was written while on the cars going to Guelph to attend the meet-

ing of the Ontario Bee-Keepers' Association. While at Guelph I visited the Agricultural college, and had the pleasure of a long chat with Prof. Harrison, bacteriologist at the college. For about three years he has been making a special study of foul brood. He says there is some of Dr. Howard's work that he has been unable to verify. Cheshire's statement that the eggs of a queen from an infected colony may contain germs of foul brood, is verified by Prof. Harrison's work. In fact, he very kindly invited me into his laboratory and showed me, among other things, a glass slide upon which had been crushed the egg of a queen from an infected colony. When placed under the microscope there showed, very distinctly, four of the little, rod-like forms of foul-brood, and as many of the little round spores from which foul brood may be developed. He showed me several little slips of glass the surfaces of which had been smeared with a mixture containing the germs of foul brood. These germs had been exposed to the air in semi-darkness more than two years, yet they readily grew when placed in a new culture. He admitted, however, that they were losing their "resistance," that is, would succumb to a shorter period of boiling. Along this line it might be mentioned that, according to Prof. Harrison's experiments, germs from a freshly diseased larva have a greater resistance than those from an old larva that has dried down into a hard gluey scale. This may explain why different results have been obtained by different experimenters as to the length of time required to kill the germs by boiling. I might say in passing, that Mr. Mc Evoy reported at the Ontario convention that he had never known foul brood to be communicated to a colony by feeding it foul broody honey that had been mixed with an equal quantity of water and then brought sharply to the boiling point; but many people were so careless that he never advised it.

Prof. Harrison admitted the apparent clash between science and practice as re-

gards foul brood, but thought there might be many things regarding the disease that were not yet fully understood. He even went so far as to hint there may be such a thing as resistance, upon the part of a colony, to the germs of foul brood; even as some individuals show greater resistance than others to the germs of certain diseases. Notwithstanding the cure of many cases of foul brood without disinfecting the hive, Prof. Harrison looks upon that practice very much as he does upon occupying, without disinfecting, the rooms in which patients have died of consumption, typhoid fever or diphtheria.

Some of us may have believed that we had nearly reached the limit of knowledge regarding foul brood, but, since talking with Prof. Harrison, I am inclined to the belief that there yet remains a wide field for valuable original work in this line.

EXTRACTED.

LARGE HIVES.

How the Dadants use them in Producing Extracted Honey, and why they are Undesirable in Comb Honey Production.

Mr. C. P. Dadant has been writing for *Gleanings* a series of articles in which he advocates and defends the use of a large hive. He says that he has found it more profitable to use a large hive, and I do not doubt his statement, but I have watched with great interest to see if he were going to tell why—if he would go into the reasons and logic of the matter. In the December issue of *Gleanings* he explains why he is opposed to the use of a two-story hive, and, incidentally, he brings in the very arguments that Mr. Taylor, Mr. Doolittle, myself, and others, have used in favor of small, or, at least,

medium sized brood nests in the production of comb honey. I am going to copy the article and print in italics the sentences that go to sustain the very point for which we comb honey men have been contending.

Mr. Editor:—I have now come to the hardest position of my argument. When Greek meets Greek, then comes the tug of war.

But when you and Dr. Miller join Hutchinson and Taylor and Doolittle *against me*, where shall I be? The worst of it is, you have a chance to talk just as soon as I have done, and so destroy the effect of my arguments. Then the other fellows thrust at me between times. I wonder how much there will be left of what I have to say, by the time you all get through tearing it up. Dr. Miller doesn't say much; but, although he claims never to know, he always seems to give the hardest arguments in the fewest words.

No, I can't agree with you in double stories of small hives. Dr. Miller's way of putting the second story under the first is certainly the best; but even that does not satisfy me as well as my own way of having it all in one story, expandible at will. You must remember that I speak of a hive as long as the Langstroth, or longer, and about 2½ inches deeper, with a movable partition-board, or dummy, and containing to frames. This hive, as I have already explained, is of a capacity that will about accommodate the most prolific queens.

Your eight-frame hive is too small; and when it is doubled, it is too large for the laying of the most prolific queens. If you put the additional story on top, you increase the room too much all at once. This has to be done at a time when the bees need all the heat they can generate, and a large space above them is not prone to help them, as you will readily recognize. Dr. Miller makes the addition at the bottom, and so does away with that objection. The queen will then spread her brood downward. *But if you are aiming to raise comb honey, as the queen goes downward, as a matter of course the bees will fill the space above them with honey as the brood hatches, and the result will be from twenty to an indefinite number of pounds placed in these combs before the sections are touched.* So Dr. Miller lays himself more liable than myself to the objection of our critics, that our large hives are not fitted for the raising of comb honey. As a matter of course, the same ob-

jection works equally well if we put the second hive on top. *The fact is plain, that you have more room in your two-hives than can possibly be needed by one queen, and that the remaining space must be filled with honey before the sections are filled.* If your hive is exceedingly strong, you will probably harvest enough more honey to still render your course more rational than that followed by those who insist on cramping the queen, however prolific, in a narrow compass; but there will be cases when your judgement will not prove equal to the task, and in these cases your crop of comb honey will be null unless there is absolutely no brood in one of the two stories, and you perceive it in time to remove it. My way is plainly the best, for I increase or decrease the room only as fast as needed, one comb at a time if it needs any; and when the hive is at its full capacity, if the queen can fill it I have it all in one compact mass, and have a greater surface on top of the brood-chamber for supers. That is, more bees can ascend to the super at one time, and that super with a greater capacity is nearer to the brood than one of the same size with your two-story hive. We all know how important it is in the spring to have the supers close to the brood. My hive is not so top-heavy, thus less liable to tip accidentally. If the queen does not prove equal to the emergency, and does not fill all the combs, there is no difficulty in contracting the brood-chamber by removing the combs that have no brood, to the size wanted by our friends, the lovers of contraction and other methods. With your small hives you have no division-board or dummy; or if you have one it is in the honey-house, piled under a lot of other traps, because you use it only in extraordinary circumstances. Mine is always here in the hive, for I have one space especially reserved for that purpose; and without this dummy, as I said before, our hive would have a capacity for 11 frames and not 10. So the reducing of the capacity of the brood-chamber is only a moment's work.

Now, don't understand me advising contraction, for I don't. I want only to increase the capacity of the brood-chamber if it is not fully occupied already by a populous colony—as fast as needed, and then leave it till the summer is over. If I raised comb honey I would not object to a few pounds of honey more than needed in the brood-combs; for I should expect to use an extractor whenever I saw the need of it. When raising extracted honey, however, there is no fear of too much honey below, if plenty of empty

comb has been given above when the harvest was on, and the bees have not had to wait. I have seen the time when it was necessary to crowd the bees a little to get them to put enough honey for winter in the brood-chamber.

I believe I have said somewhere already that we have tried double brood-chambers for extracting, and we did not like them. The addition of a full story, all at one time, unless it is on a hive that has already been given all the room the queen could fill, and is, therefore, very populous, seems to me more than needed. The queen also seems to be more readily attracted to a large body of this kind, and to desert the lower hive. Sometimes she will breed in both apartments; and when one tries to find frames full of honey they have to be taken from the sides, or combs of brood have to be extracted, which makes a possibility of throwing some of the grubs out into the honey. I know that some of our bee-keepers are so careful that this never happens to them, but I confess I can't extract every comb myself, even if I were as faultless as they, and I have to rely on a more or less careful boy to turn the crank.

In short, I have just as much objection to using full stories, Langstroth size, for supers, as I have to using the little, shallow, four-and-a-fourth-inch toy extracting-frames, which run matters to the other extreme, and make too much handling for the amount of honey harvested. The section-case is little enough for comb honey, but the size is entirely inadequate when extracting is the aim; and if you had only tried the six-inch extracting-frames I know you would agree with me.

I propose, in my next, to consider the objectionable features of large hives. It has been lately said, by some apiarists, that I was leading the folks on the wrong track, so I must atone by showing you wherein our faults lie. I hope I am not repeating myself too much. I notice in reading over my past articles, that I might have condensed my thoughts a little more, and will try to do this in the future.

The editor of *Gleanings* comments as follows:

[I must admit that Mr. Dadant has given some pretty solid arguments in favor of his large single brood-chamber as against two brood-chambers of eight-frame capacity. If I am correct, his ten frame Quinby hive holds an equivalent of 12 L. frames. Accordingly, then, Mr. D's position is that two eights make four frames too many.]

In referring to his division-board, and the facility he finds in reducing his brood nest, he is apparently laboring under the impression that we can not similarly contract our two eight-framers. All the hives we have sold for years, of eight-frame capacity, have had a division-board as part and parcel of the hive; and it is our recommendation and practice to keep those division-boards in use, for the hive is made just enough wider to leave space for follower. In putting on an upper story, or, perhaps, better still, an under story, we often give only four frames extra; and then, as the bees require more room, give them the other four, or one, two, or three, as circumstances may require; but more often I give the whole eight frames at once because it saves labor, even though it may not theoretically be the best practice.

Now, friend Dadant, when you add *one frame at a time* to your big colonies, do you not thereby make a great amount of labor? Mr. Doolittle used to argue, and perhaps does now, that it is a good practice to put on only one or two rows of sections at a time, and only as fast as the colony can take them. While there is something in this, the majority of bee-keepers put on a whole super of six rows at one operation, because it saves labor. And there is our friend H. R. Boardman, who produces as much comb honey as any one in proportion to the number of colonies. He puts on three tiers of some 40 or 50 sections at once. I told him that this gave the bees too much space to warm up at the start. He admitted that there was something in this, but added that his plan saved labor, and as long as he could produce as much comb honey as his neighbors working on the other plan he preferred his own way.

There is one point concerning which friend Dadant does not explain himself fully. By reading between the lines in one paragraph I gather that his large hives are not adapted to comb honey. Elsewhere I get the impression that he can, with them, produce as much comb honey as any one. In one of his future articles I hope Mr. D. will give us a clear and explicit statement covering these points.]

As I have already said, I have no doubt that with Mr. Dadant's locality and management a large hive is better than a small one. He must have found it so or he would use a small hive. Admitting this, I am still at sea as to the *why* of it. I

can well understand that even if a large portion of the honey goes into the brood nest when a large hive is used, we can get it out again with the extractor, while, if we are producing comb honey there is no such remedy; at the same time I do not understand what there is gained by a large brood nest in producing extracted honey. I certainly would give a colony sufficient surplus room so that a place could be found for all honey. Having done this I see no advantage in a large brood chamber. Large hives may be cheaper to use than small ones, but this is a very small point. There must be some stronger reason than this for using large brood chambers. What is it? Some have advanced the idea that a populous colony will store more in proportion to its numbers than one of ordinary strength. In all of my years of bee-keeping I have never seen anything indicating this. Others favor very strong colonies because they they think that they will winter better. This has not been my experience. Give me a colony of just ordinary population. Remember, I am not saying that there *are no* material advantages in large brood nests and populous colonies under certain managements and in certain localities. It seems as though this must be true, or good men like Mr. Dadant would not believe as they do. I may say, further, that I have no personal interest in this matter. It makes no difference to me which is best, but if one is better than the other I wish to know it and know the reason *why*. Mr. Dadant speaks in one place of a hive that has such a capacity that "it will accommodate the most prolific queen." This is a point that my Illinois friend has often brought up. He does not wish his queens cramped for room. *Why?* What do we care whether queens are cramped for room or not, if cramping some of them gives us better results? We are not keeping bees simply to give the queens room to lay. Others besides my friend Dadant often speak of the queen being cramped for room to lay,

and they speak in such a way as to convey the idea that it is a very undesirable thing to do. Our capital in bee-keeping is not in the queens. Queens cost us practically nothing. Our capital is in our hives and combs. We want our capital fully occupied. Better that a queen be cramped for room than that combs remain idle. Suppose that we have an eight-frame hive for a brood nest. When the queen has the combs well filled with brood, some recommend the putting on of another story. This second story certainly will not be so well filled with brood as it would be if it had another queen to do the laying. I would use a brood chamber of such a size that an ordinary queen can easily fill it with brood. With me, that is an eight-frame, Langstroth hive. I do not mean to say that many of my queens could not use more space than that, but what if they could? What do I lose by not letting them fill more combs? Some of you may say that I lose the bees that the eggs that they could lay would produce. Not so, I have those eggs laid by another queen.

Swarming? Yes, I know it is asserted that swarming can be more easily controlled when large hives are used. I do not advocate small hives. I would give ample *surplus room*, and room enough in the brood nest for an ordinarily prolific queen. Having done this, I doubt if there is any great difference between the ordinary and the large brood nest, as regards the disposition to swarm. Swarming may come later with the large brood nest, but it is bound to come if the conditions are right. In producing extracted honey it is easy to control swarming on account of the ease in giving an abundance of empty comb in which to store the surplus.

Now, friends, if I am wrong in any of my conclusions, tell me so. I am not one of those who feel hurt if they are shown to be in error. I *count* criticism. If I am wrong, no one is more anxious than myself that I be set right.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

CLEVELAND, O.—Demand for white Honey is very good, and market firm. We quote as follows: Fancy white, 13 to 14; No. 1, white, 12 to 13; Fancy amber, 10 to 11; No. 1, amber, 9 to 10; Fancy dark, 8 to 9; White, extracted, 7; Amber, 6; Dark, 5.

A. B. WILLIAMS & CO.
Nov. 20, 86 & 82 Broadway, Cleveland, Ohio.

BUFFALO, N. Y.—Absolutely fancy 1-lb. combs are selling well at 12 and 13 cents; and other grades dragging at 10 to 7 cents. Holiday trade takes all attention from honey. Very little extracted honey selling. Fancy beeswax wanted at from 28 to 30 cents; if absolutely pure.

BATTERSON & CO.
Dec. 20, 167 & 169 Scott St., Buffalo, N. Y.

CHICAGO, ILL.—We quote as follows: fancy white, 13; No. 1 white, 11 to 12; fancy amber, 9 to 10; No. 1 amber, 8 to 10; fancy dark, 5; to 10; No. 1 dark, 8; white extracted, 6 to 7; amber, 5 to 6; dark, 5; beeswax, 27.

R. A. BURNETT & Co.,
Dec. 21, 163 So. Water St., Chicago, Ill.

CHICAGO, ILL.—We are having good trade and our stocks are light. Shipments can be encouraged and we quote as follows: fancy white, 14; No. 1 white, 13; fancy amber, 12; No. 1 amber 11; fancy dark, 10; white, extracted, 7; and cr. 6; dark, 5 to 5 1/2; beeswax, 27.

S. T. FISH & CO.,
Dec. 22, 159 So. Water St., Chicago, Ill.

NEW YORK. Plenty of comb honey on the market, and dark grades are moving off slowly. Extracted of all kinds is in good demand. We quote as follows: Fancy white, 12 to 13; No. 1 white, 11 to 12; fancy amber, 10 to 11; No. 1 amber, 9 to 10; fancy dark, 8; No. 1 dark, 7; white extracted, 6 1/2 to 7; amber, 5 1/2 to 6; dark, 5; beeswax, 26 to 27.

HILDRETH BROS. & SEGELKEN,
Dec. 23, 120 West Broadway, New York

KANSAS CITY.—We quote as follows: Fancy white, 13; No. 1 white, 12; fancy amber, 11; No. 1 amber, 10; white extracted, 6; amber, 5; dark, 4; beeswax, 25.

C. C. CLEMONS, CO.,
1 Ec. 24. 501 Walnut St., Kansas City, Mo.

NEW YORK, N. Y.—Demand for honey has been good during the past few weeks, especially for the fancy grades. Receipts have been extremely heavy with us, though at present we have our stock worked down very well. We quote as follows: Fancy white, 12 to 13; fair white 10 to 11; amber, 6 to 10; mixed, 7 1/2 to 9; extracted honey finds ready sale at following prices: white clover, 6 1/2 to 7 1/2; buckwheat, 6 to 7; fruit, 5 to 7; Florida white, 7 1/2 to 8; Florida light amber, 6 1/2 to 7 1/2; Other grades of Southern honey, from 5 to 7 1/2 per gallon, according to quality.

FRANCIS H. LEGGETT & CO.,
Dec. 27. W. Broadway, Franklin & Varcl. Sts.

THE
A. I. ROOT CO.,
10 VINE ST., PHILADELPHIA, PA
BEE-SUPPLIES.

Direct steamboat and railroad lines to all points. We want to save you freight.

Some
Odds and Ends

That Will be Sold Cheap.

For a dozen or more years Mr. M. S. W. sold this place dealt in bee-keeper's supplies. Since his death, two years ago, his daughter has endeavored to close out his stock of goods and has succeeded to a large extent. There are still a few odds and ends, and she has brought them to me and left them for me to sell. Here is a list of the articles with prices at which they will be sold.

One ten inch foundation mill, (second-hand) Root's make, complete with dipping tank, etc. in excellent condition. \$10.00

One ten inch foundation mill (second-hand) Root's, tone of use at maker dipping tank, etc. in good order. 15.00

Three Wholesale foundation fasteners, each. 75

Eighty seven entrance guards, each. 105

Thirteen Potter Bee Escapes. 2.25

Thirty three Simplicity hives, in the flat, sides, ends, covers and tin rabbits, but no frames, nor bottom boards, each. 1.40

Send all orders to W. Z. HUTCINSON,
Flint, Mich.

**THE MONITOR
PAPER FILE**

Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music &c., by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome. PRICE.—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper.

Bee keepers should send for our
'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.
J. H. M. COOK, 62 Cortland St., N. Y. City
Please mention the Review

QUEENS, Untested, 75 c; 6 for \$4.00; tested, \$1.00; 6 for \$5.00; breeders \$2.00. The best stock, imported or golden. W. H. LAWS, Laverne, Ark.

JOHN F. STRATTON'S
Celebrated
Band Instruments
ALSO
DRUMS, FIFES,
Piccolos and Band Supplies.



Send for **JOHN F. STRATTON,**
Catalogue. 811, 813, 815, 817 E. 9th St., N.Y.

I have several hundred
QUEEN CAGES

of different styles and sizes, made by C. W. Costello and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCINSON, Flint, Mich.

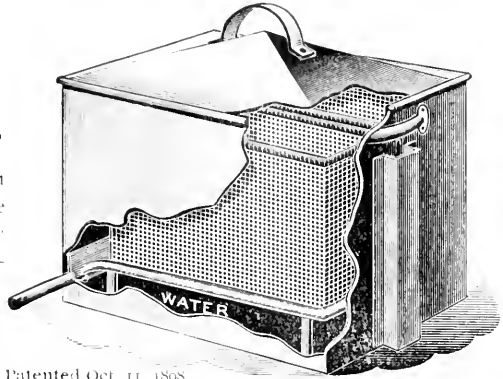
Bee - Supplies.

Root's goods at Root's prices. Ponder's honey jars. Prompt service. Low freight. Catalog free. Walter S. Ponder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1895

Wanted, for the Salvation Army Colony, Amity, Colorado about twenty colonies of bees. Address, stating price, etc., THOS. HOLLAND, Amity, Colo.

—If you are going to—

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Our Prices are worth looking at. We are making the new

Champion Chaff Hive

with dovetailed body and supers and a full line of other Supplies, and we are selling them CHEAP. A postal sent for a price list in reply save you \$ \$ \$ \$.

R. H. SCHMIDT & CO.,
Box 187 Sheboygan, Wis

1-98-11

—If you wish the best, low-priced—

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

1899 Queens 1899

For Business—Queens for Strong Colonies. Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list. 12-97-tr

J. P. H. BROWN, Augusta, Ga.

Please mention the Review

Queens bred in the North are hardy and fertile. Every bee-keeper should try one of these Northern grown queens. Pure bred Italian queens at 75 cents each; or 12 for \$6.00.

WM. H. BRIGHT, Mazeppa, Minn.

Please mention the Review

To stick things, use **MAJOR'S CEMENT.** Beware!!! It's no substitute. 2-98-12f

Please mention the Review

Best on Earth. 19 Years Without a Complaint.



		Dozen	Each
Suck Engine	30258	\$3.00	mail \$1.50
Smoker mud	...	...	...
Doctor	...	3.00	1.10
Compu tor	...	6.50	1.00
Lamp	...	5.00	.90
Plan	...	1.75	.70
Little Wonder (sw)	10000	4.50	.60
Honey Knife	...	6.00	.80

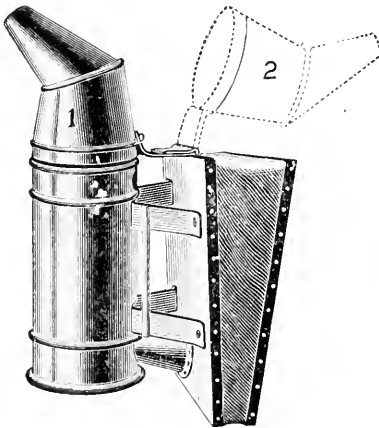
For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

\$50 for a Bee-Story.

THE PROGRESSIVE BEE - KEEPER wants a good bee-story. The story should be not less than 15,000, nor more than 20,000, words; and we will pay \$50.00 in cash as first prize for such a story. There will also be second and third prizes. No one financially interested in the company will be allowed to compete, or act as a judge; and we guarantee that none but competent and impartial parties will decide the contest. For further particulars address

THE PROGRESSIVE BEE-KEEPER,
Higginsville, Missouri.



The accompanying cut shows the Higginsville Smoker with the nozzle thrown back for filling. This smoker is strong and well made of the best material, has a strong draft, and will burn any kind of fuel. (One smoker, 75 cts.; three for \$1.50. When sent by mail add 25 cts. each for postage. Send for catalog of other supplies.

Leahy Mfg. Co., Higginsville, Mo.

If the

REVIEW

Is mentioned when answering an advertisement in its columns a favor is conferred upon both the publisher and the advertiser. It helps the former by raising his journal in the estimation of the advertiser, and it enables the latter to decide as to which advertising mediums are most profitable. If you would help the Review, be sure and say "I saw your advertisement in the Review," when writing to advertisers.

Page & Lyon,

Mfg. Co.

New London, Wis.

— ♦ ♦ ♦ —
Nearness to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

ORDER

EARLY.

There are indications that the demand for supplies will be very large this season, and everyone should order as early as possible. We have large facilities for manufacturing all kinds of *Bee-Keepers' Supplies*, and will serve our customers as quickly as possible.

Falcon sections are the finest made. 1899 catalogue ready Feb. 1st. Copy of the *American Bee-Keeper* (20 pages) sent free. Address

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wired*. Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y.

YOUR PROFITS

Next season will depend largely upon how your bees come through the winter. Many bee-keepers believe that after bees are put into winter quarters nothing more can be done for their welfare until spring has come. All who believe thus, and all who believe that care *is* needed, but are a little uncertain as to what that care should be, ought to buy the book **ADVANCED - BEE CULTURE**, and read the chapter entitled "Care of Bees in Winter." Remember, too, that the book contains 31 other chapters.

Price of the book, 50 cts.; the Review one year and the book for only \$1.25.

W. Z. HUTCHINSON,
Flint, Michigan.

Listen! Take my advice and buy your 'bee supplies of August Weiss; he has tons and tons of the very finest



FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

18



99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.50; 1,000 for \$2.50; 3,000 for \$6.75; 5,000 for \$10.00; 10,000 for \$17.50.

No. 2 sections are not made to order, but when in stock are sold at \$1.50 per M.

J. FORNCROOK,
Watertown, Wisconsin.

WINTER

Losses are not always the result of the same cause. They may come from starvation; from poor food; from improper preparations; from imperfect protection; from a cold, wet, or possibly, a poorly ventilated cellar, etc., etc. Successful wintering comes from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "ADVANCED BEE CULTURE." Five of its thirty-two chapters treat as many different phases of the wintering problem.

Price of the book, 50 cts.; the Review one year and the book for \$1.25. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,
Flint, Mich.

Violin for Sale.

I am advertising for the well-known manufacturers of musical instruments, Jno. F. Stratton & Son, of New York, and taking my pay in musical merchandise. I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Stradivarius," Red. French finish, high polish, and real ebony trimmings, price \$44.90. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver shield, ebony screw head, German silver ferules, and pearl dot in the end, price \$2.50. The case is wood with curved top, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this on fit, and would accept one-half nice, white-extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apianian Supplies. Send for circular. 1-96-6

Please mention the Review

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1.25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEANES & MINER; Ronda, N. C.

Make Your Own Hives.

Bee-Keepers
Will save money by
using our Foot Power
Saw in making
their hives, sections
and boxes.

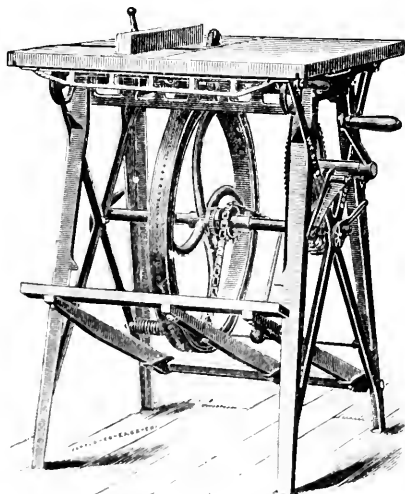
Machines on trial.
Send for Catalogue.

W. F. & J. M. BARNES CO.,

384 Ruby St.,

Rockford, Ills.

11-95-121



COMB

FOUNDATION

WHOLESALE AND RETAIL.

Working wax into foundation, for cash, a specialty. Hives, Sections, and a full line of Supplies. The best of everything. Write for Catalog, with prices, and samples of Foundation and Sections. Beeswax always wanted for cash or trade.

GUS. DITTMER,

10-97-12t

Augusta, Wis.

The A. I. Root Co.'s Goods, WHOLESALE AND RETAIL.

Holy Land YOUR CHOICE Golden Italian
QUEENS.

1899 Send your address on a postal card for my 1899 queen circular and price-list. Parties wanting two dozen or more queens, write NOW. Satisfaction guaranteed to each and every customer. 1899

3-98-12t

E. R. JONES,
 Milano, Texas.

Without Stopping

the machine to reverse the combs is the way you can work with the Williams Automatic

Honey Extractor.

Such an extractor will save you time and annoyance and it does not cost much more than an ordinary machine. Send for descriptive price list.

Read what the famous bee-keeper, N. E. France, says:

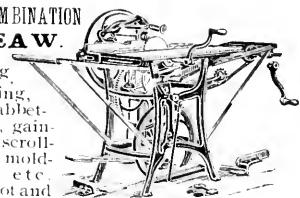
PLATTEVILLE, Wis., July 5, 1897.
 Dear Sirs: To day I extracted 2,780 lbs of honey with your Automatic Honey Extractor in 5½ hours and could have done the same this afternoon but let the boys go to the city to play a game of base ball. Have extracted 27,135 lbs. so far with good prospects for as much more. My bees and State work keep me very busy. Hope to see you before very long - will write you later.
 Yours truly, N. E. FRANCE,
 State Inspector of Apiaries,
 Platteville, Wisconsin.

We can also furnish choice queens, either golden or leather colored Italian, at 75 cents each, or two for \$1.40.

Van Allen & Williams,

6-98-tf. BARNUM, Wis.

UNION COMBINATION SAW.



For ripping, cross-cutting, mitering, tabbing, grooving, gaining, boring, scroll-sawing, edge molding, beading etc. Full line of foot and hand power machinery. Send for catalogue A. 1-99-12t

Seneca Falls Mfg. Co.
 48 Water St., Seneca Falls N. Y.

Free

A beautiful present with every order. The cheapest place in Mich. to buy supplies. Send for explanatory price-list. W. D. SOPER, Box 565 Jackson, Mich.

1-99-tf

The No-Drip Shipping Cases

Are what you need in marketing your honey. They are clean, neat and convenient, and a great help in making sales.

Root's goods at Root's prices. Cash paid for wax. We want your trade.

M. H. HUNT, Bell Branch, Mich.

Please mention the Review

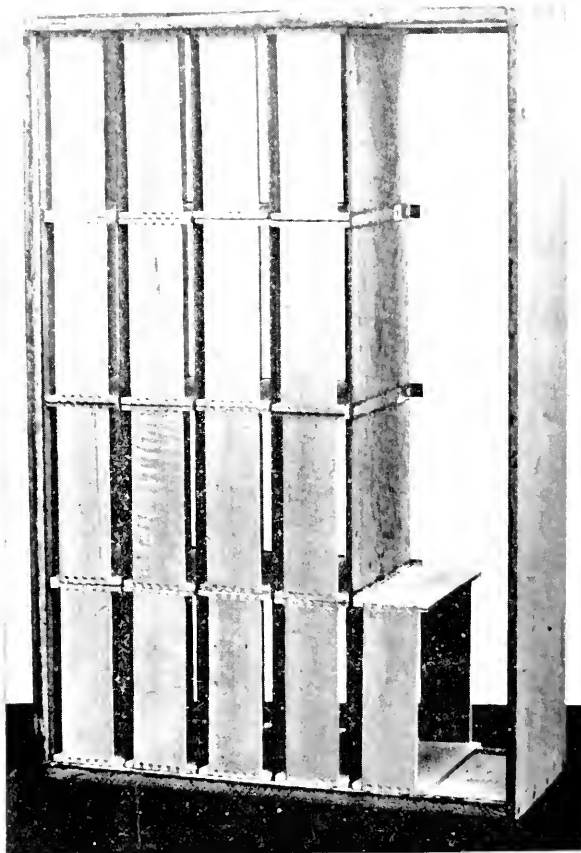
Farm Bee - Keeping

Is one of the leading departments in the *Modern Farmer and Busy Bee*, the best Farm and Bee paper in existence. Write for sample copy and for clubbing rates with any paper you want.

E. TAYLOR ABBOTT,
 St. Joe., Mo.

SPECIAL OFFER—The price of the Modern Farmer and the Busy Bee is \$1.00, but I will club it with the Review for only \$1.60.

W. Z. HUTCHINSON, Flint, Mich.



Sections Supported by the Separators.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL. XII. FLINT, MICHIGAN, FEBRUARY 10, 1899. NO 2.

A NEW SEPARATOR.

It is Simplicity Itself but it Holds up the Sections. A Novel Ear-trumpet.

JACOB ALPHAUGH.

ALTHOUGH I have been a comb honey producer for several years I have not been entirely satisfied with the supers in use. Section holders sag, upsetting the bee-spaces and causing crevices into which the bees shove their propolis. The old style of T tins leave a stain of propolis across the corner of each section. Both of these arrangements are expensive.

Finally I set to work and studied out the case and separator shown in the frontispiece for this month. I exhibited this super at the Guelph convention and the editor thought so highly of it that he asked permission to take it home and have a cut made from it; and requested me to write a short description of it.

In this super the sections rest upon tin projections attached to the sides of the separators, and the separators are supported by the projecting edges of strips of tin nailed to the lower edges of the ends of the supers. These strips of tin that are nailed to the end-pieces of the case

also support the outside corners of the end sections in each row.

In the illustration shown, one row of sections, one separator, and three sections from the next row have been removed. The pieces of tin that support the sections are $\frac{1}{2}$ inch wide, $1\frac{1}{2}$ inches long; $\frac{1}{4}$ inch at the bottom being turned out at right angles to catch and support the sections at their corners. One might think from looking at the picture that these strips of tin extended to the tops of the separators, but such is not the case; those streaks being caused by propolis, the separator having been in use. The strips of tin are fastened to the separator by cutting out a three-cornered piece on *two* sides, bending the piece at right angles, driving it through the separator and clinching it on the opposite side. The separators are countersunk where the tins go on, thus allowing the sections to come up snug against the separators.

The sections are supported upon one side only, but this is quite sufficient. To fill the super I begin at both sides and work towards the center. I start with a separator at each side, as I like to have a separator at the outside; then, when the super is full, I turn it upside down, and all will drop out clean—no sections will be broken from being attached to the

side of the super. With the size of super that I use, and with my management, there are six rows of sections and seven separators.

This super is no longer a theory with me, as I used some seventy of them last season, getting them well filled. This arrangement is very cheap and simple and does away with many of the objections to other styles of supers.

I winter my bees on their summer stands packed in forest leaves. I examined them all January 13, by listening at the entrance, and found them all alive, and the entrances very clean of dead bees. I have got tired of standing on my head to listen, which I have to do when the snow is deep, so I have devised an ear trumpet five feet long, with the ends funnel-shaped and bent in opposite directions. An old piece of hose-pipe can be used for the tube and something funnel-shaped attached to each end. I can stand erect, put one end of the trumpet to the hive entrance, the other end to my ear, and hear very distinctly what the bees are saying inside the hive.

GALT, Ontario, Jan. 14, 1899.



REMOVING BEES FROM THE CELLAR.

When to do it; How to do it; and Where to Place Them When They are out.

C. DAVENPORT.

BEE-KEEPING is said to have a peculiar fascination, possessed by few other pursuits; and perhaps at no time of the year is this fascination more manifest to us who reside in the North, and winter our bees in cellars, than at the time when we set them out on their summer stands. Especially is this true if they have wintered in good condition.

In this connection it may be said that there is some difference of opinion among practical bee-keepers as to the best time

to remove bees from cellars in the spring. Some, probably a large majority, believe it is better to wait until soft maples are in bloom; or even later, if the prospects for warm weather are not favorable. Others, among whom are, I believe, men of large experience, think it better to set them out on the first favorable day in March; asserting that these early flights are beneficial in many ways; that they largely prevent that dread of all Northern bee-keepers—spring dwindling. I have had a large experience in this matter, having for many years set out large numbers of colonies, both early and late, and my opinion is that "the best time" depends upon several conditions. If the bees have wintered well, so that they remain very quiet, almost dormant, in the spring, I believe it is better to wait until settled warm weather before removing them from the cellar. On the other hand, if the conditions have been such that early spring finds them very restless and uneasy, and many of them are leaving their hives and dying, my experience has been that the sooner they are set out the better. There is, however, more often, what might be called an intermediate condition between the two I have described; and, in this case, it is not easy to determine when to remove them; but my candid opinion is that, taking one year with another, in this locality, there is but little material difference whether they are set out in March or in April. Those set out early consume more stores; but, if there is no very severely cold weather after they are set out they will be enough stronger at the beginning of the white honey harvest to much more than offset the extra stores consumed. On the other hand, if there is very severe weather, especially if it comes after they have been out some time, they may be considerably weaker than those left in until later. The weather can not be foretold, however, and, as the chances here are just about even as to whether or not there will be any very cold weather after the first warm days in March, my practice has usually been to

set out a part of my colonies quite early, and to leave in a part until the prospects for settled warm weather are pretty well assured. Of course, the exact time may vary considerably with the difference in seasons.

There are, also, a number of other things that might have considerable influence as regards the best time to set out bees; but I will not take space to discuss them here; instead, I will pass on to another matter about which there is a difference of opinion; viz., if it makes any difference as to whether each colony is set upon the same stand that it occupied the previous fall. Where the hives set close together, and for any reason the colonies are all set out the same day, it is, I think, better to set each colony on the same stand that it occupied the previous season. When this is done there is less danger of the bees mixing up. There is no question but what a large number of bees remember their old stand. My practice, as a rule, is to set each colony upon its old stand. The hives are set in rows, and a permanent number is on each hive-body; and, by the way, it would be a very difficult matter for me to handle a large number of colonies unless the hives were numbered in the fall. I make a plot of the yard on a piece of smooth board, and, when setting bees out in the spring, I can, by glancing at this board, tell exactly the stand each hive was removed from in the fall. By this arrangement it is not much more work to give each colony its own stand than it would be to mix them all up. There are also other reasons why I prefer to have each colony occupy the same stand each season.

If no attention is paid to placing each hive upon the stand previously occupied, the hives being set out haphazard, a general mix up of bees, such as sometimes occurs, may be greatly lessened by smoking each colony just as it is removed from the cellar, keeping the entrance partly closed.

Sometime ago Mr. Doolittle described in one of our journals how he smoked

bees before their first flight in the spring; and I soon after received several letters from friends who keep bees, asking me if there was not great danger of injuring bees by smoking them after their long confinement and before their first flight. I have practiced this to some extent for ten years or more, and have never observed any ill effects whatever. Too much smoke, or an injudicious use of it, especially from a hot-blast smoker, may be injurious at any time. I much prefer a cold-blast smoker; but there are none of this kind on the market that are properly constructed.

In regard to the arrangement of hives in a yard, I have, of late, set mine just as close together as possible, and yet have it convenient to handle them. If not more than 150 hives are in one yard, I doubt whether they can be placed so close together that it will cause confusion, or bother the bees much to find their own entrances, even if the hives are all painted the same color, and are as near alike as machinery can make them. In some cases it is more convenient to have hives a considerable distance apart, yet, on the whole, it saves much work to have them close together.

When I began to set hives in such a compact mass as I do at present, precautions were taken to avoid as much as possible the loss of queens when returning from their mating trips. If a record is kept, it is an easy matter to know when to mark a hive for a queen in a case of swarming, or when a cell or a virgin queen is introduced, but in the many cases of supersedure that are liable to occur, it is hardly possible; and I expected a larger loss of queens on this account; and at a time when it would be difficult to replace them with queens of my own rearing; but I am glad to say that such losses did not occur to any noticeable extent.

While a still day may be preferable for setting bees out of a cellar, if the temperature is warm enough, I have failed to notice any injurious effects from a pretty stiff wind; and I am acquainted with a

bee-keeper who, although hardly up-to-date, has had a long experience with bees, and he *prefers* a windy day to set them out. With a good wind, he says they fly *closer to their hives*, and are less liable to mix up.

The last two years I have used, with much satisfaction, when moving colonies from the cellar, two yard-pieces of white cotton cloth folded to the right size to tuck in and close the entrance. These are kept wet, or damp, and I have found them far preferable to blocks of any kind. They remain in position and keep the entrance closed no matter how a hive is handled.

I keep the entrances contracted for some time in the spring; and perhaps some others who do so, and are, like myself, in a locality where there are often hard winds, may be interested in the way I do it. In this locality, blocks for contracting an entrance are useless. In such winds as we often have, when the blocks are most needed, they are blown out of position; and sometimes entirely off the hive. The method I use is very simple, yet I had kept bees for years, and given the matter much thought and study, and tried many different devices, before I thought of the one that I now use. It can be used on any hive that has no portico, or that has no strips on the bottom board that project beyond the front of the hive body. I take a piece of lath as long as the hive is wide, and close the entrance with it by holding it against it flatwise. I then drive three wire finishing nails in the bottom board in front and close up against the strip of lath. The two outside ones are driven about an inch and a half from the side edges of the bottom board, and the other near the center. The nails should be long enough so that the points will just about reach through the bottom-board, and still allow the heads to be above the lath; so that it can be slid back and forth to regulate the entrance to the size of the colony; or as the weather or occasion may require. If the nails are held right up close against the lath when they are driven, the lath

will always remain exactly where it is left. If the hive stays on its stand during warm weather, the nails can be left in place. The bees seem to enjoy climbing around on these nails. Of course, if it is desired to attach a queen-trap, the nails can be very easily removed; but it is not necessary to remove them in order to attach an entrance guard; as the nail heads will project up through the holes in the zinc. Care should be taken to select lath of the same thickness; so that each strip will fit any hive; as, in time, they become mixed up. Still, if the thickness does vary a little, the nails can be bent a little, and thus be made to hold the lath in place all right. In a determined attack by robbers it is also a pleasure to be able to contract or close the entrance and *know* that it will remain so. If the attack is severe enough to necessitate the entire closing of an entrance during warm weather, some provision must be made to admit air; and my practice in such cases is to remove the cover and replace it with a wire screen such as I use when hauling colonies. The cover is then placed over the screen, with sticks under it so as to allow the air to circulate. Robbers soon tire of such a fruitless task as will be any assault upon a hive fixed in this manner.

SOUTHERN MINN. Jan. 13, 1899.



SOME PERTINENCIES FROM RAMBLER.

Does Black Really Rouse the Ire of Bees?
Are they Affected by Objects in Motion?
Do they ever Collide on the Wing?

J. H. MARTIN.

I AM not sure that is worth while to write any thing further upon white vs. black clothing in the apiary, and to which the bee exhibits the greater animosity, but, as bee-keeping is largely made up of little things, a better understanding of these, and conforming to the best meth-

ods, leads to our comfort in handling bees.

When I work in the apiary I provide two suits of common, thin, cotton-check overalls and jumper, called an engineer's suit. I prefer these thin suits to the ordinary blue jean overalls; for when one suit gets sticky with honey, after a day's extracting, it can be dumped into a pail of water for a few hours, then wrung out and dried, and by alternating suits we always have a clean suit on. Bees hardly ever make an attack upon a *clean* suit of clothes of *any* color, but will do so upon a dirty suit; and the engineer suit is hardly ever attacked unless it gets unusually soiled; and then only under the arms, or up the sleeve, if the latter is left open for their ingress.

Now I warrant that if the bee-keeper would dress in a complete suit of black, but keep it clean, the bees would not be disposed to attack it. In fact, during the past summer, while living in the mountains, I have worn black cotton shirts, and many times I have handled bees without covering said shirt with my light colored jumper, and could see no difference in the temper of the bees. Then we all wear a black veil, or, at least, a veil with a black face, and the black portion is not molested any more than the other portions. But suppose the veil gets torn, and we pucker the rent with a pin, and make a fuzzy protuberance, every bee-keeper knows how rapidly and persistently that point will be attacked.

It is the same with a fuzzy hat, white or black; and a hole in a fuzzy hat is just what a bee delights to pounce upon. A good share of our dark clothing has a more or less fuzzy surface; and the more the fuzz, the more the bees cling to it; and when two or three bees discharge their poison on the same spot the odor brings many more.

Some one has cited an instance where the wrists are wound with white or black cloth; in either case I think that the bees attack the fuzzy edge of the cloth instead of the color.

I presume every bee-keeper while wearing coal black pants has had a bee crawl up his bare leg. Did you ever know the bee to prefer the black pants to the white leg? I know how to sympathize with you gentlemen; that bee sting is a conclusive argument.

I note in your December issue the description of the neatest apiary in Michigan. I confess that I have a weakness for neat, ornamental apiaries. My old apiary back East was almost as neat as Mr. Hunt's; and, while the hives did not have landscapes painted on them, the honey house was plentifully sprinkled with paintings of the high colored Italian bees. These bits of bright color were a great relief to the eye and the brain when tired with work. A bit of bright color in the shape of a rose, or geranium, or chrysanthemum has the same effect where they can be grown judiciously. It may not pay in dollars and cents; certainly would not where the owner sees more beauty in a pig sty than in a bit of bright color.

We have but few pretty apiaries in California; still, I believe there is no country where the chance is so good for making them so.

Mr. McIntyre has probably the most orderly apiary in Southern California; and it must have paid him in dollars and cents to have it so. Owing to the beautiful pictures it makes, it is the best advertised apiary in the country; for its picture is in every publication that desires to show a model California apiary. Publications do not illustrate old ram shackle apiaries. Let us study for neatness in the apiary.

There is another observation that comes to me, inspired by the flag in the centre of Mr. Hunt's apiary. The flag itself is a soul stirring object to the bee-keeper; but the idea of the effect on the bees is novel. If a flag really has that soothing effect, California bee-keepers better erect flags all around and through their apiaries.

After the close of the honey season our apiaries are visited only occasionally, for

several months, and the young bees are brought up in entire ignorance of life or motion among their hives. My own apiary was visited but once in seven months; and that one visit was made by a friend while I was 700 miles away. Upon my return the bees were evidently not used to motion, for my every move was watched, and a little too close approach to a hive was resented by scores of bees attacking my shins; and, eventually, my head. I notice that after a few days with them this pettishness on their part is not so noticeable. Interviews from so many bees is unpleasant; and I have a mind to plant a dozen flags. I fear that the nettlesomeness of our bees is caused in a great measure by skunks. To get rid of these varmints is the study of quite a number of our bee men.

I observe that there is not so much mystery surrounding the management of bees as there was a few years ago.

Quinby thought there was enough mystery within the walls of a hive to warrant his naming his book "The Mysteries of Bee-keeping." Later, the "Mystery" was dropped and "Guide" substituted. Though we think we know a great amount about the bee, there are still several little mysteries that trouble our thoughts as we work in the apiary.

Why is it that when you approach an apiary, or pass through it (it makes no difference how large or small the apiary is) only two or three bees will take upon themselves the duty of following you around the apiary? If you do not fight them there will hardly be more than the above number. Or a better test is to get to work at hive making or some light work some rods from the apiary. One or two bees will pester you. If you have a paddle and knock one down, and there is no scent from it, or if you knock all of them down, it will not take five minutes for their places to be filled by another two or three. When there might as well be a thousand after you, it is a mystery there is not.

I have also observed while stretched at full length upon my back in the apiary on a Sunday afternoon, directly under the grand highway of bees as they hurry to and from the apiary, that the air is full of dark lines showing their course of transit. It is a mystery that there are no collisions. While I have not seen a fatal head on collision, I believe there are many such collisions. I have observed two lines meet and then slightly diverge in slightly altered directions. This might happen in a wing collision. These little jolts are more numerous when the bees are coming in heavily laden. At such times bee-keepers have seen quite a number of bees crawling disabled on the ground with no apparent organic or muscular ailment. Now I suggest that these bees have been disabled in collisions. Then why are there no collisions when the bees are swarming? I think they do collide on the wing. All of the bees are loaded to repletion, and they fly with their abdomens hanging down more than usual, and there is no chance for a head on collision.

I have been trying to secure a photograph of bees in such a crowded state. I have not succeeded yet, but I am going to try again sometime. I point the camera upward and get the focus; then, after the photo is taken, enlarge it and see what I can see. I judge there will develop an occasional collision; if not, then the matter will still continue a mystery.

SHERMANTON, Calif., Jan. 8, 1890.



SELLING SECTIONS BY COUNT.

A Careful Consideration of its Advantages.

J. E. CRANE.

THAT our fathers should have sold their honey by weight is not surprising when they secured their honey in

boxes weighing from eight to twenty-five pounds; or in chunks cut from the top or sides of hives after the bees had been killed by the fumes of burning sulphur. It is not even surprising that we should still sell by weight, as it is easier for most persons to follow those who have gone before than to strike out in new paths for themselves. But that the bee-keeper who produces thousands of sections of honey, all of an exact size, and nearly the same weight, should sell by weight, while the one who buys of him sells by count, seems a little absurd.

Eggs are sold by count when, often, one will weigh twice as much as another. We might with reason say that it would be better if they were sold by weight; were it not that they are sold alike, by the farmer, the wholesale merchant, and retailer, by count, and will doubtless continue to be sold in the same way, for it is less trouble.

Suppose a farmer ships ten cases of eggs to market, stenciled in this way:—

50 doz.	75 lbs. net.
<i>From A. B. C.</i>	
<i>Yellow Shells.</i>	<i>Fresh.</i>

Now this farmer insists that his eggs shall be sold by weight; as his hens are of the best strain of Plymouth Rocks, and his eggs are larger by far than those sent to market by Mr. B. C. D., who keeps nothing but Brown Leghorns. Later, Mr. Jones, the groceryman, comes to Mr. Smith, the commission merchant, to buy eggs.

"Good morning, Mr. Smith."

"Good morning, Mr. Jones."

"Any fresh eggs to day?"

"Yes; ten cases just in from Scrabble hill. Let me show you."

"Yellow shelled and fresh; just what I want. How do you hold them?"

"Ten cents a pound. They are fine."
(Opens the case to show them.)

"Let's see; ten cents a pound. How many dozen did you say there are in the case, and how many pounds?"

Mr. Jones proceeds to do a little sum in arithmetic. He sells by the dozen.

$$\begin{array}{r}
 75 \text{ lbs.} \\
 \hline
 10 \\
 \hline
 50)7.50(15 \text{ cts.} \\
 \underline{50} \\
 250 \\
 \underline{250}
 \end{array}$$

"Yes, 15 cts. per dozen. I'll take them."

A somewhat awkward way of doing business and made still more so should it be necessary to buy at a lower figure, or the numbers produce fractions. And yet, that is exactly the way honey is sold; at least, most of it, in our city markets.

I do not know how many times wholesale dealers have told me that the first question the buyer asks is: "How many sections in a case, and how many pounds?" Not, "Are the sections white, or sand-papered," etc., but, "how many sections and how many pounds?" When the buyer finds out, he proceeds to figure it out; not with paper and pencil, perhaps, but in his head; that he may know what the price is per comb.

Now, what is to be gained by the honey producer still clinging to the practice of selling by weight? Is it that he fears his neighbor will produce a lighter comb of honey and get as much as he does? Or is it that he may put the very heavy with the very light, to even up and make them average about what is supposed to be wanted?

But most retail dealers want whatever they buy not to *average* about the same in each case, but to be *alike* as near as possible; so there will be no culls. Oranges should be the same size in the same case.

I do not know but I have told it before, but it is worth repeating. I heard a man who had had experience in selling apples in a large city market, say that, in packing, if the grower puts a small apple in a barrel of large ones it is a cull; but if all the small apples are put in a barrel by themselves they may all be No. 1's. So with our honey. I believe that where weights vary much, they should be in separate cases; so the buyer can get what he wants. Some will want heavy combs, and will be willing to pay a good price for them, while other dealers will have a class of customers that can pay only a low price, and will prefer the lighter combs for a little lower price.

Without doubt, selling honey by count would tend to the production of combs of more even weight than those at present produced. Some one may say that the light combs will sell for as much as the heavy ones, and selling by count will tend to reduce both the weight and the price. Perhaps; but I don't believe it.

I very little doubt that the lower price paid for light combs, when bought by the pound, has made a large demand for them.

It has been urged that consumers will buy a light comb as quickly as a heavier one, at the same price. I don't believe it. While in Washington, in December last, I saw two persons selling light-weight honey by the section. I bought one myself, for 15 cents, weight 14 ounces. Both comb and honey were white. In the same market I saw Mr. Danzenbaker deliver a case of mixed dark and white honey which he had sold at 15 cents per comb, by the case, without weighing it; but the combs were well finished and would weigh almost an exact pound each. This would be retailed at from 17 to 20 cents per comb.

I believe too much attention has been given to color at the expense of weights in the grading of honey; or, to put it in another way, too little attention has been given to having even weights in each case.

But how shall dealers know whether weights are light or heavy; sections full or half full? An easy matter I think. A pound section is the standard size from the Atlantic to the Pacific; from Manatoba to the Gulf; however it may vary in form. How easy then, if weights are very light, to mark with an X; if of medium weight, say 14 ounces, mark with X X; and, if full, or heavy, mark with X X X. Then both the wholesale and retail merchant would know at a glance just what to expect; and honey would sell on its merits, as well as now, and quite likely to the advantage of most bee-keepers.

MIDDLEBURY, Vt. Jan. 24, 1899.



HAS OUR CRITIC BEEN FAIR?

And Will you Please tell us the Average Length of the Breeding Season with Bees?

DR. C. C. MILLER.



In reply to a question in the American Bee Journal I said a good Italian queen might lay somewhere from 7 to 9 months in a year. Hon. R. L. Taylor asks, Review, 19, whether it is possible that at Ma-

renco queens sometimes get in nine months of labor in the year. He says his queens "can be relied on to lay only from April 10 to September 10—five months; although they frequently lay a little sooner and a little later, five and one half months would be a full average." (I can't help wondering what Bro. Taylor would have

said if some one else had made that remark. I fancy it would have been something like this: "If those queens can be relied on to lay only five months, then they can be relied on to stop at 5 months, and in that case how can it be possible for them to average 5½ months?"

There's a good deal of difference between an average of 5½ and an average of 8 months, and as my knowledge as to the length of time is acquired mostly second-hand, there is a possibility that I may be mistaken. If your statement had been made a year ago, Bro. Taylor, I should have felt pretty certain I was wrong in my answer; for I had such entire faith in your judgement and reliability that I would have taken your word as against the combined testimony of several others. I'm sorry to say I haven't that same faith now; indeed, have so little faith that I may be excused for some doubt as to the correctness of your statement about your own bees. My loss of faith comes from the fact that since you began the Department of Criticism you have committed so many errors that the Review, in order to keep up its character for reliability, should have had another department pointing out the errors in the Department of Criticism.

Let me give you an instance. On page 376 is an item headed "An error in the Reformed spelling," in which you refer to the word "mealy-moutht" in the American Bee Journal, and say, "I am not a competent judge of the reformed spelling, and so would inquire whether its rules permit the changing of final 'ed' into 't' when the sound to be indicated is that of 'd' in the word quoted." That is practically an unqualified assertion that the sound "d" is the final sound in the word "mouthed." If there is a single reputable dictionary that authorizes the sound of "t," then in all fairness you had no right to make that statement. People in general are not supposed to have more than one dictionary, and if I have a Webster and you have a Worcester, you have no right to hold up as an error anything of mine that does not

agree with Worcester unless you *know* that it isn't sanctioned by any reputable up-to-date dictionary. One good dictionary is enough for a writer, but not enough for any one who poses as a critic in such matters.

As to the last sound in the word "mouthed," Webster and Worcester agree on "d" as the correct thing. Century and Standard agree on "t."

Let me give another instance. You quoted me as using the phrase "bring it to a boil" (referring to foul-brood honey) and put the word "sic" after it, meaning, as I learned from you afterward, that you questioned the correctness of the word "boil." That was ignorance on your part, for "boil" in the sense in which I used it is a good English word, not given in an old edition of Webster that I have, but given as a straight English word in one of the best up-to-date dictionaries, the Standard. Not feeling sure to what you referred, I asked, and instead of saying to what you referred, thus exposing your ignorance, you evaded the matter by saying that I asked for the definition of "sic," and referred me to the dictionary, Review 342. I don't like to say that was dishonest, but if you desire to label it so I'll promise not to contradict you.

These are by no means the only instances, so I should like some further testimony before saying queens lay less than 7 to 9 months in the year. Mind you, I don't say for sure I'm right, but I'm not yet sure I'm wrong. Possibly you did not take into view that in answering the question it was for all the readers of the American Bee Journal; and not merely for the locality of either Lapeer or Marengo. Moreover it was for bees in general, and not for the minority that are cellared. I think it is not an uncommon thing for queens to begin laying in February. Dadant's Langstroth, page 511, says strong colonies begin to breed slightly in February. I think it is nothing so very remarkable to find queens laying in November, 9 months after February. My average of 8 months is probably nearer

the truth than your $5\frac{1}{2}$, but I shall be glad to make the correction if I find I am in error.

MARENGO, Ill. Jan. 27, 1899,



DEALING IN HONEY.

How to buy it, Prepare it for the Market,
and Secure its Sale by Grocerymen.

W. D. SOPER.

THE editor of the Review has asked me to give my experience in selling honey; so, for the benefit, and perhaps the amusement, of his readers, I will tell how I dispose of a good bit of honey each season. In fact, the people of Jackson have dubbed me the "honey man." Should any one wish to find me, just inquire at any grocery store in Jackson. Already, this season, I have purchased 15,000 pounds of honey; a part of which is in stock.

I start with my honey wagon as soon as cool weather comes, and fruit is out of the way. I carry both comb and extracted. The extracted is put up in one quart pails which weigh three pounds, pail included. These pails wholesale at twenty-five cents. I place my honey in the stores, telling each proprietor that if he does not sell it I will take it away. I found very few places that I had to take it away. The next week I drive around again, get my pay for what has been sold, and leave more. Some accounts I trade out—but not very often. This is the way I manage with the small, outside grocers; the large principal stores pay cash. I always try to have an extra nice article for the hotels.

For the pails I use a honey label which reads: "Warranted Pure Honey. W. D. Soper, Jackson, Mich." On the opposite side of the pail is a label which reads:

"The Honey Contained in this Package is Absolutely pure and Unadulterated, and Complies with the Pure Food Laws of the State of Michigan." I always see that the stores are supplied with comb honey the year around.

I always buy direct from bee-keepers, usually taking a man's entire crop. I pay an average price for both white and dark; and specify *always*, that the honey shall run alike all through the cases; not be faced. There is nothing so annoying as to sell a case of honey, and, on its being opened, to find all kinds of stuff; that is, sections not properly filled, dark honey, etc. I don't wish to be obliged to open every case at the store, when I have so many with me, and I always sell according to the looks through the glass, and guarantee it to be all alike. I always send grading rules to the bee-keeper of whom I buy; and if I receive poor honey he has to look elsewhere to sell his honey next year. Any one who will take the trouble to *think*, will, I know, bear me out in the stand I have taken in regard to facing honey. Honesty and reliability, with a good deal of energy, will sell large quantities of honey; and if one hasn't these requirements, especially *energy*, there may be failure. We have to meet the ever present cry of mixture and adulteration; and the denseness of some people in regard to candied honey would fill a book. Why, one woman threw her honey away because she found it candied. She thought it had been "mixed;" and I suppose no amount of arguing would convince her to the contrary. Another time, the hired girl thought the candied honey was *lard*; and took it to make her pie crust. I leave the rest to your imagination.

JACKSON, Mich., Dec. 13, 1898.

[Friend Soper, you ought to have one more label on your honey-pails; and that is, one explaining in regard to the candying of honey and how to liquefy it. Unless I am greatly mistaken, the A. I. Root Co. keeps in stock a label of this kind, gummed already for use.—ED.]



Department of Criticism

R. L. TAYLOR.

Blame where you must, be candid where you can,
And be each critic the Good-natured Man.

GOLDSMITH.

HASTY AND ILL-CONSIDERED JUDGMENT
—SOME WELL CONSIDERED FACTS
REGARDING THE BOILING OF
FOUL BROODY HONEY.

The time is still within the memory of many of us when the scientists had a discussion on the then newly re-opened question of spontaneous generation. Glass flasks in great numbers containing suitable organic matter were boiled and then sealed and set aside to determine whether dead matter would produce life; or, in other words, whether there were such a thing as spontaneous generation. This was all done by trained scientific men; yet results so differed for a time these learned men divided upon the question; one party contending that they had conclusively proved by most carefully conducted tests that life sprung afresh in matter from which all life had been removed and excluded; and that, therefore, spontaneous generation was a fact. The other party insisted with equal earnestness that it was impossible; as their numerous experiments attested. So the battle royal waxed hotter. New and ingenious tests were invented; and, at last, it came out that the party who had championed spontaneous generation, scientific men as they were, had not exercised sufficient care, in making their tests, to prevent the ingress of life from outside their flasks; and, consequently, had deluded themselves.

Now there is a question, not of spontaneous generation of foul brood, but whether fifteen minutes boiling of the germs of foul brood in honey will destroy

their vitality or not. It has been demonstrated, almost universally, that such boilings will destroy the germs. I might have said universally, without qualifications, had it not been for a case I am about to mention. Time and time again, by divers individuals in actual practice, has it been proved that such boiling renders foul brood germs innocuous to bees. It is to be observed, too, that this is not negative evidence, but positive; *i. e.*, the feeding of foul broody honey, so boiled, to bees, without conveying the disease, proves that such boiling destroys the vitality of the foul brood germs; while, if after a case of such feeding, the colony fed contracted the disease, it would not disprove what the other case proved; but only that the colony had in some way become affected with vital germs of the disease. In what way would be another question.

I have just intimated that, hitherto, all who have had to deal practically with foul brood have agreed that fifteen minutes boiling of honey containing foul brood germs would destroy their vitality; and foremost among these has been the editor of *Gleanings* who has not even insisted that fifteen minutes were required, but has taught that a "few minutes" were sufficient. Now comes J. A. Buchanan, who boiled some foul honey ten minutes and fed it to bees with the result that they were "soon rotten with foul brood" (*Gleanings*, 48); and, forthwith, the editor makes haste, without raising any question of skill or care, on the evidence of this single case, to recant his former opinion; and declares, after referring to Dr. Miller and his citations of scientists who have boiled their cultures of foul brood, "I believe one will be taking risks if he feeds such honey if it has been boiled for less than *three* hours." He even goes so far as to say "I feel just a little chagrined for the part I have borne in insisting that a few minute's boiling was sufficient." Why chagrined? Was he not following the evidence of his own senses—evidence a thousand times better

than that drawn from some case of which nothing is known concerning the care or skill used? In conclusion, referring to Mr. Buchanan's report, he says "This article, it seems to me, ought to be scattered far and wide, for it is high time we were unlearning some of our old knowledge on the question of foul brood." With all kindness, and Christian spirit, and in the interest of truth, I must say that all this does not seem to me to be either science or sound sense. How different is the scientific attitude, as shown in the American Bee Journal, page 18, where Prof. A. J. Cook says "I referred above to certain acorn-infesting larvæ that secrete nectar. I have never seen them, but have often heard of such—principally from Missouri—so often that I think they may be more than a myth. Yet, I am free to say that I should feel more certain if I actually saw them. I can see how oak-tree plant-lice, which are by no means rare, might lead to an erroneous conclusion."

But, to return to Mr. Buchanan. When, as we have seen, several of the leading scientific men of Europe deceived themselves in the matter of spontaneous generation, by lack of care in their experiments, what is there about Mr. Buchanan's report that we shall accept his conclusion in the matter with such utter credulity; seeing also that his supposed experience is directly opposed to the experience of all others who have dealt with foul-broody honey in connection with bees? *Want of care could not have brought the experience of the latter; but it easily might have caused that of Mr. Buchanan.* These are some of the ways in which a person might fail in such a case: Allowing the honey when poured into the vessel over the fire to spatter up on the sides above where the boiling honey would reach; allowing scum or froth to gather and remain above that point; using a stick or dipper at the first in the liquid and then laying it out and using it again after the boiling; or rinsing out the cans, which had contained the honey, with the liquid at or

near the time when the boiling had ceased. Then he says the colonies fed were "*soon rotten* with foul brood." So much foul brood, so soon, is so diametrically opposed to all other experience in such matters, that I cannot do otherwise than pronounce it utterly incredible that due care was taken in the boiling.

As I said, the editor leans, for partial support, upon Dr. Miller's allusions to the results obtained by certain scientists with their foul brood cultures. The doctor has said many things about these results, but he has no where suggested any reasons going to show that the effect on foul brood germs boiled in honey ought to be the same as that resulting from boiling them in a culture in a vial. To me it has always seemed that the results ought to be quite different. Honey retains its heat a long time after it ceases to boil. It is itself a disinfectant. I do not know the exact temperature at which honey boils, but I take it that it requires a considerably higher temperature than does water. Water boils at about 212° , at the level of the sea. At so moderate an elevation as this here at my house, pure, free (*i. e.*, unconfined) water can never be brought to the temperature of 212° . This is so because the pressure of the atmosphere is less here than at the sea level. But it appears that the pressure may be in the weight of the liquid as well as in the atmosphere; for, if salt is added to the water, and allowed to dissolve, the specific gravity of the liquid is increased and a higher temperature is required to make it boil. The addition of sugar or honey would no doubt produce the same effect. The specific gravity of honey is much greater than that of water. A table I have consulted puts it at 1.456. If I am correct, then a much higher temperature is required to cause boiling in honey than in water. With my present light, these reasons appear to me an abundant warrant for saying that the experiments of the scientists are not applicable. I know there is no *certain* relation between specific gravity and the

boiling point; but it behooves those who would teach that because boiling a culture of foul brood fifteen minutes does not destroy the germs they would not therefore be destroyed by fifteen minutes boiling in honey, to first show that the conditions are the same; since it is well known that the boiling points of liquids vary widely.

Another case of ill-considered change of opinion, as it seems to me, is chargeably to the same esteemed friend; and that is in the matter that has recently been discussed concerning the hostility of bees to dark colors. Formerly he held that there was no such hostility; but a few "reports" came in, which, in so far as they went, at least, had no foundation in sound reason, so far as I could discern, and our good friend is found on the other side of that question. The cause of truth is advanced by careful, cautious, sober loyalty to it.

There is another item—a small matter, but in the same general line. Mr. Dadant, in speaking of his large hives, said that they would cost about twice as much as the small ones; whereupon Mr. Calvert makes out an estimate showing that they would cost but 40 to 50 per cent. more. Then the editor (*Gleanings*, 9) remarks "It shows that you [Mr. Dadant] meant to be entirely fair." Of course, no one suspects Mr. Dadant of ever meaning to be unfair. But it seems strange to me that he should be commended for fairness on account of a case in which he made a statement that was manifestly *not* fair, if Mr. Calvert's estimate was correct, as it undoubtedly was. An injurious statement about a hive one favors is even more liable to injury than one about a hive one opposes.

IS THERE ANY OBJECTION TO PLAIN, HONEST, STRAIGHT-FORWARD, OUT-SPOKEN LANGUAGE?

Sonnambulist (*Progressive Bee-keeper*, page 332, for 1895) reads me a lecture on some of my past criticisms; and begins by asking "R. L., are you really

more than mortal, that you do not usually value compliments very highly? or have you lost faith in mankind? If so, why so?" Wake up, Sommy, and read all I said. Did I not clearly intimate that I received comfort from compliments that bore the stamp of genuineness? You must admit there are a good many counterfeits—more counterfeits than real, indeed. I do not value such very highly. Do you Sommy? that is, when you are wide awake? Nor have I lost faith in mankind—the difficulty is to reach, *i. e.*, to find mankind. Have you never heard that language is used to conceal thought? Like the nets that have been used about war vessels, as a protection against torpedos, language is thrown around man to prevent intimate contact. It takes a long, long time, sometimes, to get acquainted. Genuine, honest, plain talk is not liked by most; they cannot bear it. They like it colored, or clouded, or honeyed. The leaders frown on it sometimes. They like truth, at least partially draped, so no one will be shocked; and no one's feelings hurt. Why, only the other day, I read this in *Gleanings*, 21, "I always believed in fair honest criticism, even to the extent of plain talk, when the exigencies call for it; but this latter should always be used sparingly." Isn't it true, Sommy, that that substantiates all I have said? Can there be fair, honest criticism without plain talk? And if plain talk is the essence of honest criticism, why in the name of honesty should it always be used sparingly? No, I haven't lost faith in humanity; but I would like to get the screen away. And then, Sommy, don't you think there should be a distinction made between plain language and personal and abusive language? For instance, such language as you find in *Gleanings*, 19, where one writer says of another, "He certainly doesn't know what he is talking about. One would naturally suppose by reading his letter that he was a large land-owner, with cattle on a thousand hills, and that sweet-clover had become a great nuisance to

him; when the facts of the case are he doesn't own a foot of land, but he rents just one acre." "There is no sweet-clover in this country to speak of. I will agree to wheel all there is within ten miles of Mr. Sawyer's lot on a daisy wheel-barrow and I don't think it would make a load . . . and what in the world ever made him slop over in that kind of a way I don't know." Doesn't it seem to make quite a difference whose ox is gored?

Then, Sommy, you say you enjoy this department, but that you have a fear that some practical bee-keepers may be deterred from publishing their ideas for fear of criticism of their language. Why, Sommy, have you seen anything to indicate that I am anything but tender with the lambs of the flock? Then you fall in with the expression that it would be better to criticise ideas than language. But then there seems to be an idea, or was, at least, that we were so callow that it would be better for us to be dosed with baby-talk, instead of feeding us on good brawny English. Was that an idea to be criticised or not? But I am in a hurry now. Good by, Sommy.

The Boiler in the American Bee Journal, 42, says "In opposition to the views of Editor Hutchinson, who says queens are the least expensive part of a colony . . . C. P. Dadant in Gleanings is emphatic in the assertion that in the Spring the queens are the part of most especial value." Why jumble language, brethren? Isn't the common air always of "most especial value," and yet, isn't it the least expensive?

LARGE QUEEN CELLS DO NOT INCREASE THE SIZE OF THE QUEENS.

In a foot note the editor of Gleanings (page 15) says "I am inclined to think there may be something in the idea of large cells producing large queens." Haven't we been all over that matter in the case of workers, and decided that there was nothing in it? And if nothing in the case of workers, are not the rea-

sons stronger against it in the case of queens?

A CORRECTION AND APOLOGY.

Sometime since I questioned, inferentially, the spelling of mealy-mouthed by the new method. In a private note editor York informs me that he has good authority for his spelling. Though I have not had an opportunity to examine the matter fully, I have done so sufficiently to know that he is correct. I owe him an apology, which is hereby tendered.

LAPEER, Mich, Jan. 31, 1899.



EDITORIAL offerings.

GLEANINGS has added a new department called "Pickings From our Neighbor's Fields." It is to be presided over by Mr. W. P. Root, Gleaning's proof reader; and the first installment shows most conclusively that he is "the right man in the right place."

CAPPINGS of the very whitest are secured by Mr. Shaver of Canada, by allowing no sections to be capped above old brood combs. Colonies with old combs are allowed to build combs and fill them, but, as the capping process is begun, the super is transferred to a colony of the current year.

HONEY LEAFLETS gotten up by the A. I. Root Co., have not been so successful as it was hoped they would be in building up local markets. When I saw in Gleanings the heading to the article in which this fact was stated, I thought about them, "No wonder; they are too cheap looking affairs." As I read down the column I was agreeably surprised to find that the editor took the same view that I did. He thought they better be printed on a fine

grade of paper, bound with a tinted cover, decorated in colors, and embellished with striking and interesting pictures. Yes, and I would say, have the matter re-written. There is too much of it. The honey leaflet to help the sale of honey is yet to be written and printed.

THE AMERICAN BEE JOURNAL began the year with a new dress of type and a number of little nicknacks that add to the beauty of its personal appearance. By the way, this journal recently printed 15,000 copies; the extra copies to be used as samples. This is probably the largest single issue of any bee journal that has ever been printed in this country.

THE WAX RENDERING article of Mr. Beckwith that appeared in the Review for January, along with an editorial on the same subject, has brought out a large amount of correspondence. There is not room for any of it in this issue of the Review, but it looks now as though the March Review would be almost a special number on wax rendering. If anyone else has anything to say on the subject, now is the time.

IMPROVEMENT seems to be the order of the day with our bee journals. In another place I have noticed the improvements made in the American Bee Journal. Gleanings also calls attention to the improvements that appear in some of its exchanges. There is something attractive about a neatly gotten up journal; just as there is about a well dressed person. A journal that is poorly printed, from old type, on a cheap grade of paper, and no taste exercised in its "make up," stands no show whatever with a journal that is gotten up in the style that characterizes the leading bee journals of to day. Let no man start a new bee journal with any hope of success unless he can make it as neat, at least, as the ones

that are now being published. Yes, he must go even further; as the friendship between an old established journal and its readers is very strong, and, to win them away, something considerably better must be offered them.

TRAVEL-STAIN, according to the generally accepted idea, is a soiling of the surface of the combs by the bees running over the combs with dirty feet. To prevent travel-stain, honey is often removed as soon as capped. Mr. J. E. Crane, in Gleanings, shows quite conclusively that the so-called travel-stain is not simply a discoloration of the surface of the comb, but that this color extends through and through the cappings; being as apparent upon the inner surface as upon the outer surface. It is composed of propolis, and bits of wax from old combs; perhaps from the cappings of cells from which young bees have hatched. The fact that the whitest cappings upon sections can be secured over colonies having new brood combs goes to show the correctness of Mr. Crane's position.

HIVES THAT ARE UNWIELDY.

In this discussion upon hives, there is one more thing we ought not to overlook; and that is the advantage of light, readily-movable hives. With our modern knowledge and advanced methods there are so many short cuts that can be taken by handling hives instead of combs. Take the Heddon method of preventing after-swarming, for instance, in which the old hive is carried to a new location; or the hiving of a swarm by allowing it to return to the old stand; or the uniting of colonies. At the late Michigan State convention I heard my good friend Geo. E. Hilton explain how he managed all these manipulations—it was by carrying the *combs and bees*. If it became desirable to move a colony to a new stand, it was necessary to take out the combs and ad-

hering bees, carry them to a new location, and put them in a new hive. Once a hive was placed, there it sat for good and all. Honestly, it fairly makes me ache to think of managing an apiary upon this plan.

"GOOD THINGS from other journals" is to be the name of a new department that the Review expects to inaugurate with the next issue. In one sense it is to take the place of Hasty's "View of Current Bee Writings." Mr. Taylor points out the faults of other bee papers, and, in order to round out the Review, and make of it a well balanced journal, it ought to set forth the good things. To be sure, the editor himself might do all of this work of selecting the good things, also that of criticising, and the pointing out of errors, and so he does, to a certain extent, in the Editorial and Extracted Departments, but by bringing in the assistance of other minds the Review is thereby broadened. Who is to preside over this new Department? Oh, that's to be a secret—until next month.

IS EXTRA PROLIFICNESS IN A QUEEN DESIRABLE?

Perhaps enough space has been used in this issue upon the subject of the size of hives, but there is one point touched upon by Mr. Dadant in one of the articles that appear in the Extracted Department, about which I wish to say a few words; and that is the prolificness of queens. Those favoring large hives say that we small hive men never know which are our most prolific queens, as our hives are so small that any ordinary queen can fill the combs with eggs; (true) and, not knowing which are our most prolific queens, we can not choose them to rear queens from. True again; but there is no object, to us, in breeding for prolificness. Our hives are of such a size that we do not need to pay any attention to the prolificness of our queens. Ordinarily

prolific queens always fill with eggs the number of combs that we give them. To the man who is always trying to get as much work as possible out of a queen, who is always giving her just a few more combs, fearing that she may be cramped for room, to him, prolificness may mean something. But why work in this way? Why strain every nerve to get as much as possible out of one queen, when we can have just as many queens as we wish, simply by letting the bees rear them—by saving one-half the number that they naturally rear?

In this connection there is still another point claimed by some; viz, that prolificness, or quantity, is at the expense of quality. I know nothing whatever as to the soundness of this view, as applied to this case, but, if any of my readers do, the columns of the Review are open for them to tell what they know.

MICHIGAN BEE-KEEPERS WORKING FOR A REVISION OF THEIR FOUL BROOD LAW.

At the last two meetings of the Michigan State Bee-Keepers' Association, the needed revision of the State foul brood laws has received unanimous endorsement. The old law was passed at a time when burning up the infected colonies seemed to be the most sensible thing to do. We now know that there is no necessity for this; but, according to law, that is the only lawful thing to do. It not only has the objection mentioned, but it is cumbersome and full of perplexing provisions that tend to discourage its enforcement.

A bill has now been introduced in the legislature to repeal this law and enact one similar to that in Wisconsin; which the Inspector of apiaries in Canada pronounces as perfect; and under which Mr. France is doing most efficient work. If the legislature thoroughly understands the matter, knows how badly the law is needed, and why it is needed, there is no doubt of its passage. It is the business of the bee-keep-

ers of the State to inform the legislature in regard to the matter. If each bee-keeper who reads this will write to his member in the legislature, and fully set forth the reasons why the law ought to be passed, it will be passed. Don't think that because there is now no foul brood in your apiary, nor near you, that there never will be; and the sooner we have this law, and an Inspector to look after the matter, the less likely is it that it will appear in your yard. Simply write to your member and explain to him the contagious, infectious character of the disease. How it finally destroys an apiary; but that is not the worst of it; bees from other apiaries rob out the depopulated hives and thus carry home the seeds of the disease to destroy another apiary; and thus it continues to spread from apiary to apiary, unless it is checked. Call his attention to the fact that it is not the bee-keeper alone that suffers, but that the fruit grower and the horticulturist need the bees to fertilize the blossoms and thus cause them to bring forth fruits in abundance. Don't get up any petitions. Simply write a personal letter to your member, and it will be read and considered, while a petition will simply be tucked away in a pigeon hole.

Friends, I beg of you, do not neglect this matter. It is important.

BEE-KEEPING AS A BUSINESS.

In the query department of the American Bee Journal, the "Senators," as Bro. Hasty used to call them, give their views upon this important question, viz., is it safe to depend upon honey producing alone for a livelihood? The answers vary greatly. Some say "yes;" others "no." I think Dadant's reply a good one. It says "Yes, provided you do not keep less than 300 to 500 colonies." This is an important point, and one frequently overlooked. If a man keeps only enough bees to support him in a good season, or, possibly, in an ordinary season, and then comes a succession of poor seasons, some other business must be add-

ed to the bee-keeping. The best thing to add is some more bee-keeping; but, strange as it may seem, few seem to look at it in that light. Men who have gone into bee-keeping extensively, establishing out-apiaries, and managing their business as a *business*, instead of merely a pastime, have, as a rule, succeeded. One or two good years with a *large quantity of bees*, enables the owner to lay up enough to tide him over several years of poor or indifferent crops. The trouble with a small number of colonies is that not enough honey is secured, even in good years, to enable the owner to put money in the bank. Let me cite the case of my neighbor Koepen, to whom I have frequently referred. He is a young man, and has, for several years; kept somewhere about 300 colonies; having them scattered about in several apiaries. This tends greatly to the securing of a crop each year; as localities differ greatly even when only a few miles apart. In an average, or even a poor year, he has gotten enough to "make a living;" and when one good year follows another, as it has recently with him, he gets 40,000 pounds of white comb honey in the two years, and can—well, he has bought him a house and lot here in town and married him a wife.

Mr. Doolittle says that "he is making a living from bee-keeping, and what he can do any one else can do." It is very seldom that I disagree with Mr. Doolittle, but I must this time. In bee-keeping, as with most of occupations, the *man* is the main factor. Then there is the question of adaptability. Some men would build up a magnificent business in bee-keeping where others would fail. I think Mr. R. L. Taylor gets it about right on this point. He says: "No, not any one, but any one who has a taste for it, and who is able-bodied, active and skillful withal."

Then there is the question of locality, upon which several touch. There are localities so poor, that is, lacking in honey producing flora, or, from some other cause, so unsuitable that it would be folly to attempt the keeping of bees as a busi-

ness. Any man who expected to depend upon bee-keeping alone for his living would certainly see to it that the locality chosen was one possessing at least ordinarily good characteristics.

If the circumstances are right, it is safe for a man to make bee-keeping his sole business; but this isn't saying that no one except the specialist can keep bees to advantage.

EXTRACTED.

THE SIZE OF HIVES.

Some Pertinent, Interesting and Well Considered Views of the Veterans.

This question of the size of hives is an old one, but it is still very lively. It may seem stale to some, but it is really a very important question. It is so important that I am going to give more space in the Extracted Department this month than I have ever given before, in order that I may lay fairly before my readers the views of good men on this subject. First I will give an extract from the American Bee Journal, in which a Mr. E. W. Brown asks some very pertinent questions, and receives very fair answers from my good friend C. P. Dadant of Illinois. Here is the article:—

The following letter, which was sent to the Editor of the American Bee Journal, is referred to me for reply:

EDITOR YORK:—I think that many who are trying to solve the hive question will be misled by Mr. Dadant's articles on the proper (?) size of hives. It should be remembered that Mr. Dadant is an extracted-honey man. I have looked in vain through his writings for his emphatic advice to use just as large a hive for comb honey as extracted.

I wish Mr. Dadant would answer this question: Do you advise just as large a hive for comb as for extracted honey?

Until I became a specialist, about two years ago, I used the ten-frame Langstroth size, exclusively. After trying 8-frame and 10-frame hives in the same yard, I have come to the conclusion that I can get more comb honey per brood-comb with the smaller hive, and have fewer unfinished sections.

I now think that those "who make their bread and butter by producing honey to spread upon the bread and butter of others," should figure their production at so much per comb, and not so much per queen.

After everything has been considered I think it will stand about this way: If you have nothing but the care of your bees to take up your time you will probably make more money with a small hive. If you have a farm to work, you would better use a larger hive.

Yours truly, E. W. BROWN.

I would very much dislike to mislead anyone, in whatever I write on bee-culture, but most especially on the hive-question, which, as is well known, we have tried to avoid, as it has been so often rehearsed and discussed that the subject has become stale to us. But it appears that, as others find that we succeed with a large hive, and hear that we prefer it to others, and have good reasons for so doing outside of our practical experience, they make inquiries about it, and this is why I have been requested to write a series of articles on the subject in Gleanings. So, if the subject proves worthless, and our experience proves injurious to the bee-keeping public, we will not feel as deserving of any blame.

I am very free to say that we are not at present comb-honey producers. All the comb honey that is produced in our apiaries is produced by our boys, for their own pleasure, on one, two or three hives, every season, and I notice that they take particular pains to select a very powerful colony in every case. But we *have been* comb-honey producers, and would be yet if we could get more than twice as much for comb honey as extracted. But as long as we can sell extracted honey as freely for three fifths to two-thirds of the price we would get for comb, we will probably produce extracted honey.

The experience of Mr. Brown we notice to be similar to that of many others. They try a small hive—the 10-frame hive—and finally change to something still smaller. We tried the 10-frame Langstroth hive with something still larger, and changed to the latter.

I have often noticed that the supporters of small hives agree that the large hive may be good for extracted honey, but is not suitable for comb honey; but I have never seen any one give a single reason for making this difference. The only attempt I have met to an explanation of the difference, is in an article by G. M. Doolittle, in Gleanings, in which Mr. Doolittle says:

"If the queen has all the vacant cell-room her prolificness requires, more room is only a damage to our crop of comb honey, for in the finding

of vacant cells in the brood-chamber at the beginning of the honey harvest, comes an 'accusation' to the brood-chamber for storing honey, instead of the sections, and thus the queen is crowded upon with honey, instead of said honey going into the sections," etc.

That is, if there is honey produced, with a large hive and not a very prolific queen, and there is plenty of room in the brood chamber, this honey will be stored in the brood chamber. This is just our experience, and when producing comb honey with large hives, we would do as some of the large producers of the East are doing, so I am told, who have nothing to say publicly, though they quietly work and produce tons and tons of honey, by simply reducing the number of combs, just at the opening of the crop, to the exact number that are covered by the brood, which just as efficiently forces the bees into the supers as if a very powerful colony had been placed in a small hive.

When we produced comb honey, let it be remembered, we were already using the large hives, and we did not practice the above-mentioned method, which I am told is so very successful with men like Elwood; and the result was, with us, that we always had too much honey in the brood-combs for winter, and we were in the habit of extracting it; but I wish to emphasize the fact, that, side by side with smaller hives, our colonies were, on the average, ahead of the others, just that quantity of honey which we were able to take from the brood-combs.

Now, please bear in mind that our experiments were not based upon a hive or two, or upon one year or two, but that we have had as many as a hundred hives of one style, while we had two or three hundred of the other style, for years. It has always been a wonder to me, how comb-honey producers could do without an extractor, and this owing to the fact that in large hives, we always had some that had more honey in the brood-combs than they needed for winter when producing comb-honey. The Elwood plan would have done away with this, and would have forced the bees to put that honey in the supers, since the hive, in cases where the queen lacked in prolificness would have been reduced or kept down to a size proportionate to the strength of the colony.

Now, please do not accuse us of saying that, with comb-honey production in large hives, you will have no swarms. We do not even say that, of our own methods, with extracted-honey production. But we do say, and we know every man who tries it will acknowledge, there will be less swarms, many of the colonies will be stronger, and the production of

honey, on the average, considerably greater, since there will be a greater average production of bees in the hive.

Mr. Brown says: "If you have nothing but the care of your bees to take up your time, you will probably make more money with a small hive. If you have a farm to work, you would better use a large hive." But he does not tell us why. When some of our bee-men discuss the hive question, they seem to take it for granted that the small-hive bee-keeper has all the colonies he can manage at the opening of spring, and that it is of little import whether all his queens have all the room they need. Mr. Hutchinson says, "Queens cost nothing." We can't take it from that point of view. Queens, to us in early spring, are the most expensive part of a colony, and we want each queen, in every one of our colonies in early spring, to have all the room she needs. If we have 80 colonies in one apiary, we want each one of those 80 queens to have the very best chance possible to display its powers, and we consider that the cost of the hive, which has to be replaced only once in about 30 years, is the smallest item of expense. The interest on the money-cost of a large hive, as compared with that of a small hive, is not to exceed 2 cents per year. This represents a necessary production of only about one or two pounds of honey more each year; and when we consider that a large hive may be made as small, by a division-board, as the smallest hives in the land, and can still, at a moment's notice, accommodate the very best colony in the country, with increased facilities for manipulation, we can but shrug our shoulders at the idea of any return to small hives, even if we desired to return to comb-honey production. Does this answer Mr. Brown's question?

Now, Mr. Editor, I sometimes think that it looks as if we had an ax to grind on large hives, but we have no patent, never did have, and don't care—no, not a copper cent—whether any one tries our methods or not. We know that it takes more of a bee-keeper to manage the large hives than the small ones, and therefore have no hesitancy in referring bee-keepers to the warning I gave some time ago, on trying new things, though ours is not a new thing, neither is it our own idea, but only a putting in practice of the ideas advanced by masters in the art long before us.

And as to the pride we might take in creating a larger following among the bee-keepers of the land, we are past that, too, for we have pupils and followers of

whom we can well be proud, all over Europe and America, northern and southern.

There are several points in the foregoing that I wish to notice, but before doing so I will give some more of Mr. Dadant's views as they appear in the following copied from Gleanings.

Now, Mr. Editor, I wish to mention the most weighty objection to large hives; and that is Doolittle's remark that, if too much room is given, or the queen does not fill all the breeding space, the bees will become accustomed to putting honey into the brood chamber and will crowd her out.

Please take notice that this is only a comb-honey objection. Those who support small hives seem now to hold that they are needed for comb honey only, and Hutchinson has lately said (and I take note of it), that "for extracted honey the size of hive matters little *provided it is large enough*" (italics mine). This is virtually acknowledging that the large hive is absolutely necessary to raise extracted honey. Now when you rear comb honey, according to those who do not agree with me as to size of hives, it is necessary to keep the queen on only the number of combs that she can well fill with brood, in order to get a good storing in the supers. Very well; we are agreed, and I hold that this can be done with the large hive best, since it will accommodate from the most prolific to the poorest breeder. All it requires is a little attention, and you have the advantage of knowing the capacity of your queens and the chance of breeding from the most prolific. Is this too much trouble? It is a little more labor, and requires a little more judgment; but when you once have a populous colony it will be much easier to keep it strong in a large hive than in a small one, as I have shown you when speaking of wintering and breeding.

In some of your remarks in a previous article you ask whether it is not a great deal of trouble to add one comb at a time to the space of a colony. It is not absolutely indispensable to add only one at a time, and you may add two or three according to your opinion of the probable prolificness of the queen. One or two examinations during the spring ought to be sufficient.

Hutchinson has said, and still repeats, that queens are the least expensive part of a colony, and that it is better to keep all the hives and combs fully occupied than to use the queens to their greatest

capacity. To us, in early spring, the number of queens on hand is the most important question; for we then nearly always have empty combs and queenless colonies; and I dare say that every bee-keeper has more hives and sets of combs on hand in spring than he has queens, and he is very well satisfied, and considers himself very successful if every hive is alive and every hive has a queen after winter. So it is the queens, *the queens*, that have the value to the apiarist after winter, and it is *what the queens are likely to do* that makes his prospect better or worse. That is why we want our queens, all of them, to do all they can for a large production of population, and we are quite willing to run the risk of having to remove a few combs from the brood-chamber, if comb honey is wanted, when the queen is not able to fill all, especially as those combs, at that time, need not be idle long, for they are needed for whatever increase is wanted or expected.

By giving *all our queens* the room they need, we achieve what we consider the most desirable aim—get the greatest possible number of bees from the number of colonies we have, in time for the harvest.

And, by the way, I have re-read my last article on the disadvantage in cost, and I find that I make the case altogether too strong against the large hive. I have figured it at twice the cost of a small one; but I want you, Mr. Editor, or your business manager, friend Calvert, to tell us just how much difference there would be in the cost between a hive containing 11 combs instead of 8, with one dummy, and made like yours, but with frames just deep enough to suit a hive made of 12-inch lumber. If I am not mistaken the Dovetailed, Simplicity, etc., are all regular-depth Langstroth hives, and are made of 10-inch lumber. Just figure them made of 12-inch lumber and just as deep as could be conveniently made out of this. They would be very near the size of ours, which are made 12 $\frac{1}{4}$, and it seems to me, at a rough guess, that, with the dummy and all the enlarged supers, they would not cost to exceed 25 to 30 cents each in excess of your small hive. The interest on the money, and the sinking fund to pay them up in 30 years, would not make the additional annual cost to exceed the value of a pound of honey per year. What makes the hive expensive, as we build them, is the telescoping cap, the double back, the projecting bottom-board, etc.—a thousand and one little nothings which we use just because we are accustomed to them.

Now, Mr. Editor, somebody asks me whether I think that the large hives are going to "take," and become prominent. I will frankly tell you that I think not. Say what we may, the \$1.00 hive will sell because people go for cheapness. And if it were not a question of cheapness, but only of reason, does it follow that people would take the more reasonable course?

Do men chew tobacco because it is the best thing to do? Do our women wear tight corsets because they are more healthful? Do the Chinese bandage the feet of their girls because they will be benefited thereby? Do our little girls wear short skirts in the winter and long hair in the summer for their comfort? Why does a lady carry her pocket-book in her hand instead of having a pocket to her dress? Is it more convenient? Why does America take the Philippines and pay out twenty millions of her money? Is it for her moral or her pecuniary advantage? Nay, we are all more or less like sheep, and follow the bell-wether, whether he leads us right or wrong. Just see us now, throwing away our feelings, patting the British Lion, with the confidence of a child, forgetting that, less than forty years ago, he did all he could to promote secession and break up the Union. His cat-like paw is velvety and soft just now; but look out for the claws, if we happen to reach out for a dish that he covets.

[As I understand you, friend D., you prefer the large hives, even for comb-honey, because their brood-nests are capable of equaling the capacity of the best queens; and that whenever one is not able to fill the whole brood-nest, you contract the hive to her needs.

Now, here is a question I want to ask you: How many frames, of Quinby size, will your average good queens fill with brood, as frames are ordinarily filled? What I am getting at is this: Is the eight-frame single Langstroth brood-nest, in your opinion, large enough to accommodate the breeding capacity of the average good queens?

Our Mr. Calvert, who makes out our estimates, has figured on the two styles of hive you describe, and he estimates that the larger one would cost only about 40 or 50 per cent more than the smaller one. If that is the case, then you, in your preceding article, made a stronger case against the large hives than was necessary. It shows you meant to be entirely fair.—E.D.]

Before summing up my views and arguments in this matter I think best to give

another quotation from Gleanings. This time it is from the pen of Bro. Doolittle, and reads as follows:—

I supposed I had annihilated that "arena" fitted up for Dr. M. and myself to fight in; but it seems that the good (?) doctor is bound to fight with Doolittle anyway, as a straw (p. 869) in December 1st Gleanings would denote. After telling what Dr. E. Gallup says about a queen of his occupying 24 Gallup frames fully with brood, Bro. Miller wants to know how I reconcile that with a statement I made, that 9 Gallup frames entertain the best queens to their fullest capacity as to egg-laying, and if Dr. Gallup's queen did not need nearly three times as much room. Well, my dear doctor, had you read the bee-papers more carefully during the past, and remembered what you read, you would have known that Gallup's 24-frame hive was worked for *extracted* honey, while Doolittle was talking about hives worked for *comb* honey. But I think I hear the doctor saying, "has the working of a hive for extracted honey anything to do with the capacity of the queen for egg-laying? or does the working for comb honey decrease her capacity any? his eyes giving that peculiar twinkle they have at times when he is thinking to himself, "Guess I have got you this time." Dr. M., let me tell you something. I am not going back through musty volumes of old bee-journals to hunt the matter up to get exact figures, but shall tell it from memory. Up to 1874 I had thought that 9 Gallup frames would entertain the best queen to her fullest capacity, no matter whether the colony was worked for extracted or comb honey; for up to that time that was the greatest number allowed for either. In the spring of 1874 I read up on the (Adair) Long Idea hive, and became infatuated with the same. I made two of them, working one for extracted honey and the other for comb, these hives being made to hold 32 Gallup frames when the whole number was in. I selected two average colonies out of my nine-frame hives; and when the nine frames were pretty well covered with bees, and brood in some six or seven of the combs, I set each over into these four-foot hives. At the same time I selected another colony of about the same grade, to be worked for extracted honey on the tiering-up plan, and one to be worked for comb honey on the nine-frame "side and top box" plan I had used before. In due time the two long hives were filled out with the full 32 combs, with sections on the one

for comb honey, and extracting going on every third or fourth day from the other, as used to be the style under which extracting was done. In the tiered-up hive, the queen was kept on the 9 frames by means of a slatted honey-board, and the one worked on the side and top-box plan manipulated as well as Doolittle knew how. Now for the result: Before the basswood harvest arrived, the queen in the long hive, worked for extracted honey, had brood in every one of the 32 combs, to the amount of some 18 or 20 combs *full* of brood; while the one worked for comb honey, having 32 combs, had brood in only 13 combs, the same amounting to only about 9 frames *full*, the rest of the combs being partly occupied with honey, which ought to have gone in the sections, and would have gone there had this queen had only the 9 combs for her brood nest. So the queen from the extracting-hive was laying about 5000 eggs daily, as Dr. Miller says, to where the one in the comb-honey hive was giving only about 2500, each evidently laying to her fullest capacity. What made the difference? There is something about extracting honey that causes bees to *feed* a queen in such a way that she will give double the eggs, if she has the comb room, that she will when no extracting is done, and thus a queen is coaxed to produce and develop all the embryo eggs she has in her ovaries, in the shortest possible time, while under normal circumstances she will be laying up to her fullest capacity when not producing half the number of eggs she does under the stimulating influences which come from extracting.

All four of these queens were reared during the swarming season of 1873, so they were less than a year old when the experiment was commenced; but the one in the long extracting-hive died of old age that same fall, while the other three lived and did good work the next season. I have tried nearly the same thing several times since, and proven to my entire satisfaction that a queen will occupy double the number of combs with brood, where extracting is being carried on, as often as the combs are filled with honey, that she will when her colony is worked for comb honey.

In passing I will note that the hive worked for extracted honey on the long-idea plan gave 566 lbs. surplus, while the one worked on the tiering-up plan gave about 400 lbs., thus showing that I had only 166 lbs. more honey as a result for double the brood reared. The long hive worked for comb honey gave only about 50 lbs. of section honey, with the 32 combs

nearly solid full of honey, while the one worked on the side and top storing plan gave 309 lbs. of section honey, with enough below to winter the colony on. The average from the whole apiary that year was 166²/₃ pounds from each old colony in the spring, all of which was comb honey, excepting that from the two colonies worked for extracted, the whole number in the apiary in the spring being 69.

Now just a word more: I do not get, on an average, any more brood in the ten-frame Langstroth hives at the out-apiary than I do in my nine-frame Gallup hives here at home. To be sure, I often have brood in the whole ten-frames, but not more than enough to fill from six to seven full, while the nine Gallup frames are *full* clear out to the corners, a Ernest says the Holy Land and Cyprian queens will do. Now if, when working for comb honey, I get to the amount of only 63¹/₄ Langstroth frames of brood out of ten frames, or 9 Gallup where I use 12, 18, 24, or 32 in a hive, will Dr. Miller say that 9 Gallup frames or 63¹/₄ L. frames will not entertain any queen to her fullest capacity in this locality? And allow me to say, in a *very friendly* way, that I am inclined to think that what is applicable to my locality will come very nearly the truth in other localities, if others will work along the same lines Doolittle does, and experiment, and note things as carefully.

DOOLITTLE ANSWERS THE EDITOR.

And now I come to another Straw (p. 870) where the editor wishes me to explain. And that "twinkle" in Dr. Miller's "eye" caused him to wish the explanation. It's not very often that the doctor gets in two "twinkles" at Doolittle in one batch of Straws, as he has this time. The editor points me to his answer to "Straw regarding Dadant's statement to the effect that queens will lose time in hunting for empty cells" where she has just room enough for her needs, but for the life of me I can not tell whether he agrees with Dadant or not. As Dadant uses only *large* hives, I doubt whether, from practical experience, he is capable of telling just how much a queen hunts about for room, unless he has seen her doing so, because his large hives allow the bees to crowd the queen with honey (when working for section honey) by their starting storing in the combs below instead of entering the section *promptly* with the beginning of the season, as they should do. If the queen does so hunt I have never been able to detect her so doing; for where frames are filled solid with

brood the young bees emerge "solid," and so she keeps on following the brood as it emerges, in regular order. But if I read the editor aright he wants to know if queens reared by the plan given in "Scientific Queen-rearing" do not need more room for egg-laying than those formerly reared by old plans. In answer to this I will say that, as the older readers of our bee-literature will remember, up to the eighties, and for years, I used only six and seven Gallup frames to the hive, and a number of articles can be found in the American Bee Journal headed "Those Six-frame Hives," in which I showed how I succeeded in producing tons of comb honey by the use of from six to seven frames for brood. And even to-day, where I find a queen that does not fully occupy more than six Gallup frames at the beginning of the honey harvest, that colony has the other three combs taken away from it, as years of experience has taught me that a lot of empty comb in the brood nest, at the beginning of the honey harvest, is the greatest drawback toward a successful result in comb honey of any thing I have to contend with. But I am prepared to say that the number of colonies shut on six and seven brood combs at the beginning of the honey harvest is not nearly so great as it was before I practiced the plan of rearing queens as given in "Scientific Queen-rearing."

[While Doolittle does not say so in so many words (owing, no doubt, to his modesty) I infer that queens reared by his method require larger brooding-space than queens reared by the old ways—at all events, that has been our experience. A honey flow, feeding, or large cells, seem to be important requisites.—Ed.]

There is one very pleasant thing about this discussion, and that is that all who have taken a part in it, are gentlemen. They are fair, honorable and polite. To me it is a great comfort to argue with such men, knowing that the closing of the discussion will find us still warm friends.

The first point that I wish to notice is where Mr. Dadant says that he has noticed that the supporters of small hives agree that a large hive may be good for extracted honey but not suitable for the production of comb honey, but they have not explained the reason why. He admits, however, that Mr. Doolittle has attempted to give a reason, in that a large

brood nest encourages the bees to store their surplus in that apartment to the neglect of the supers. That there comes an "accustomment" to the brood chamber to the neglect of the supers and that the queen is thus crowded for room. To me this would be reason enough for wishing a small brood-nest in working for comb honey. Let the reason be what it may, once the bees get the start of the queen, so to speak, get more honey into the brood nest than there is brood, yes, one-half as much honey as there is brood, and that colony is useless as a comb honey producer. There is no use in extracting the honey, as the bees will fill the cells again the first thing they do. It seems to be the *habit* that the colony has gotten into, more than anything else. I have heard farmers tell about some of their animals becoming "hide-bound," whatever that may mean, and when the brood nest of a colony becomes "honey-bound," it is the same as a "hide-bound" animal—no good. One reason why I place so much value upon a super of drawn combs at the opening of the season is that the bees are thereby induced to *begin* storing their first surplus in the supers instead of the brood-nest. Mr. Dadant speaks of removing from the brood nest, at the opening of the harvest, all combs not filled with brood. That is all right in itself, but I prefer to avoid such fussing, and have those combs in some other hive and *filled with brood*.

There is, however, still another reason why a large hive, or brood nest, might be tolerated in producing extracted honey; at least, we might be successful in using such a brood nest when working for extracted honey, but would not likely meet with the highest success in comb honey production. It is this: Suppose the brood nest is too large, so large that large quantities of honey are stored in it, we *can* get it out; it can be extracted; but when the honey that we wish in the sections is stored in the brood nest how are we going to get it into the sections? We can't do it. Of course, this honey stored

in the brood combs is not lost. We can extract it if we wish, but that isn't the point; we are working for comb honey, and we wish all honey not needed for winter stores to go into the sections.

Mr. Dadant calls attention to my having said that for the production of extracted honey the size of the hive mattered little, provided it is large enough. He says that this is virtually acknowledging that a large hive is needed for extracted honey. I fear Mr. Dadant does not get my true meaning. I would not crowd the bees for *room to store honey*, whether I was producing comb or extracted. In producing comb honey I would have a small, or a medium sized, brood nest, for the reasons that I have given, but I would give an abundance of room in the surplus apartment. In producing extracted honey, as my friend Dadant produces it, the line between brood nest and surplus apartment is not very sharply drawn; there may be honey in the brood nest, and brood in the surplus apartment, yet it is possible to separate the two—this can not be done in comb honey production. I am not in favor of exceedingly small hives, for either comb or extracted honey, if by "hive" is meant both brood nest and supers. In producing comb honey I would have the brood nest of such a capacity that an ordinarily prolific queen would have it full of brood at the opening of the harvest; then I would give all of the room needed in the supers. I am not sure but I should pursue the same course in producing extracted honey—but that is another story. I know that a man *can* succeed in producing extracted honey with a large brood nest, for the reasons I have just given, and I know that he can *not* meet the highest success with a large brood nest in producing comb honey, and for the reasons I have given.

These two articles of Mr. Dadant have given me more insight into his methods, and into the reasons for his belief in the superiority of large hives, than has anything else he has ever written. This

shows the benefits of these arguments. When a man is hard pushed he will bring forth arguments and reasons that otherwise he would never have mentioned. Perhaps he does not think them worth mentioning. Perhaps he thinks everybody else is aware of them. For instance, Mr. Dadant tells why he places such a high value on queens. He always has queenless colonies and empty combs in the spring; and, for that reason, he wishes to get as much work as possible out of each queen. That throws a flood of light on the question. Mr. Dadant uses a large hive and gets all of the work possible out of each queen. He "horsewhips" them, as Mr. Heddon once expressed it. The high pressure under which these queens work exhausts them sooner than would be the case under ordinary circumstances. Notice the experiment of Mr. Doolittle in which the queen that did such enormous laying in that long-idea, extracting hive, died of old age that same fall, although less than a year old when the experiment began. Poultry men have figured out that a hen will lay about so many eggs in her life time. In ordinary circumstances she will lay so many the first year, so many the second, so many the third, and so on. I believe that she lays the most eggs per year during the first, second, and possibly the third, years of her existence. For this reason they crowd and stimulate her in every way possible for the first two years, get the most out of her, and then replace her with a younger fowl. It is quite likely that the queen bee resembles the fowl in this respect. She can be pushed, "horsewhipped," if you like, and made to lay enormous quantities of eggs for the first two years of her life; then she is *done*; and, as a result, Bro. Dadant's hive is left queenless. When queens are worked in this way, and but little swarming allowed I can easily see why it is so hard to convince my Illinois Bro. that queens don't cost anything. I am willing to admit that plenty of good queens in the spring are excellent things to have,

but it is equally true that it is easy to so manage as to have plenty of them without cost. When bees swarm they build from half a dozen to a dozen or more queen cells. The building of these cells and the feeding of the embryo queens cost the bees some labor and that is all that queens cost the regular honey producer. When his bees swarm let him hive the swarms in hives having no more than an ordinary capacity. In other words, don't overwork our queens. Bro. Dabant's trouble comes from extracting and getting too much out of each queen. Instead of "horsewhipping" the queens, I would get more queens to help them. Hive your swarms in smaller hives, give fewer combs to each queen, and another year you will have more queens in proportion to your number of combs than you have now. Bro. Dabant says to himself: "Here I have 100 combs and only 8 queens. I must give these queens all the room possible so as to get just as many bees as I possibly can." My way of looking at it would be like this: Here I have 100 combs, and I want to get just as many bees out of them as possible, so I will have plenty of queens, and thus get the combs just as full of eggs as I can. You see that Bro. Dabant and myself are both after bees, but we go at it in a different way. He tries to see how far he can make each queen spread herself; I get plenty of queens, so that I am sure each one will surely fill all of the combs given her.

Honey Quotations.

The following rates for grading honey were adopted by the North American Bee-keepers' Association at its Washington meeting, as far as possible, in order to be maintained to these rates.

FANCY.—All sections to be well filled with straight, unadulterated honey, and drawn straight to all families, without any admixture of water, rain, or other matter, all the cells to be extracted from the wax.

No. 1.—All sections to be well filled with straight, unadulterated honey, and drawn straight to all families, without any admixture of water, rain, or other matter, all the cells to be extracted from the wax.

with but few cells unextracted, both wood and comb unextracted by steam, stain or otherwise.

In addition to this the honey is to be classified according to color, to be the terms white, amber and dark. That is, there will be "fancy white," No. 1, DARK, etc.

CLEVELAND.—No. 1 and No. 2 white Honey, to be drawn straight to all families, without any admixture of water, rain, or other matter, all the cells to be extracted from the wax.

A. J. WILLIAMS & CO.
100 N. W. 10th St., Cleveland, O.

BUFFALO.—No. 1 and No. 2 white Honey, to be drawn straight to all families, without any admixture of water, rain, or other matter, all the cells to be extracted from the wax.

BATHERS & CO.
100 N. W. 10th St., Buffalo, N. Y.

CHICAGO, ILL.—The demand for and sale of honey is rapidly increasing. We quote as follows: Fancy white, No. 1, to be drawn straight to all families, without any admixture of water, rain, or other matter, all the cells to be extracted from the wax.

E. A. TURNETT CO.
100 N. W. 10th St., Chicago, Ill.

BUFFALO, N. Y.—The demand for and sale of honey is rapidly increasing. We quote as follows: Fancy white, No. 1, to be drawn straight to all families, without any admixture of water, rain, or other matter, all the cells to be extracted from the wax.

W. H. HENSHAW.
100 N. W. 10th St., Buffalo, N. Y.

CHICAGO, ILL.—The demand for and sale of honey is rapidly increasing. We quote as follows: Fancy white, No. 1, to be drawn straight to all families, without any admixture of water, rain, or other matter, all the cells to be extracted from the wax.

E. A. TURNETT CO.
100 N. W. 10th St., Chicago, Ill.

NEW YORK.—The demand for and sale of honey is rapidly increasing. We quote as follows: Fancy white, No. 1, to be drawn straight to all families, without any admixture of water, rain, or other matter, all the cells to be extracted from the wax.

N. S. HENSHAW.
100 N. W. 10th St., New York.

KANSAS CITY.—We quote as follows: Fancy white, 13; No. 1 white, 12; fancy amber, 11; No. 1 amber, 10; white extracted 6; amber, 5; dark, 4; beeswax, 25.

C. C. CLEMONS CO.,
Jan. 24. 521 Walnut St., Kansas City, Mo.

NEW YORK, N. Y.—The market is well stocked with comb honey; especially with buckwheat and mixed grades. Fancy white finds a ready sale as does extracted of all kinds. We quote as follows: Fancy white, 12 to 13; fair white, 10 to 11; amber, 9 to 10; buckwheat, 6½ to 7½; white, extracted 5½ to 7; amber, 6 to 6½; dark, 5½ to 6; Florida, white, 6½ to 7½; Florida light amber, 6 to 6½. Other grades of Southern honey from 55 to 65 cents per gallon according to quality. Beeswax in good demand at 26 to 27. Write us—

FRANCIS H. LEGGETT & CO.
Jan. 21. W. Broadway, Franklin & Varick Sts.

**THE
A. I. ROOT CO.,
10 VINE ST., PHILADELPHIA, PA
BEE-SUPPLIES.**

Direct steamboat and railroad lines to all points. We want to save you freight.

**Some
Odds and Ends
That Will be Sold Cheap.**

For a dozen or more years Mr. M. S. West of this place dealt in bee-keeper's supplies. Since his death, two years ago, his daughter has endeavored to close out his stock of goods and has succeeded to large extent. There are still a few odds and ends, and she has brought them to me and left them for me to sell. Here is a list of the articles with prices at which they will be sold.

One ten inch foundation mill, (second-hand) Root's make, complete with dipping tank, etc. in excellent condition. \$10.00

One ten inch foundation mill, (second-hand) Root's, (one of recent make) dipping tank, etc. in good order15.00

Three Woodcock foundation fasteners, each,75

Eighty seven entrance guards, each,05

Thirteen Porter Bee Escapes 2.25

Thirty-three Simplicity hives, in the flat, siles, ends, covers and tin rabbitts, but no frames nor bottom boards, each,10

Send all orders to W. Z. HUTCHINSON,
Flint, Mich.

**THE MONITOR
PAPER FILE**

Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music &c., by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome. PRICE.—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper

Bee keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.
J. H. M. COOK, 62 Cortland St., N. Y. City

Please mention the Review

QUEENS, Untested, 75 c; 6 for \$1.00; tested, \$1.00; 6 for \$5.00; breeders \$2.00. The best stock, imported or golden. W. H. LAWS, Lavaca, Ark.

JOHN F. STRATTON'S

Celebrated



Band Instruments

ALSO

DRUMS, FIFES,

Piccolos and Band Supplies.

Send for **JOHN F. STRATTON,**
Catalogue. 811, 813, 815, 817 E. 9th St., N.Y.

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costello, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.

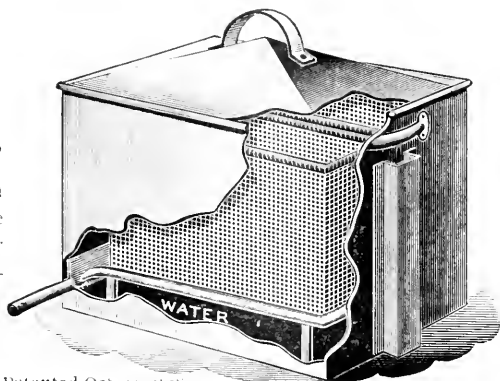
Bee - Supplies.

Root's goods at Root's prices. Poul-der's honey jars. Prompt service. Low freight. Catalog free, Walter S. Poul-der, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1898.

Wanted, for the Salvation Army Colony, Amity, Colorado about twenty colonies of bees. Address, stating price, etc., THOS. HOLLAND, Amity, Colo.

— If you are going to —

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Our Prices are worth looking at. We are making the new

Champion Chaff Hive

with dovetailed body and supers and a full line other Supplies, and we are selling them CHEAP. A postal sent for a price list may save you \$ \$ \$ \$.

R. H. SCHMIDT & CO.,
Box 187 Sheboygan, Wis.

1-98-1f

— If you wish the best, low-priced —

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

1899 Queens 1899

For Business—Queens for Strong Colonies. Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list. 12-97-11

J. P. H. BROWN, Augusta, Ga.

Please mention the Review

Queens bred in the North are hardy and fertile. Every bee-keeper should try one of these Northern grown queens. Pure bred Italian queens at 75 cents each; or 12 for \$6.00.

WM. H. BRIGHT, Mazepa, Minn.

Please mention the Review.

To stick things, use **MAJOR'S CEMENT.** Beware!!! Take no substitute. 2-98-12f

Please mention the Review.

Best on Earth. 19 Years Without a Complaint.



Smoke Engine	largest smoker made	4 inch stove	Dozen	Each
Doctor		3 1/2	9.00—	1.10
Conqueror		3	6.50—	1.00
Large		2 1/2	5.00—	.90
Plain		2	4.75—	.70
Little Wonder (wt. 10 oz.)		2	4.50—	.60
Honey Knife			5.00—	.80

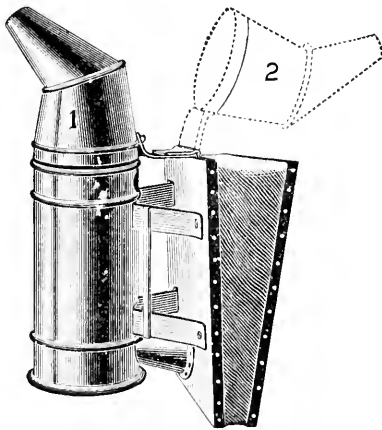
For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

\$50 for a Bee-Story.

THE PROGRESSIVE BEE - KEEPER wants a good bee-story. The story should be not less than 15,000, nor more than 20,000, words; and we will pay \$50.00 in cash as first prize for such a story. There will also be second and third prizes. No one financially interested in the company will be allowed to compete, or act as a judge; and we guarantee that none but competent and impartial parties will decide the contest. For further particulars address

PROGRESSIVE BEE-KEEPER,
Higginsville, Missouri.



The accompanying cut shows the Higginsville Smoker with the nozzle thrown back for filling. This smoker is strong and well made of the best material, has a strong draft, and will burn any kind of fuel. One smoker, 75 cts.; three for \$1.50. When sent by mail add 25 cts. each for postage. Send for catalog of other supplies.

Leahy Mfg. Co., Higginsville, Mo.

If the REVIEW

Is mentioned when answering an advertisement in its columns a favor is conferred upon both the publisher and the advertiser. It helps the former by raising his journal in the estimation of the advertiser, and it enables the latter to decide as to which advertising mediums are most profitable. If you would help the Review, be sure and say "I saw your advertisement in the Review," when writing to advertisers.

Page & Lyon,

Mfg. Co.

New London, Wis.

...

Nearness to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

ORDER EARLY.

There are indications that the demand for supplies will be very large this season, and everyone should order as early as possible. We have large facilities for manufacturing all kinds of *Bee-Keepers' Supplies*, and will serve our customers as quickly as possible.

Falcon sections are the finest made. 1899 catalogue ready Feb. 1st. Copy of the *American Bee-Keeper* 20 pages sent free. Address

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wired*. Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SROUT BROOK, N. Y.

YOUR PROFITS

Next season will depend largely upon how your bees come through the winter. Many bee-keepers believe that after bees are put into winter quarters nothing more can be done for their welfare until spring has come. All who believe thus, and all who believe that care *is* needed, but are a little uncertain as to what that care should be, ought to buy the book **ADVANCED - BEE CULTURE**, and read the chapter entitled "Care of Bees in Winter." Remember, too, that the book contains 31 other chapters.

Price of the book, 50 cts. ; the Review one year and the book for only \$1.25.

W. Z. HUTCHINSON,

Flint, Michigan.

Listen! Take my advice and buy your bee supplies of August Weiss; he has tons and tons of the very finest



FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

18



99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.50; 1,000 for \$2.50; 3,000 for \$6.75; 5,000 for \$10.00; 10,000 for \$17.50.

No. 2 sections are not made to order, but when in stock are sold at \$1.50 per M.

J. FORNCROOK,

Watertown, Wisconsin.

WINTER

Losses are not always the result of the same cause. They may come from starvation; from poor food; from improper preparations; from imperfect protection; from a cold, wet, or possibly, a poorly ventilated cellar, etc., etc. Successful wintering comes from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "ADVANCED BEE CULTURE." Five of its thirty-two chapters treat as many different phases of the wintering problem.

Price of the book, 50 cts.; the REVIEW one year and the book or \$1.25. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,

Flint, Mich.

Violin for Sale.

I am advertising for the well known manufacturers of musical instruments, Jno. F. Stratton & Son, of New York, and taking my pay in musical merchandise. I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Stradivarius," Red, French finish, high polish, and real ebony trimmings, price \$14.90. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver ferules, and pearl dot in the end, price \$2.50. The case is wood with curved top, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this on fit, and would accept one-half nice, white extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apiarian Supplies. Send for circular. 1-96-6

Please mention the Review

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1.25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEANES & MINER, Ronda, N. C.

Make Your Own Hives.

Bee - Keepers

Will save money by using our Foot Power Saw in making their hives, sections and boxes.

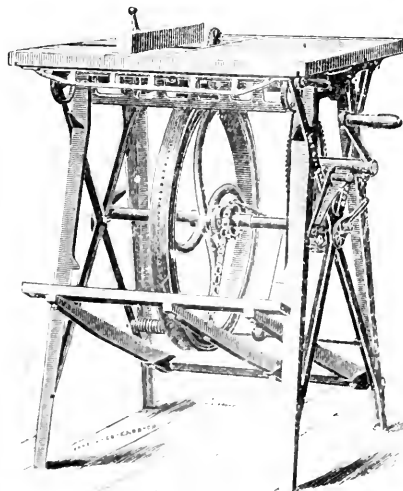
Machines on trial. Send for Catalogue.

W. F. & JNO. BARNES CO.,

381 Ruby St.,

Rockford, Ills.

11-95 121



COMB

FOUNDATION

WHOLESALE AND RETAIL.

Working wax into foundation, for cash, a specialty. Hives, Sections, and a full line of Supplies. The best of everything. Write for Catalog, with prices, and samples of Foundation and Sections. Beeswax always wanted for cash or trade.

GUS. DITTMER,

10-97-12t

Augusta, Wis.

The A. I. Root Co.'s Goods, WHOLESALE AND RETAIL

Please read in the Review

Without Stopping

the machine to reverse the combs is the way you can work with the Williams Automatic

Honey Extractor.

Such an extractor will save you time and annoyance and it does not cost much more than an ordinary machine. Send for descriptive price list.

Read what the famous bee-keeper, N. E. France, says:

PLATTEVILLE, Wis., July 5, 1897.
Dear Sirs: To day I extracted 2,780 lbs. of honey with your Automatic Honey Extractor in 5½ hours and could have done the same this afternoon but let the boys go to the city to play a game of base ball. Have extracted 27,135 lbs. so far with good prospects for as much more. My bees and State work keep me very busy. Hope to see you before very long—will write you later.
Yours truly, N. E. FRANCE,
State Inspector of Apiaries,
Platteville, Wisconsin.

We can also furnish choice queens, either golden or leather colored Italian, at 75 cents each, or two for \$1.40.

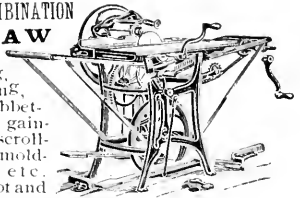
Van Allen & Williams,

6-98-tf

BARNUM, WIS

Please read in the Review

UNION COMBINATION
-AW



For ripping, cross-cutting, mitring, rabbeting, grooving, gaining, boring, scrolling, sawing, edge molding, beading etc. Full line of foot and hand power machinery. Send for catalogue A.

1-99-12t

Seneca Falls Mfg. Co.

48 Water St., Seneca Falls N. Y.

The No-Drip Shipping Cases

Are what you need in marketing your honey. They are clean, neat and convenient, and a great help in making sales.

Root's goods at Root's prices. Cash paid for wax. We want your trade.

M. H. HUNT, Bell Branch, Mich.

Farm Bee - Keeping

Is one of the leading departments in the *Modern Farmer and Busy Bee*, the best Farm and Bee paper in existence. Write for sample copy and for clubbing rates with any paper you want.

E. TAYLOR ABBOTT,

St. Joe., Mo.

SPECIAL OFFER—The price of the *Modern Farmer* and the *Busy Bee* is \$1.00, but I will club it with the *Review* for only \$1.60.

W. Z. HUTCHINSON, Flint, Mich.

There is a Difference in Bees.



Every owner of a large apiary knows this—knows that some colonies store more honey than others, that some are more easy than others to handle, that some are more hardy and winter better than others. For years we have been breeding up a strain of Italian bees possessing these desirable qualities in a high degree. Reports from customers prove our success. A trial order will convince. Tested queens, by return mail at \$1.00 each.

J. W. K. SHAW & CO., Loreauville, La.

3-99-31





Apiary and Residence of T. F. Bingham.—He of Smoker-Fame.

The Bee-Keepers' Review,

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL. XII. FLINT, MICHIGAN, MARCH 10, 1899. NO. 3.

KEEPING BEES GOOD NATURED.

The Parts Played by Dress, Smoke and Management.

T. F. BINGHAM.



HAVING been requested to state my ideas for managing an apiary in such a manner as to enable bees to be kept in towns and villages without complaint, I may be allowed to say

that the field is too wide for an article from a very busy bee-keeper.

The first object, of course, is to allow the bees to be good natured and happy. This is on the presumption that bees are naturally happy. There is, however, a wide, untamed suspicion among bees that people strolling aimlessly about their hives need watching. To do this, perhaps unnecessary police duty, a few bees seem always on the look out for flowing hair or wool hats. Knowing that these two features are unpleasant to them, we, of

course, will not wear wool hats; instead, we will wear a hat having a cape of cheese cloth falling over our neck and shoulders in such a manner as will prevent the bees from getting tangled in our back hair. This cape may be open in the face, or it may be covered with fine silk netting—never wire. Such a hat may hang where it will be handy to put on. It does not assume to keep one absolutely safe from cross bees, but it will do much to keep them good natured and out of one's hair.

It is probable that any bee once rendered malicious will forever remain so; for this reason no one should ever go into an apiary without the above precautions, and, farther, a reliable smoker. Oh yes, now you have got in a little smoker ad! Well, I don't see how I can provide any other plan by which inquisitive bees can be kept from looking at those beautiful blue eyes through the opening in the cape about your hat; and lingering with justifiable curiosity and wonder at your unnecessary presence among their homes.

All winged insects are afraid of smoke; and while no one can expect vicious bees to start at once for home and honey at the smell of smoke, a nice cloud of smoke will at once change their high C note to the middle register; and the acrid odor of infuriated bees will disappear as by magic.

Bee-keepers pride themselves upon not being afraid of bees, or of not caring for bee stings. We pity their vanity; and say they owe a duty to others, if not to themselves. Because a bee-keeper does not care for stings, and is not afraid, does not justify him in aggravating his bees; nor in pursuing a course that will make the Bee-Keepers' Union a necessary adjunct to keeping bees in towns.

Every care should be taken to deport one's self in such a way as not to excite suspicion among the bees. Every bee-keeper knows what bees like, and what they do not like; knows if one gets into his hair, that whether the bee stings or not it must die; and that it will never die without calling, by odor and sound, for help and justice; and that very rarely will the bee fail in communicating its troubles, and in securing help. This fact should demonstrate that more care than is here suggested would not be unprofitably bestowed.

In handling bees, now and then a bee will, upon the impulse of the moment, dart out of the hive and sting the hands. Right here allow me to say that a loose pair of old kid gloves, with the ends of the thumb and index finger cut off, will come to your aid. The bee will sting your glove; and, as its sting holds it fast, your smoker handy by will enable you to quietly kill the bee, and smoke the glove so as to get no more stings in the same place. Such gloves are a great comfort in keeping off the sun's heat, as well as the stings of the bees. The stings will sometimes reach through them, but not enough to be serious.

If I have shown that if bees are kind to their keeper they will be kind to others, my point has been gained.

Enough cannot be said about smoke in the town-apiary—or, for that matter, any apiary.

I have struggled for years to make bee-keepers realize the extra value of a cloud of smoke in the apiary; and I have the great pleasure of knowing that those struggles are having their effect.

It is a great comfort to put a quart of chips from the wood-shed into a smoker, and know that its smoke will be ready for use in walking through your streets of bees at any time within three hours.

The malicious manner in which bees will sometimes follow one about suggests the idea of trapping them, when convenient to do so. They will frequently follow the bee-keeper into a doorway, and allow him to close it after them, when, of course, they fly to the window. Any bee-keeper will not fail to realize his opportunity to get rid of them—not through a Porter bee escape but the way of all the earth.

To kill them will save the lives of other bees; and do away with one of the objections to keeping bees in towns.

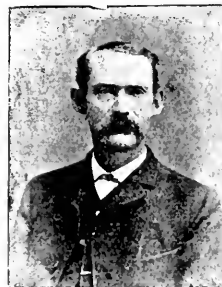
FARWELL, Mich. Feb. 16, 1899.



EXTRACTORS, HIVES AND HONEY-BOARDS.

Some Long-Talked-of Improvements that
Turn out Well.

JAMES HEDDON.



DEAR Review: After a long silence, the spirit moves me to have a little chat with you and your readers. The next issue of the Review, after your aggravatingly short visit with me, contained

an editorial regarding what I was going to do with my four-basket, automatically reversible honey-extractor. There is so great a difference between going-to-yes and are-all-readys, that I wish to say to you and your readers, that, according to my talk with you, I made the improve-

ments promised; and believe I now have the best honey-extractor in the world. The slip gear, which lets the revolving frame whirl by its momentum without dragging the crank and horizontal shaft, works to perfection—beyond my most sanguine hopes. It is as practical as a shovel or pitchfork. The foot-brake under the machine, on the extended shaft, resting in the floor, is also a piece of perfection in its practical workings. I think it was over ten years ago that I wrote about these improvements; yet I'm not aware that they have ever been put into operation until I did it last fall; and now I am sitting up nights hating myself that I didn't adopt them sooner. A foot-brake is well nigh indispensable upon honey extractors of large diameter. The stopping of the motion is more trying to the muscular system than is the starting or running of the machine; especially is this true in summer-extracting. After I added the attachments in question, I extracted about 4000 pounds of heavy-body amber honey; mostly sealed. My additions to my machine almost saved me one extra hand. Should any of your readers desire a mechanical description of the improvements above mentioned, I will give you the same upon solicitation. It is free to all, and I think of great value.

Having carefully read C. Davenport's article on page 11, current volume, I will say that he expresses many of my convictions; but that in which we differ is of most value to your readers. I desire to go on record in opposition to the use of thick top bars in substitution of honey boards. They will not do away with brace combs to an extent demanded by a practical, rapid-manipulating bee-keeper; while the break-joint honey-board will; besides, it can be made queen-excluding when that function is desired; and the cost and manipulation of the honey-board is many times paid for by the advantages it offers the bee-keeper. I gave this matter repeated, extensive and careful experiment, 25 years ago; and I know my ground is well taken.

I, too, once determined to use reversible covers; which, of course, must be flat on both sides; but cold facts drove me back to the plan, 53, whole, pine board, cleated on one side. Zinc covering is too costly for covers.

Being the pioneer in divisible brood-chambers, both with frames, bars and plain box, Mr. Davenport's last column on page 13 comes to me like the echo of an ancient boom. He states many truths in that column.

I was also aware of the facts stated by Mr. Beckwith, regarding the rendering of wax, as given on pages 7 and 8, but as I am now in possession of a large size Ferris wax extractor, which takes the wax *clean*, and leaves the *operator* clean, all the knotty problems of rendering wax are past.

My 225 colonies are wintering nicely during this fifteenth open winter, with "nary" a bad one mixed in.

DOWAGIAC, Mich. Jan. 26, 1899.



ITALIAN VERSUS GERMAN BEES.

Why the Latter are Superior for Comb Honey Producers in the North.

C. DAVENPORT.

IN a previous article I said that hives were an important factor in our pursuit; bees are not less so; and, as some one else has said, nectar yielding flowers are equally important. The fact is, a great many things are important or necessary to our success; as our pursuit is a complicated one, with many details, varying with the difference in seasons and localities. A thorough understanding of all is not so easily acquired as is supposed by many who have read a few text books, and successfully managed a small apiary for a few years. A man who has successfully managed a small apiary might make a complete failure with a number of yards, or even one large one. That

our profession is a difficult one to thoroughly understand is shown by the great amount of literature devoted to it. I believe there are few other pursuits the literature of which represents more study, research and experimenting than does that of apiculture. Many intelligent men have devoted the best part of their lives to this work; still there are many important things yet unsettled. To the novice this appears strange, if not incomprehensible; but those of more experience understand the great difficulty of definitely deciding many of these things. There is no doubt, however, that advancement and progress will be made; for, although there is no possible chance in our calling to secure the reward in a financial way that the same amount of effort in some other pursuits might bring, there is about it a subtle something that lures us on year after year.

But to the question of bees. Although I have tried several varieties, I shall discuss in this article only the German and Italian. The latter are generally conceded to be superior to the German or brown bees; but, for the last few years, I have been breeding out Italian blood; and, at present, am using what I call German bees. Whether German black and brown bees are the same, is something I do not know. Some say they are not; but I believe that the majority say they are. Mine are light brown in color, with yellowish white bands, and are about the same size as Italians—fully as large I think. With the exception that there is probably some admixture of Italian blood, they are the same kind of bees that were found in trees here when this locality was first settled. At one time, and in one year in particular, I spent a good deal of time and money in changing my stock to Italians; and, for a number of years Italian blood predominated in my apiaries. Probably my locality, methods of management, and what I wish done, accounts for my preference in bees. My idea of success is to get every possible pound of the white honey flow stored in the sections; and I can ob-

tain a better measure of success in this respect with German bees than with any strain of Italians I have ever tried, or that I believe exists. At the beginning of the first general or profuse honey-flow, which is white clover, here, it is a trait of the Italians to store as much as possible in the brood chamber; apparently slacking up breeding for this very purpose; and, with me, no means or methods taken to prevent this storage in the brood chamber have been very successful. For the beginner, or amateur, and, undoubtedly, for the great majority who keep bees, this very trait, instead of being a fault, is a point in their favor; but I am a specialist; my only income is from bees; and, in order to make it not only as large as I would like to have it, but as large as possible, it is necessary for me to get all, or nearly all, of the white honey into the sections; especially in such seasons as we have had here the last few years. With German bees I am able to accomplish this to a large extent; for the majority of the colonies run for section honey will have very little white honey in the brood chambers at the end of the flow. In some seasons, after the white flow, enough honey is to be secured from miscellaneous sources to keep brood rearing going until the fall-flow; if not, or if there is no fall-flow, which frequently happens, feeding has to be done; but, as will be understood later, I often have frames of dark or amber honey for this purpose.

Another reason why I prefer German bees for comb honey is that, as a rule, they cap their honey so that it looks very white. This is a matter of appearance only; but I have a large trade that demands, and is willing to pay for, appearances, or looks; and while I freely admit, and know, that Italians are superior in many respects, I have never observed, and do not believe, that the honey they gather is in any respect better than the German bees gather, as has been claimed by some.

Again, my methods and management require, in some seasons, a good deal of

mixing up and uniting of colonies, and German bees seem to take more kindly to this than do the Italians or hybrids. I am intending, however, in the future, to run an out yard entirely for extracted honey; and, for this purpose, I shall use Italians or hybrids; as one great fault with the German bees is that they do not protect themselves from the bee moth's larvæ as well as the Italians do. Why this should be so, I can not understand; for it is an easy matter for any bee to kill, or, at least, to throw a moth's larvæ out of the hive; but strong colonies of German bees will often allow them to remain until they do considerable damage to the combs, and destroy many young bees. With Italians it is different. Even weak colonies of Italians protect themselves from moths. Some even claim that if section honey stored by Italians is put where the moths can not reach it, that it will not be damaged by moths. This, however, has not been my experience. With me the larvæ are liable to appear on comb honey, regardless of the kind of bees that gathered it; provided it is kept in a warm temperature. During the last two or three years moths have not been very troublesome here, especially in section honey. Why this is so I do not know.

It is claimed that Italian bees go farther after honey than do the German bees. Possibly they do; but I have known German bees to profitably gather honey from five miles away; and according to some, this is farther than the Italians go; but my experience has been that there is but little if any difference between the two races in this respect.

SOUTHERN MINN. Feb. 13, 1899.

The Colorado State bee-keepers, at their last convention, formulated some rules for the grading of honey; using several sections of each grade as an illustration. A half-tone cut of these sections will be given next month as a frontispiece, accompanied by the rules and some most excellent advice in regard to the marketing of honey in Colorado.

HIVES, LOCALITY AND MANAGEMENT.

All Three Must be Considered if Success is to Crown our efforts.

ADRIAN GETAZ.



FRIEND Hutchinson: In the January Review you ask why large brood-nests and correspondingly large colonies of bees give better results than comparatively smaller ones. I will try to explain the matter; at least,

as far as it applies to my locality and my present system of management.

Comparative tests between large and small brood-nests have often been made; and invariably after this fashion: Two swarms, as nearly alike as can be determined, are selected. One is put into a large hive, or, rather, brood-nest; and the other into a small brood-nest. I say brood-nests purposely; as I take it for granted that any one who calls himself a bee-keeper will see that all the surplus room necessary is given in the supers.

The results are contradictory; and it can not be otherwise. The two colonies are growing at an equal rate; and increasing the space occupied by their brood at the same rate; practically so. After awhile the small brood-nest will be full.

The colony in the large brood-nest will have the same number of combs occupied, as has the small colony; but its hive, or, rather, brood-nest, will not be full. From that time on, the colony in the small brood-nest, which I will call No. 1, will store honey in the supers; the other, which may be called No. 2, will keep on filling its brood-nest and increasing its population.

By and by the brood-nest in No. 2 will also be full. Now, if the honey-flow is at its end, or nearly so, the colony No. 1

will have some surplus; and No. 2 none at all. If, however, the honey-flow lasts two or three weeks, it is quite possible that colony No. 2 may, on account of its greater population, catch up with No. 1; and even give a greater surplus. At any rate, at the end of the honey flow No. 2 will be the strongest, in proportion to the size of its brood-nest; and will have a larger quantity of honey in the brood-nest. And this relative strength will be kept up. The bees in the large hive will live as long as those in the small hive; and will winter just as well, if properly cared for.

There is the difference: The first year was commenced with two swarms as nearly alike as possible; now, at the beginning of the second year, the colony No. 2 is stronger than No. 1, in proportion to the size of its brood-nest and will remain so throughout the season.

Early in the spring, when the weather is yet cool, a colony of bees can not raise more brood than it can well cover and keep warm. The result is that the strong colony will raise more brood in proportion to its strength; and will maintain that proportion until its brood nest is full. The next result is that both the large and the small brood-nests will be full at about the same time, and will be kept full the remainder of the season.

It is needless to say that a greater amount of brood raised, from early spring on, means a greater population; and, consequently, a greater amount of honey in the brood-nest and in the supers, all in about the same proportion.

The above sounds like pure theory; but I put it that way to make it as clear as possible. To what extent it will be verified in actual practice depends on a great many circumstances.

But, supposing it be correct, where is the gain? That is, if 80 colonies of 12 combs each give the same surplus as 120 colonies of 8 combs each, what is the difference?

Well, not much. There would be a saving of time in manipulating; perhaps

less feeding to do and less swarming; that's all.

In my locality, however, the 80 colonies of 12 combs would give a better surplus than the 120 of 8 combs. I know this by experience; and can to some extent, at least, account for it.

We always reason that after the main honey flow is over there is absolutely nothing to gather until the following spring. This is not strictly true. There is more or less nectar, in small quantities, to be gathered during the latter part of the summer and the fall; and it is the strong colonies that do the best in this gathering. A weak colony might not even hold its own during this period, while a medium one would, and a strong one would gain both in population and stores. This is one point in favor of strong colonies.

Next comes the winter. Experiments in regard to the amount of stores consumed have often been made, and have invariably shown that the strong colonies consume less, in proportion to their size, than the weak ones. In a few cases, the strong colonies not only consumed less in proportion to their size, but even a less actual amount than the weak ones.

As to the loss of bees, in my locality, the strong colonies lose less than the small ones. In fact, considerably less in proportion to their size, than the weak colonies. Exactly why, I don't know.

I am in a middle latitude, and I winter my bees on their summer stands, in well protected chaff hives. The winters vary greatly in temperature. There are plenty of days warm enough for the bees to fly; alternating with cold spells of freezing weather that seldom reach below zero. During the mild winters, the strong colonies rear some brood, which helps them materially.

When the spring opens, the gain in favor of the large colonies still increases. They not only begin to raise brood much earlier, but they also rear more in proportion to their population; and are ready to

enter the supers much sooner than the smaller ones.

Referring to our comparison at the beginning of this article, I would say that, in my locality, colony No. 2 would, during the second year, have its large brood-nest full earlier, than the colony No. 1, would its smaller brood-nest. If, at the end of the first year's honey flow, the colony No. 2 had twice the population of No. 1, it would, at the beginning of the second year's honey flow, have two and a half, or, perhaps, three times, the strength of No. 1.

As a matter of fact, this locality is poor; and it is only the really strong colonies that give any surplus to amount to anything. A weak colony can build up to full strength during the season, if no accident happens, but it is only those already strong in the early spring that can give a good surplus.

All this is written from a comb honey raiser's standpoint. I have not yet said any thing on the swarming question.

In a locality like mine, in which the honey flow is very irregular, and never abundant, it is necessary to keep the colonies strong all the time; so as to catch what flow may happen to come at any time. This, in turn, also requires an absolute prevention of swarming, or, at least, of increase, and at the same time allow of the rearing of as much brood as possible.

After several years of experiments, I have finally succeeded in mastering the question completely. Among the different methods that I use, I will describe only one; the simplest of all, although perhaps not the best.

In the first place, let me say, I do not allow the bees to clog up the brood-nest with honey, and reduce the laying room, any more than I can help. The reduction of the comb-space available for laying not only induces swarming, but also diminishes the strength of the colony. In order to prevent this, it is necessary to put on the first super early. That is, before much honey is stored in the brood-nest. The general advice is to wait until some

pieces of white new wax are seen on the tops of the combs. That's too late. Too much honey is already stored below. A few days before the honey flow (if you know exactly, or near enough, when the honey flow will come) put full foundation in the sections, and use all the drawn combs and bait sections that you can secure. Another precaution must be taken, and that is, that the supers are protected by an outer case, or in some other way, at least during the fore part of the season. Remember, it takes warmth to enable the bees to secrete wax and build comb.

Notwithstanding all these precautions, a certain number of colonies will swarm. Last year, I had only five per cent. In some years I may have had twenty-five, or even thirty, per cent. When the colony swarms, kill the old queen and return the swarm. Then put on an entrance guard, and let the young queens fight it out. When only one is left remove the entrance guard so as to let her out to mate.

And now, dear friend W. Z., let me say something more. You and several of our leading writers have, for years and years, advised us to let the bees swarm, move the old hive to a new stand, and have the swarm on the old stand on a contracted brood-nest, or on empty frames. I have no doubt that you have obtained good results by that method; but it seems to me that to make it successful two conditions are required. One is that the honey flow should be of short duration, only a few weeks at most, and the other that the swarming takes place at the beginning of the honey flow. These two conditions, to my knowledge, exist only in the Northern part of the United States, this side of the Rocky Mountains, and in the adjacent part of Canada—nowhere else in the whole wide world. In my locality, your method would be a complete failure. With me swarming is rather irregular. It occurs chiefly about the middle of May, during the poplar honey flow, while my best flow of honey, both in quantity and quality, is from the sourwood, beginning

about the 20th of June and lasting from three to five weeks according to the season. If I were to follow your method, I might get some surplus poplar honey of inferior quality; but I would lose the sourwood crop entirely; for, by the 20th of June, nearly all the bees that composed the original swarm on the old stand would be dead, and but little brood would be there yet. There would not be enough young bees to gather any surplus at all. Neither would the old colony be strong enough; so a clear loss of that yield would be the result.

KNOXVILLE, Tenn. Feb. 5, 1899.

(See editorial department.)



THE SIZE OF HIVES AND COLONIES.

To What Extent the Latter is Dependent upon
the Former.

L. STACHELHAUSEN.

THE bee papers are discussing the advantages of large hives as compared with 8-frame Langstroth hives. This question is a most important one. It is now conceded that large hives are all right for extracted honey, but for the production of comb honey you still advocate the small, 8-frame hive. In spite of all the arguments given by Dadant you want to know why a large hive is better than a small one and why the queen should not be cramped for room? If you will allow me the space I will try to explain this why, in my way.

We must consider the desired condition of the colony and hive in spring and during the honey-flow. In spring it is our aim to build up the colony as strong and rapidly as possible. The purpose being to have a large force of field bees when the honey-flow commences. For this purpose, different kinds of spring-management, such as stimulative feeding, were invented and practiced; so there can

hardly be any doubt that all bee-keepers will agree in this respect. If the queen does not find enough empty cells to deposit her eggs in, or has to hunt for them, time, at least, is lost. This means a weaker colony for the harvest. For this reason, in the spring, until the honey harvest commences, all obstacles in the way of the queen are objectionable.

As soon as the honey-flow commences, the desired condition of the colony is quite different. Now we want as many field bees as possible and very little unsealed brood, comparatively, to get the most surplus honey. This large proportion of field-bees to the unsealed brood is the main reason why medium colonies will sometimes give more honey than stronger ones.

If the colony is worked for extracted honey, this condition is attained; because the brood-nest is crowded by the honey. If this is not desirable for comb honey, the brood chamber can easily be contracted. (See Dadant in American Bee Journal, 1899, page 3.)

Now, you say, it would make no difference whether the desired number of eggs were laid by two queens in two small hives, or if laid by one queen in a large hive. We will suppose a case. Here we have one colony, very strong, and the progeny of one queen; there we have two small colonies, having the same number of bees, together, as the large colonies, but divided in these two hives. When the honey-flow commences, which would be in better condition for the honey harvest?

The amount of open brood in each of the three colonies will now be about the same; because the two queens in the weaker colonies are still desirous to lay more eggs, as they have empty cells, while the queen in the strong colony is now crowded, either by the honey, which the bees are storing in the brood-chamber, or by the contraction method. So we have in the two small hives only half the force of field-bees compared with the brood, as there is in the large hive, and, conse-

quently, the two weaker colonies both together do not store so much honey as the strong one. If the honey-flow is a moderate one, it may happen that this one strong colony will give a reasonable amount of surplus honey, while the two weaker ones will give none at all. This is the reason *why* strong rousing colonies give the most profit.

These strong colonies give a large amount of surplus honey; even if formed artificially. Some twenty years ago I had an apiary in Germany containing some colonies of heath-bees in straw hives. These colonies swarmed and swarmed without end. This kind of bees beats any Carniolans in this respect. As increase of colonies was not desired, I had to invent a proper management. I united so many swarms that the bees would fill about two Langstroth stories. These swarms were hived in frame-hives. Of course, in about three weeks these colonies were not much stronger than any other good sized swarm; but they had stored the hive full of fine comb-honey; while my other colonies, and those of my neighbors, had not stored any surplus honey that year. In this way, I had simply changed the superfluous bees for honey; and, in this exceptional case, it paid very well. The reason is easy to see; these colonies had, at the right time, a large force of field-bees compared with the brood.

This should be the aim of our management; but it would be incorrect to limit the brood too much during the honey-flow; because we have to consider the continuance of the colony. If the colony is weak in the fall, and has few young bees, it will winter badly; and can not develop into a strong colony in spring. For this reason it is a golden rule to keep your colonies strong all the year round.

It may be that by complicated manipulations of the brood-frames, and other knacks, in the spring, a colony can be made as strong as the average colonies get if left to themselves in large hives; but, if the same thing can be attained with large hives, then I look upon this

repeated manipulation as just so much time and labor lost. In this respect it is noticeable that all advocates of manipulating the brood-frames in spring use small frames, or, at least, small hives.

CONVERSE, Texas, Feb. 4, 1899.

[Some of the advocates of large hives assume that a small hive must necessarily contain a small colony at the opening of spring; and that a large hive means a large colony at the same season. To me this is unwarranted assumption. If a large hive always meant a populous colony at the end of the season, and a strong colony in the fall was always strong in the spring, and one strong in the spring remained so during the season, the problem of how to secure populous colonies would be solved. For several years I kept bees in three sizes of hives—eight-frame, ten-frame, and eleven-frame, and my apiary is still in two sizes of hives, eight-frame and ten-frame, Langstroth size, capacity; and I well know that the most populous colonies in the apiary, are not always found in the larger hives. There is one other point I have noticed, and that is, that the strongest colony in early spring does not always store the most surplus—but that is another story. A populous colony can develop more brood than can be developed in a weak one. I think no one disputes this. The trouble in this hive-argument is that the advocates of large hives assume that the men with small hives *begin* the season with *weak* colonies. This is not true. Eight Langstroth combs well covered with bees at the opening of spring is not a weak colony. The advocates of small hives do not wish for a little toy hive, so small that it would be impossible for it to contain a colony of normal strength; but, as I have so often explained, of such a size that an ordinarily prolific queen can surely fill it with brood at the proper season. The men who favor large hives wish for a hive so large that even the *most prolific* queen will *scarcely* find abundant room. With hives of this size there certainly will be many queens that fail to fill them;

and the space not filled with brood will be filled with honey that ought to have gone into the supers. This, however, is only one objection of several that have been pointed out repeatedly.

With me, all colonies begin breeding at about the same time. Those equal in strength, in prolificness of queens, in stores, etc., develop equal quantities of brood; and breeding goes on apace until the combs of the colony in the small hive are filled with brood. This colony is now ready for the supers. The colony in the medium sized hive has not yet filled its combs, but it keeps on increasing its brood until it *is* full, when *it* is ready for the supers. The colony in the large hive is not yet ready for the supers; but it keeps on, and if its queen proves equal to the emergency, its combs are finally filled and it is ready for the supers. If the opening of the honey harvest is unusually late, if it is delayed until the large hive is ready for it, no advantage appears in favor of the small hive. In my locality the white honey harvest comes on before the colony in a large hive has its combs filled with brood. The honey that ought to go into the supers goes into the brood nest; and this is not all, the colony is put into an undesirable *condition* for storing in the supers.

What I am writing is not mere theory to bolster up my position. I am telling actual facts as I find them in *my locality*, and with *my management*; and I am willing to admit that in other localities, and under different management, a large hive may be all right.

The point that Mr. Stachelhausen raises regarding the influence of unsealed brood upon the amount of surplus stored is a vital one, and worthy of consideration; but I fail to see why a large colony need have less unsealed brood than two other colonies, each possessing one-half the population of the large colony. If a colony begins the season *weak*, I can understand that the opening of the white honey harvest might find this colony at that stage where it would be extending its

brood nest with *unusual rapidity*, and thus have a very large amount of unsealed brood to care for; more so, in proportion to its numbers, than a colony that commenced the season in good strength. Such a colony as this would be in poor condition to take advantage of a honey flow. I expect this is the point that friend Stachelhausen wishes to make; but the faulty part of his argument is in assuming that colonies in eight-frame hives are *weak* in the spring.—[E.D.]



RENDERING WAX.

The Solar Extractor gets at least Most of the wax from Some old Combs.

O. O. POPPLETON.

FRRIEND Hutchinson: In your editorial on page 24, in the January number of Review, you say: "There is not a particle of doubt, however, that the man who renders old combs in the solar extractor loses one-half or two-thirds of his wax." Will you allow me to kindly, but plainly, say that I do not believe the statement is a correct one. Such a loss as that has been unknown in my own experience; which leaves a large doubt, instead of not a particle.

Since this point of the great wastage of wax in the so-called "slum-gum" has been lately raised, I have carefully weighed both wax and residue from the few old combs that have been rendered in my apiary. Result is as follows: Number of combs rendered, 32; amount of clean, thoroughly purified wax, 9 lbs.; amount of residue, 3 lbs., 15½ ounces. It will be seen that the residue was less than one-third of the *whole*; and this lacked very much of being all wax. I doubt whether a third of it was wax; possibly, not even that much; but that is only an opinion, not a tested statement of fact.

STUART, Fla. January, 27, 1899.

WAX EXTRACTORS.

We want one that is Practical and Business
Like, yet Thorough.

C. G. FERRIS.

"Learned criticism has always been averse to the truth upon the first appearance of a new doctrine, whether in science or religion."

MY dear Mr. Hutchinson: A gentleman by the name of Gemmill, of Stratford, Canada, is hunting up the wax left in the refuse after rendering. Probably you know him, and more about it, than I can tell you. In his communication to me he questions the practical working of any steam arrangement to attain this purpose. You, also, I see, are somewhat inclined in that direction. Mr. Gemmill wrote me that he was going to see you about getting samples from the wax extractor you now have, to experiment on. While I do not question your ability to handle the refuse properly, I would call your attention to the fact that you have one of my *old* extractors; and will venture that you have never tried the No. 2 process of treating the refuse. Do you mean to say that I lose from one-third to one-fourth by the use of steam? I guess you have not become familiar with the working of the one-basket extractor, or you never would make such a statement as that.

There is another point that you lose sight of, and that, to me, is every thing. It is easy for any one having only a small job of rendering, to adopt that primitive, and well known way of Mr. Beckwith; or to submerge a few combs in sacks, in the bottom of the boiler, as you speak about in the Gemmill method. To those who work in that way I do not expect to sell an extractor, nor do I advise them to buy one—they have no use for it. You speak about the refuse being so free from wax after being pressed. Why, my dear sir, for years, all the refuse that I have thrown out has been as void of wax as though it

had never been in contact with it. Always, by using the flooding process, we get the granulated refuse; unless there is a great amount of sticks, wires, etc., in it. As before stated, we want a system of rendering wax that is *practical*, and *rapid*. By almost any process we can, in a small way, get *all* the wax, by *fussing*; but what we want is to run all day, and then clean up in a few moments, and get desirable results. The first desirable point is *rapidity*; next, *simplicity*; and lastly, to save all the wax.

There are those who can not run any kind of an implement with success. They need something that will run itself—and then there is something lacking. This is the kind of bee-keeper from which friend Gemmill will get his refuse that still contains wax. I will send him all the refuse that I have, for the rest of the time that I keep bees, and pay him *one dollar* a pound for all the wax he gets from it. I might safely say an *ounce*, but he *might* get the ounce; and that would make me feel bad.

How well I remember the way we used to squeeze the refuse; Beckwith style. How the wax would cool on the outside of the cloth; and how, under pressure, the wax would squirt in all directions except the desired one. How things would *sing*, crack and snap, and we would dodge to escape being encased in wax. O, that beautiful, clean way! That ancient way, of squeezing and dodging the wax.

Mr. P. H. Elwood, my neighbor, one of the most practical, scientific, educated and scholarly gentlemen we have, that I know of, has used the press, a powerful one, in pressing out the refuse after boiling—in a large kettle. With him it was *not* perfectly satisfactory; as he has placed his order for one of my large *three-basket* extractors. With this he will have no danger of burning the wax; which has been a great disadvantage heretofore.

Should there be a better way of rendering wax, I would like to know it *myself*; but I *never* will go back to friend Beckwith's and Gemmill's way.

Say, have Gemmill come down this way. I will take him to the Hetheringtons, with their *thousands* of swarms; and to Elwood's with almost as many more. Would be glad to have him.

SOUTH COLUMBIA, N. Y. Jan. 25, 1899.



CUTTING OFF DISCUSSIONS.

Has the Editor of the Review been Consistent
in the Matter?

G. M. DOOLITTLE.



DEAR Editor Hutchinson: Will you please explain to the readers of the Review your position regarding discussions? On pages 30, 301, 302 and 303 of October, 1898, Review, you

printed a very lengthy article to show that discussion on evolution, etc., was all right in our bee-papers, and commenting on the same on page 308 of the same number you say, "As soon as the 'fur begins to fly,' just when the interest in a discussion is thoroughly aroused, down comes the editorial gavel." Then, to show how fair you would be, you say, "So long as the original subject is kept in view, and each 'round' brings out *new* facts and ideas, and argument takes the place of dispute and personalities, I see no reason for closing a discussion." And after saying all of this, and allowing Bro. Taylor to give expression to a "gratuitous, if not unkind, error," in accusing me of cursing millionaires, when it was only *our* "unjust system" which was robbing bee-keepers, that I was talking about, and so expressed three times in my article, it seems

quite strange to me, and a number who have written me, that you should bring "down the editorial gavel," as you do on page 24 of the January Review, and stop the discussion. Did either Mr. Taylor or myself depart from the "original subject" or indulge in any dispute or personalities?" Please enlighten us a little on this matter. But, Mr. Editor, I quite agree with you that when each has had his say is the time to stop, if stop it must, rather than the plan advocated by Mr. Thompson.

BORODINO, N. Y. Feb. 8, 1899.

(See editorial department.)



SELLING HONEY BY WEIGHT.

Some of the Troubles and Quibbles that are
Thereby Avoided.

R. A. BURNETT & CO.

EDITOR of The Bee-Keeper's Review, Dear Sir: Mr. J. E. Crane, in your February number, writes on "selling sections by count." While this practice is followed, it is only to a limited extent, and that only by the retailers. He asks the question "now what is to be gained by the honey producer still clinging to the practice of selling by weight?" He practically answers it by the question which follows; "Is it that he fears his neighbor will produce a lighter comb of honey and get as much as he does? Yes; but his third question, "or is it that he may put the very heavy with the very light, to even up and make them average what is supposed to be wanted?" To this question we would say that that is not likely to be followed to any great extent.

We would say that what is to be gained by selling honey by weight is that it prevents misunderstandings, dissatisfaction, and almost endless talk in attempting to satisfy a purchaser that he is getting the

value of his money. Retailers sell honey by the section as a matter of convenience. Where the sections are uniform it saves quite a little time to say: "This section we sell at twenty cents, this at eighteen cents, this at fifteen cents;" hence the desire of honorable dealers to get sections in a case that run uniformly, so that they may be saved the time of weighing each piece, and yet give their customers value for money asked.

The demand for sections weighing less than a pound, say fourteen ounces, comes from that class of dealers who continually seek to sell goods a little cheaper than their neighbors, and yet make as good or better profit than their competitors. If all of the so-called pound sections were of the same weight, weighing would not be necessary; and the vendor who gives light weights would have no advantage over his competitor who gives full weight. In these days of active competition and small profits, a great many of the dealers resort to all the make-believes that will possibly pass muster.

We quite agree with Mr. Crane that light-weight sections should be put in separate cases; so that the different buyers could get what they want; for it is true that many will want heavy combs and many light; and when they are mixed through the case neither are satisfied; as it prevents the sections being sold as weighing so much; necessitating the putting of each one on the scales to ascertain how many ounces it contains.

This subject of light-weight sections is quite a delicate one; the retailer who wishes to give bargains, desires that a light weight section shall in appearance have as much honey in it as the heavy-weight; therefore, if the light-weight section is not fastened to all sides of the frame, and of thin comb, it does not serve his purpose. We have thought very much on this question, and can never get away from the conviction that the only fair and accurate way is to buy and sell honey by weight.

CHICAGO, Ill. Feb. 25, 1899.



Good things From Other Journals.

SELECTED BY DR. A. B. MASON.

THE INTRODUCTORY BOW.

MR. Editor: When you asked me to look over the other journals, and tell the readers of the Review of some of the good things in them, you can't imagine the thoughts that went chasing each other through my mind at such an unheard of request.

About the first thought was, "why, that's ye editor's business." We expect to find some of the good things copied from other journals; and they are just as good as though they were original articles written on purpose for the journal that copies them. Then, again, why should you ask me to write about the "good things?" Don't you know that it's easier for me to pick out and criticize those things that I don't agree with than to commend the good things I see? Most of what appears in the journals is all right; and that is what we expect; and we take the good and say nothing, and let the rest go. By "we" I don't include Messrs. R. L. Taylor, Dr. Miller, and Bro. Doolittle; for it is their business to be "picking" at something or some one. Now don't let either of this gigantic trio "sass" me back, at any time, or there may be trouble.

Another thought was, "why that's an easy thing to do;" but, as the days, and even weeks, have slipped by since you made this request, and I have looked over some of the recent numbers of the journals, I have felt more and more my inability to comply with your request. Then I thought I could hide behind some *nom de plume*; but as I always like to know who is talking to me, I presumed others felt the same way, and I didn't give that course a second thought.

There is so much that is good in the different bee journals that it will be no easy task to select what is *best*; and it may sometimes be the case that what I *think* will be of interest and valuable to Review readers will not be so considered by them. I have often thought what a real treat those who love bee-keeping miss by not taking all of the bee-journals; and what an encyclopedia of bee-lore we should have if all the good things said in our seven or eight bee-journals could be put into one; but I realize that for nearly all of us, editors, publishers, and readers, it is best the way it is.

You must not expect me to confine myself entirely to the *good* things; for, when I come across such wild statements as Bro. Doolittle gives us about "Trusts," and "Monopolies," I shall feel like donating a "piece of my mind" to somebody. When such a combination of capital accomplishes so much good, I'm afraid I'll hardly be able to keep quiet if I see it unjustly criticised in the Review, or any other journal.

ADVANTAGES OF USING THE REGULAR-SIZE COMBS IN QUEEN REARING.

In the American Bee Journal for Jan. 5, 1899, Mr. Doolittle calls attention to the fact that the best sized frame for the bee-keeper to use in queen rearing is the one used by him in rearing brood and producing honey. For a few seasons, soon after I began bee-keeping, I tried raising queens in what were then known as nucleus hives; those containing small frames. The failures I met with by using these small hives and frames were so numerous that I became disgusted and almost discouraged, but, as I was in the business more for pleasure than profit, I kept at it until I learned a better way—using full sized frames. Mr. Doolittle says:—

The bees work more to our profit where the regular size of frame is used. If any comb is built by the nuclei it is in just the frames we want it, and always of the size of cells we wish, as these small colonies build only worker comb where the young queen is left long enough for them to build comb.

In the summer of 1897 I reared a goodly number of queens in nuclei, for my own use, and I so much enjoyed their work in building new combs, and patching up old ones, that I could scarcely go into the apiary without taking a peep into some of them that I might enjoy, with the bees, the nice work they were unwittingly doing for me. Mr. Doolittle goes on further to say:—

Where I have had combs in which the mice had gnawed holes, or the bees have made holes in them by cutting out moldy pollen, or in which there happens to be some drone-comb of more or less amount which I have removed, I always give them to these nuclei when forming them, and as soon as the young queen commences to lay, the bees will commence to build comb and repair those places, if honey is coming in from the fields, or if fed when no honey is to be obtained.

By leaving the young queen with them the length of time required, we have our combs all made as those built out on foundation, save the cost of foundation and the fuss of putting it in the frames, while such mutilated combs are just as good to form nuclei with as whole combs.

It would be a surprise to any who have not tried this plan, to see how very nicely the bees will fix up mutilated combs. I raise queens only for my own use, and don't always have nuclei to repair such combs, so I give them to a swarm, or to a colony with a young queen, and generally get them repaired in good shape.

PREVENTING NUCLEI FROM BEING ROBBED.

Mr. Doolittle's article is *all* so good that it might all be put in the Review with profit to many of its readers; and, as some may want to know the *best* way to form a nucleus I will quote a little more from his article:—

By using the regular-size hive, and placing the nucleus on one side of it, while the entrance is at the other side no nucleus large enough to hold a queen to advantage will ever be robbed out. To help the reader to understand better we will suppose that the entrance used is cut from the front board at the bottom, the whole length of it, and that the hive fronts south. Form your nucleus on the east side of the hive, using two combs,

one of honey and one of brood; and next to these combs draw up the division board or dummy, which should allow the bees to run under its bottom. Now close up all the entrance except one inch in length at the west side of the hive, and you will have it as I use them, and I have not had a single nucleus robbed since I found out this plan.

Now, suppose I wish a nucleus in the next live on the same row in the apiary. In this hive I place the two frames and dummy next to the west side of the hive, while the entrance is on the east side. ** The next hive is fixed like the first, and the next like the second, and so on to the end. In this way the young bees do not mix; and in returning from their wedding flights no queens are lost by entering the wrong hive.

I wonder why Mr. Doolittle didn't tell us of this method of forming nuclei, years ago; and so have saved me, and perhaps many others, the loss suffered from nuclei being robbed. Several years ago I thought perhaps it would help the nuclei in defending themselves to prepare the hives as above described, and I have lost none by being robbed since I adopted the above plan, and it has been a real comfort to feel sure that these small colonies are safe from robbers.

CUBA'S WONDERFUL HONEY RESOURCES.

WHAT WILL BE THEIR EFFECT
UPON U. S. BEE-KEEPING?

I doubt not that many of the readers of the Review feel an interest in bee-keeping and honey production in the West Indies, especially in Cuba and Porto Rico, and Gleanings for Jan. 1st, of this year, has quite an interesting article on bee-keeping in Cuba. It is written by Mr. Somerford, who has kept bees quite extensively on that island; and, after an absence of four years from the island, went to spend the summer there, but found so much misery and starvation, and so few bees, that he stayed only a month. Mr. Somerford says:—

I also investigated Porto Rico through Dr. Vieta, of Cienfuegos. His last honey crop was only three hundred and sixty thousand pounds from two apiaries. I have just returned from a trip through Cuba—a sort of inventory trip—to ascer-

tain what was left, after the war, of some of the finest apiaries in the world; and also to embark in the bee business again.

** I visited many apiaries that were in a run-down condition, and will report through Gleanings the situation in Cuba exactly as one now finds it. But, by way of caution, I will suggest to those in a hurry to embark in the honey business in Cuba that there's plenty of time; the island is not such a paradise just now—not even for the modern honey-producer. And to those bee-keepers in the States who fear that the American market is going to be ruined by cheap, dark grades of honey from Cuba, I will say that Amsterdam, Holland, and foreign cities in general, get the honey that's produced in Cuba—not the American markets. The American honey producers in Cuba, who have tried the United States markets, have paid for their experience in shipping, commission, lighterage, freight, cooerage, drayage, (import duty to cents per gallon), to say nothing of leakage; and by the time these charges are figured up and the cost of package added, at the Cuban cost, 5 cents per gallon, the shipper wonders why he didn't sell in Havana at 40 or 50 cents per gallon, net, (packages paid for by the honey buyer).

After traveling hundreds of miles over the country I came to the conclusion that next October or November would be soon enough for the would-be Cuban bee-keepers to embark for Cuba; and to impress the fact on the mind of those who, *like myself*, are in a hurry to get to Cuba before it is over-run (with anything but starvation), I will describe one of Miss Clara Barton's Red Cross kitchens that are now numerous and famous in Cuba.

Mr. Somerford then tells how 2,500 people in a city of 20,000 inhabitants are kept from starving by being given a pint and a half of boiled beans and the same quantity of rice each day.

Although he gives us a pretty gloomy picture of things in Cuba, at the time he was there, we are aware that conditions are constantly improving, and not very slowly either; and, although I'm getting pretty near the age of three score and ten, I expect to live to see the time when Cuban honey won't all go to "Amsterdam and Holland, and foreign cities," but that the United States will get more than its share of Cuba's surplus honey. When Yankee vim, energy, push, brains, and

capital, combined with the elevating power of Christianity, once gets a foothold in the "gem of the Antilles" there will be a great change.

If Dr. Vieta with only two apiaries can produce one hundred and eighty tons of honey in one season, and that honey brings 40 to 50 cents net, per gallon, in Havana, Amsterdam and Holland, etc. are not going to continue to get all the Cuban honey. And it extracted honey can be produced at a profit at three cents per pound, as was clearly shown at the recent convention of the U. S. bee-keeper's Association at Omaha, a regular bonanza awaits the energetic Yankee who can produce 180 tons or more each season and sell it so as to net 40 or 50 cents per gallon.

Of course, I don't doubt Mr. Somerford's statement; but it just makes the heads of us poor mortals swim to think we can produce only a few tons in several apiaries; and can get less than twice as much for it as is paid in Havana; and then all expenses of time, help, supplies, freight, etc., have to be paid from that.

TOLEDO, Ohio, Feb. 23, 1899.



Department of criticism

CONDUCTED BY R. L. TAYLOR.

Blame where you must, be candid where you can,
And be each critic the God-natured Man.
GOLDSMITH.

THE LENGTH OF TIME THAT QUEENS LAY.

In the Review, page 44, Dr. Miller comes to the defense of his statement that good queens might lay from seven to nine months in a year—a statement which I had criticised slightly not long ago. He says that in answering the question it was for all the readers of the American Bee Journal and not merely for Lapeer or Marengo. On the contrary, that is precisely

what I *did* take into view. Very likely his answer does well enough for Dadant's latitude, and south, but if intended for all the readers of the American Bee Journal the latitude of Lapeer and Marengo ought to have some consideration.

But the doctor's main purpose seems to be to proclaim his loss of faith in my reliability, and to give instances of alleged errors of mine as reasons for the hasty shriveling of his faith. Greatly as his loss of faith is to be deplored, it may be not without its compensations, since it may have a tendency to the acquiring of knowledge directly where that is possible, instead of "mostly second-hand," which was the way he says he acquired his knowledge of the length of time a queen lays.

WHAT WAS MEANT WHEN THE WORD
"SIC" WAS USED.

The errors he cites are these, viz., my inquiry about the spelling of mealy-mouthed, which does not call for further attention, and my writing "sic" after his expression "bring to a boil." This latter "error" stands on quite a different footing from the former.

I hoped not to be obliged to occupy valuable space with this matter, but it seems to be necessary. But let us go back. After the above "error" was committed the doctor in the American Bee Journal, after quoting says, "*I wish I knew what Mr. Taylor means by that word 'sic.'*" Coming as it does twice after the word 'boil' it looks as if he might be objecting to the use of that word, or the way in which it is used, I shall be obliged to him if he will tell what he means by saying 'sic.'" I referred him to the dictionary. Citing this he now says, "Instead of saying to what you referred, thus exposing your ignorance, you evaded the matter I don't like to say that was dishonest but if you desire to label it so, I'll promise not to contradict you." I do not remember that I arrived at the idea that the doctor was asking for a definition of sic by any process of reasoning upon the meaning of

his language. I took its meaning, I suppose, in the usual way by the impression it made. But, looking at it now, deliberately, I cannot well see how it could be understood in any other way than that in which I understood it. If the language had been used by a person known to be wanting in erudition, or in skill in the use of language, there might perhaps have been room for doubt as to just what was meant. But it is well understood that the doctor knows how to express himself clearly. Let us examine the language. The first sentence calls pretty plainly for the meaning of *sic*; and if it possesses any infirmity in that respect it is fully cured by what follows. The language runs: It *looks as if he might be objecting to the use of that word* (boil). Is that the language to be expected from one who knows the meaning of *sic*, and who wants to inquire what fault is referred to by its use? Surely not. On me, at least, it leaves a strong impression that the writer is wondering what the meaning of the word *sic* is. The natural, spontaneous expression of one who knew its meaning would be something like this: *You object to my use of the word boil, what objection do you have to it?* The whole paragraph looks to me as if the writer were in a quandary as to the meaning of the word *sic*. It would seem that it should be embarrassing to him to suggest that he wrote that whole paragraph in an attempt to express what he might have expressed clearly in the one word: To what do you object? It can hardly be held that it comes with good grace from one who uses language loosely to complain if it fails to convey the meaning he intended but failed to express. Bearing upon the point as to whether I was guilty of evasion, or whether, on the other hand, I took his language in its natural meaning, I wish to remind the doctor that at least two other writers, who certainly could have no motive to take it otherwise than naturally, undertook to give him definitions of the word. He doubtless remembers them. The reference to one of the

writers is the American Bee Journal, page 7 to for 1898. The other writer discusses the matter to the extent of half a column, as I remember it, but at this writing I have not succeeded in finding the book and page. Like those writers, if I were capable of evasion, I had no motive for it; as I think may be seen from what follows.

The doctor used the expression "bring to a boil" instead of "to boil," "to cause to boil," "to let boil," etc. He used the word as a noun instead of as a verb. I know of only one dictionary that recognizes it in that sense, as a good word; and the doctor makes no claim for any but that one. Now I trust it may be sufficient for me to say further, briefly, on this point, that my position was and is that when a word is recognized as good English by only one out of many dictionaries, or even by a decided minority of the dictionaries, or, what is the same thing, when it is practically condemned by a decided majority, and when at the same time there is no vacancy for the word to fill, that I should not hesitate to question, on proper occasions, of course, the propriety and good taste of its use. When an expression that can displease no one is at hand, why use one that may displease some? Indeed, I think it would be no sin to hold the same opinion if the expression were condemned by only a small minority of the dictionaries.

After all, by far the most notable thing about the doctor's article is the unusual character of the language he employs. I refer to his open charges of ignorance, and his covert one of dishonesty. I fail to see how they in any way add either to the strength of his argument or to the clearness of his language, and they can hardly be considered other than a gross violation of the principles of good taste, not to say of christian behavior. I had occasion last month to speak of personal and abusive language. If the case then referred to had been nearly as indecorous as the present one, I should have felt it my duty to speak of the matter more at length; but I had at that time no

apprehension that a case so unseemly as this could occur in our literature. Since it has occurred, however, it may perhaps be profitably employed to aid in making a distinction and in pointing a moral.

It is not profitable in any sense to sit in judgment on a fellow man to point out moral defects in his character, or flaws in the morality of his conduct. Assuming to thus judge is distinctly unchristian, serves no good purpose in solving any apicultural problem, and is usually most offensive to the reader. But when a man publishes his opinions, his theories, his methods, or his plans, he makes them, for the purpose of examination, criticism and discussion, public property. By so doing he invites investigation; and he stultifies himself by showing sensitiveness on account of any sort of honest discussion, no matter how severe. The distinction I make is between the discussion, in apicultural literature, of that which is sacredly private and that which is explicitly public.

One of our writers descants upon the beauties of the combination of Light and Sweetness. Of course, he uses the words in a metaphorical sense—the light of knowledge and sweetness of temper. The combination would indeed be delightful in our journals; and though a difficult one to make, it is, perhaps, not unattainable. As the sharp blows of the steel strike the sparks from the flint, and the sharper the blows the more sparks, so the sharp argument and the thorough discussion induce and increase the light of knowledge; and the stronger and more incisive the language the greater the increase. But here comes the difficulty: Critical investigation has a tendency to sour certain tempers. Perhaps a large dose of a strong infusion of the love of knowledge, and brotherly love, in equal quantities, would prove an antidote; though, in difficult cases, doubtless nothing short of divine help will prove efficient. But let us strive for it. Better death, than sweetness without light. Hurrah, I say, for Light and Sweetness.

BEEES OUTSIDE THE HIVE WILL NOT SUFFER FROM THE HEAT.

Cogitator (American Bee Journal, 117) says "On page 52, I respectfully object to Dr. Miller's answer of no difference between east fronting and southeast. We have to *pay for*, in shortened life and labor of our bees, all distressing experiences which they are subject to—at least, so Tator thinks. A southeast fronting, when bees are hanging out, roasts the bees from 12 to 2 on torrid days, when in hives with an east facing there would be comfort at those hours." To me that is a most surprising statement. Tator is greatly concerned, not for the well being of the bees, combs and brood inside the hive, but for the cluster outside. My reading, as well as my experience, has taught me that when there is any danger of injury to bees from a high temperature it is to what is in the hive, not to those outside. There is no danger of these suffering in the sun if the hive has one shady side. As soon as they begin to be uncomfortable from the sun, they begin to work around the hive into the shade. But the idea is so novel I fear I have not caught the writer's meaning.

WAS IT A LACK OF AIR, OR WAS THE TEMPERATURE TOO LOW?

"Illinois" winters some bees in one end of a hen-house partitioned off. He says, (American Bee Journal, 119) "I left about one inch entrance and when I scraped the dead bees out from the bottom board I noticed an unpleasant odor as of decaying matter in some of them. The hive bottoms are quite damp inside, also, and the bees inside do not carry the dead ones out. Can I do anything for them? Should they have fresh air?" Dr. Miller's answers are well calculated to uselessly distress a novice. He says "as nearly as I can make out, the bees have no chance to fly out, even if a warm day should come. That's a bad job. From your description, the bees are suffering for air." etc. Later he says "if it's up to 50 degrees, and not too windy, the sooner all are out the better. After they have a flight you

can pack them and it might be a good plan to take part in (sic) the cellar and see which do best." And that must have been written as early as about the middle of February. It is really too bad to put beginners in a panic that way; but it may be necessary in Illinois. So far as appears in the statement of the case, though the statement is indefinite—too indefinite, indeed, for an intelligent answer—there is nothing that would indicate an alarming state of affairs, were the case in Michigan. There is nothing to indicate that there is an undue quantity of dead bees, or that there is any disease. The bees under such circumstances are not expected to carry the dead ones out; and the unpleasant odor is nothing strange where there is so much dampness. The doctor rightly advises the enlarging of the entrance—I should prefer to remove the bottom board entirely. If I were obliged to give advice in a case upon such meagre information I should say the only trouble probably is that the temperature is too low. That causes the condensation of the moisture. Warm up in some way, if possible, to 45°, and remove the bottom boards from the hives to give better ventilation to carry off the moisture.

CARELESS ATTEMPTS AT BURNING AND DISINFECTING FOUL BROODY HONEY

G. Sawyer, as related by the Boiler in the American Bee Journal, page 90, in trying to stamp out foul brood burns the diseased combs; and, when burned, he throws over the ashes a bucket of water to which a plentiful supply of carbolic acid has been added. "This," he says, "is important; because the honey when getting hot is apt to run, and, if in the vicinity of other bees they will be sure to get at the melted honey and carry it off to their hives." He also disinfects the hive and burns quilts etc. This procedure smacks strongly of straining at a gnat and swallowing a camel. In my opinion, if such combs are burned in such a way that the honey can run away out of the fire without being heated sufficiently to kill the foul brood germs, it is tempting

fate to rely on killing them by any such slipshod washing; and, of course, it is useless if the germs are killed. If such honey is to be burned the fire should be such that it must all be burned. I suppose in this case the fire must have been out of doors on the ground.

THE BLOOMING-TIME OF MAMMOTH CLOVER.

Minnesota asks (American Bee Journal, 87) "Is the mammoth red clover a good honey-plant, and will it blossom late in the fall?" Dr. Miller replies "It blossoms at the same time as the other." This answer is a surprise to me. In this locality the mammoth clover blossoms two to four weeks later than the June clover—so much later that the first crop bears the seed; while June clover blossoms so early that, on account of the scarcity of appropriate insects to fertilize the blossoms, the first crop yields no seed. Again, there is seldom much, if any, second crop of mammoth clover; and, hence, very little fall bloom; while, under favorable circumstances, the June clover yields a good second crop well filled with seed.

THEORIES REGARDING THE DIFFERENCE IN HONEY STORED BY ITALIAN OR BY BLACK BEES.

I find this in Pickings by "Stenog," (Gleanings, 78) "Mr. A. B. Bates tells why, in his opinion, Italians store better honey than blacks. It's pretty hard to show he is wrong in the following reasoning: Honey is heavier than water; and, as a natural consequence, the richer of the saccharine substance would settle to the bottom; and while black bees (during a copious flow of honey might store as much honey—less the weight of the evaporation of water it contains) the Italian bee, having a longer reach clears out the cup of the blossom-cell to the bottom, giving us not only a richer and finer quality from the same bloom but the honey requires less ripening or evaporation of water," etc. Notwithstanding Stenog, gives up the problem I (supposing there is anything in the theory at all, which I

do not for a moment believe) would look at the matter in quite another way, viz.: In the case of most plants which yield a large amount of nectar, such as white clover and basswood, blacks and Italians are equally able to get all the nectar which the blossoms contain, but red clover is an exception. Upon this the blacks do not work; but the Italian, "having a longer reach," is able to draw off some of the most watery part of the nectar which accounts for the fact that the honey of the blacks is the richer and the finer.

LAPEER, Mich, March 2, 1899.



EDITORIAL offerings.

THE UNITED STATES Bee-Keepers' Association will hold its next annual convention in Philadelphia, Pa., commencing Tuesday evening, Sept. 5th, and closing Thursday evening, Sept. 7th.

EXAMINE the colonies of bees in the cellar before carrying them out. Do this by holding a lighted candle up under each colony. Mark those that are strong, clean and nicely clustered. This saves opening these hives after they are carried into the yard, to learn the condition of the bees. This plan was mentioned by H. G. Sibbald at the last meeting of the Ontario bee-keepers' convention.

THE HANDIEST WAY TO CARRY A HIVE OF BEES.

There are several unhandy ways of carrying a hive of bees; but I know of one way that is really handy. It is that of taking it on your shoulder. Just pick it right up, and, as you bring it up, turn it over so that the cover will rest upon the shoulder. Hang on to it enough to steady it, and walk right along. Mr. F. J. Mil-

ler of London, Ontario, told me about this when I was over at the Guelph convention. This is the way he carries his hives of bees when he has occasion to move them from place to place in the apiary; and he also carries them in this manner when taking them into the cellar or bringing them out. Don't forget, though, that his hives are of the Heddon persuasion, and hives with loose, hanging frames could not be carried in this manner; at least, not unless they had been in use a long time, and the frames and hive were well knit together with old, tough, brace-combs.

WAX-RENDERING articles, many of them, have been crowded out of this issue by the continuing of subjects already under discussion. It looks now as though the April issue would contain much more on the rendering of wax than is to be found in this issue. By the way, the Colorado College is about to begin a series of experiments in rendering wax, with a view to decide upon the most economical method. Among other things, they wish to test samples of "slum-gum" from different sources, and learn from which they get the least wax. If interested, send one pound of "slum-gum" by express, together with a detailed statement of the method employed in rendering, to Prof. C. P. Gillette, Agricultural College, Ft. Collins, Colorado. Express will be paid by the College. I knew Prof. Gillette when he was a student in our Agricultural College; and he is a good, square, capable man.

WHEN DISCUSSION SHOULD BE CUT OFF.

I think that Bro. York and myself have been consistent regarding the discussions mentioned on another page by friend Doolittle. Both discussions started in a similar manner. Some one, if my memory serves me correctly, affirmed, in the American Bee Journal, that bees were capable of improvement. This was disputed, and the assertion made that when

they left the hands of their Creator he pronounced them perfect. This started a discussion regarding the soundness of evolutionary doctrines. When it reached this stage, Bro. York thought it had passed beyond the province of a bee journal, and he cut it off. I think he had a perfect right to do this. Perhaps he might have done so in a manner more agreeable to Friend Thompson; but, so far as the discussion was concerned, I think he was justified in stopping it. I am thoroughly of the opinion that a discussion of evolution versus biblical statements is entirely out of place in a bee journal; but we have here an illustration of how easily and quickly a discussion in a bee journal may drift to that point—of how easy it is to wander from the original subject.

In his article in the Review friend Thompson was discussing discussions, and this particular discussion was mentioned, together with others, for illustration.

I have recently explained, in a previous issue of the Review, how the discussion started in regard to Trusts. Friend Snyder thought that the facing of comb honey had done more than all else to lower prices. Friend Doolittle thought not; he thought Trusts had done more than all else to lower the price of honey. Mr. Taylor thought too many sins were laid at the door of Trusts; and here we are, drifting out upon the wide sea of political economy. You would be surprised at the letters I have received since the publication of the articles by Messrs. Taylor and Doolittle—surprised at the difference of opinions. Some say "Why, where has that man Taylor been all of his days that he doesn't know any better than that?" "I just wish you would let Doolittle go for Taylor; he would soon lay him out." "I could scarcely restrain myself when I read Doolittle's article; I am glad you let Taylor answer him."

As I said before, there is no question regarding the interest and profit of a discussion of Trusts; but the same can be said of discussions regarding thousands

of other things, that would be entirely out of place in a bee journal. Perhaps you will ask, why allow such discussions to get started? You see, don't you, how they *have* started? How they have drifted on and on, from one phrase to another, until the original subject is no longer in view; and the bearing upon apiculture practically lost. In this connection, it must not be forgotten that the various industries are knit together in a perfect network; that it is difficult to discuss one without often touching upon its bearing upon the others. A bee journal is often called upon to discuss outside subjects *in their relation to bee-keeping*; and exactly which outside subjects are of sufficient importance, or the relation of which to bee-keeping is sufficiently extensive to warrant their discussion in a bee journal, and how long such discussions shall be continued, and how far they shall be allowed to wander away from bee-keeping, all of these points must be decided by the editor. That is what he is for. This is the view that I have always held. If I have ever written anything giving the impression that I believed any one who *wished* should be allowed to write *what* he wished, and *how* he wished, and that it then became the duty of the editor to publish it, and to allow discussions to run on and on and to wander where they may, if I have ever given such an impression, I wish to correct it. I do believe, however, in giving everyone a *fair* show; in allowing correspondents all the freedom that is consistent with common sense; and when a discussion is begun I also believe that "so long as *the original subject is kept in view*, and personality and abuse do not take the place of argument, and each round brings out new facts and views," that it is well to let it continue—even if "the fur does fly." Am I inconsistent?

.....

DON'T FORGET THE LOCALITY.

Upon another page Mr. Adrian Getaz has upon this subject a most excellent article. It is kind, candid, fair and rea-

sonable. It combines theory and practice in a most happy manner; and emphasizes in an eminent degree the bearing that locality may have upon methods and management. So many times, in reading of the methods employed by a successful apiarist of some distant locality, have I exclaimed: "I'd just like to see him put those plans into practice here! I'd like to pit my methods against his, here in Michigan. I'd show him." The conditions here in Michigan are exactly as Mr. Getaz has given them; and the plans that I follow fit them perfectly. Should I attempt to keep bees in Tennessee it is quite likely that I would find it necessary to modify these methods. This brings out the necessity of each man thoroughly understanding the honey resources and peculiarities of his locality.

To a certain extent I agree with Mr. Getaz in regard to large versus small colonies. That is, a large colony in the fall will probably winter on less honey, in proportion to its size, than will a small colony. The colony that is populous in the fall, is more likely to be populous in the spring; *provided it winters well*. Here comes in again the question of locality. In a latitude where bees can fly frequently, wintering has few terrors. Frequent flights prevent the overloading of the intestines that brings on that dread of all Northern apiarists—bee diarrhoea. Nothing will sooner bring about this overloaded condition than will the activity caused by brood rearing with no opportunity for flight. Now comes the point: Strong, populous colonies are much more likely to breed in winter than is the case with weak or medium sized colonies. Let a colony begin breeding in mid-winter, here in Michigan, and, no matter how strong it is, if it does not perish outright, spring will find it in a condition far inferior to the colony that lacked the numbers necessary to stimulate it to untimely breeding. Simply as an illustration, let me give one instance. In my early bee-keeping I traded queens to a jeweler for a nice silver watch worth twenty dol-

lars. In early winter I exchanged the watch with a neighbor for three colonies of bees in double-decker, American hives—22 combs in each hive. These colonies were very populous, much more so than the rest of his apiary, which consisted of 8-comb colonies, and I indulged in "counting my chickens before they hatched," by estimating the number of queen-rearing nuclei that I could make, in the spring, from these three big colonies. The winter proved severe; and in March my neighbor notified me my bees were all dead. I went over and examined them. In each hive I found three or four combs nearly full of sealed brood—bees all dead from diarrhoea. These bees were left out of doors, as was the rest of this neighbor's apiary, and the point is that his bees, in eight-frame hives, all lived. Of course, "one swallow does not make a summer," but I have seen enough such "swallows" to make a pretty fair "summer."

Mr. Getaz says that the populous colony in the fall will be populous in the spring; and that the midsummer harvest will find it the same. This is true only to a certain extent—much depending upon the queen. The average queen can keep up only an average population. The very prolific queen can keep up a large population if the conditions are favorable. To illustrate: I have frequently had two swarms unite in the air and all go into one hive. This makes an enormous mass of bees, and the result is a big pile of surplus, but the approach of winter finds this colony no more populous than many others that contained only half as many bees when hived. As I have always said, the average queen can not keep up unusually populous colonies, and the lesson is, as I understand it, to have the brood nest no larger than the average queen can fill with brood at that time of the year when it is desirable that it be filled. I am not pleading for especially small hives, mere toys, but, as I have just said, of such a size that the ordinarily prolific queen can fill them with brood at the

time when it is most profitable for us to have them is filled. With my locality and management, this size is an 8-frame Langstroth.

EXTRACTED.

SMALL HIVES.

Why They are the best Adapted to the Production of Comb Honey in the Northern States.

Now that this hive question is on the floor, let's thresh it out *clean*. Mr. Getaz shows very clearly how the size of hive and the management adapted to the conditions of the Northern States may not be the best for the South, or for other localities possessed of different conditions. There is sometimes an advantage, however, in getting a double light, or a cross-light, on a subject; or, in other words, in letting two men explain the same point. For this reason I am going to copy the following article from the pen of C. Davenport, of Southern Minnesota, and published in the American Bee Journal.

From what has since been said by some, I believe that my position in the discussion that took place sometime ago in regard to the best size of hive was somewhat misunderstood; on this account, perhaps, I may be allowed to say a few more words on the subject in this discussion.

I advocated the 10-frame hive as the best for the majority, or, in other words, for those who did not have the time or inclination to feel, which is more often necessary with 8 frames than 10; but I prefer, and use, a hive containing only 8 standard-size frames, and with them I can obtain more honey per frame, work, feed and capital invested, considered, than I can by using larger hives. But I have no doubt 10-frame hives, taking a series of years, would give better results to the average bee-keeper, for, as a rule, it requires a much closer attention to details when using 8-frame hives, but many years' experience with hundreds of colonies, and with hives of various sizes, has convinced me that a 10-frame hive is bet-

ter than a larger one for the production of comb honey in the Northern States, and I will briefly explain why.

In the first place, here we have at the first but a short season. From the time the weather is favorable for brood-rearing there is what might be called but a short time until the white honey harvest commences, and I have found but very few queens that would keep more than 10 frames filled early enough so that the eggs would develop into field bees in time to gather this white flow, for the fact should be borne in mind that it takes about 35 days for an egg to develop into a field-bee. Later, though, a large percent of queens might require more than 10 frames if they were given the opportunity to develop their full laying capacity, but in this locality it is not only not profitable, but it is a loss to have an immense force of bees reared at this time, for before they come into action as field-bees the white honey harvest is over; and while we sometimes get a fall crop here, many of these bees will be too old to be of much service in gathering a fall flow. But if otherwise, the dark honey gathered in the fall would not be worth the white honey which it had taken to produce, and which they have consumed. But, again, even if it were, it would be no plea for allowing them to be reared, for in the natural course of events, even with 8-frame hives, there will be a force of field-bees large enough to secure anything in the nature of a fall crop, which is likely to occur in this locality.

Some who have argued in favor of large hives have practically admitted all I have just said to be true, with the exception that it is still profitable to rear a large force of bees toward the latter part of the season, for in that case it is claimed colonies will go into winter quarters stronger, and have a much larger force of bees when brood-rearing is commenced in the spring; and that because this extra force of bees is present they will breed up and develop much more rapidly.

But the fact of this matter is, that in this locality, at least, it is by no means the rule that these extra-large colonies will be any stronger by the first of next May or June than are medium-sized colonies of the previous fall. But I can understand that in some localities, where the conditions of the season are different from what they are here, that they might be. Let me explain why they are not, as a rule, here.

In the first place, my present belief is that the most practical way to winter bees in this State is in some repository under

ground. This means confinement of from four to five months, and bees reared the previous season and confined for this length of time live but a short time after they are put out in the spring—but a few days, comparatively speaking, of active work and they are gone. Of course, they last longer some seasons than they do in others, according as the seasons vary.

Here, in the spring, owing to reasons that I do not fully understand, extra-strong colonies in large hives seem to lose a larger percent of old bees sooner than do medium-strong colonies. One of the principal reasons for this is, I believe, owing to the fact that in the spring we have many cold, sunshiny days, when it requires all the force of a medium-sized colony to keep their brood warm. Extra-strong colonies having a larger force than is required for this purpose, more of them fly out and wear themselves out sooner in the chill air, roaming barren fields; and when a strong colony in a large hive becomes reduced to normal size in the spring, it is at a disadvantage so far as the size of hive is concerned.

Now, I do not wish it to be inferred that I am in favor of weak colonies, for in this locality one of the main factors of success in the science of production of honey is to have strong colonies at the proper time; but in the production of comb honey, at least, it is also a very important factor to have these strong colonies in the right size of hive.

Let us take two strong colonies of equal strength at the beginning of the white honey-flow—one in an 8-frame hive, the combs of which are filled with brood and stores. If the other is in say a 12-frame hive, there will be, as a rule, two or three empty combs; this means so much less white section work, for no colony will do section work with unoccupied comb in the brood-nest.

But it is claimed by many that a colony in a small hive is much more liable to swarm. This is not however, usually the case here, for of the two colonies I have just described one is about as likely to swarm as the other, but the one on 8 frames will swarm a few days sooner, the other following suit as soon as, or very shortly after, the empty comb in the brood-nest is filled. That is, in a good season with nothing done to prevent or discourage swarming, 12 frames of comb will not prevent swarming, 16 sometimes will, 24 as a rule, prevent all desire to swarm with any colony, provided they are also given additional room if it is required. But here it is a better season than we have had for sometime when a colony on even

16 frames will do much section work, that is, with only the bees which are the product of one queen. But I believe it is a fact which has often been announced, that a colony, no matter how strong, will very seldom swarm in any season if it has all the drawn empty comb in large frames that it can occupy. But can this means of preventing swarming be profitably practiced in even the production of extracted honey? I believe not, in my locality, unless the working forces of two or more colonies are thrown into one.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee-Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," "No. 1, dark," etc.

KANSAS CITY.—We quote as follows: Fancy white, 13; No. 1 white, 12; fancy amber, 11; No. 1 amber, 10; white extracted, 6; amber, 5; dark, 4½; beeswax, 25.

C. C. CLEMONS CO.,
Jan. 24 521 Walnut St., Kansas City, Mo

CLEVELAND, O.—Demand for white Honey is very good, and market firm. We quote as follows: Fancy white, 13 to 14; No. 1, white, 12 to 13; Fancy amber, 10 to 11; No. 1, amber, 9 to 10; Fancy dark, 8 to 9; White, extracted, 7; Amber, 6; Dark, 5.

A. B. WILLIAMS & CO.
Jan. 25. 80 & 82 Broadway, Cleveland, Ohio

BUFFALO, N. Y.—Absolutely fancy 1-lb combs are selling well at 12 and 13 cents; and other grades dragging at 10 to 7 cents. Holiday trade takes all attention from honey. Very little extracted honey selling. Fancy beeswax wanted at from 28 to 30 cents; if absolutely pure.

BATTERSON & CO.
Dec. 20. 167 & 169 Scott St., Buffalo, N. Y.

CHICAGO, ILL.—The demand is fair, and sales about equal to receipts. We quote as follows: Fancy white, 13; No. 1 white, 11 to 12; amber, 10 to 11; No. 1, amber, 8 to 10, fancy dark, 9 to 10; No. 1 dark, 7 to 8; white extracted, 6 to 7; amber, 5 to 6; dark, 5; beeswax, 27.

R. A. BURNETT & Co.,
Jan. 21 163 So. Water St., Chicago, Ill.

BUFFALO, N. Y.—Honey has sold slower since the first of January than I ever knew it to sell at this time of the year. I quote as follows: fancy white, 11½ to 12; No. 1 white, 11 to 11½; fancy amber, 10 to 11; No. 1 amber, 9 to 10; fancy dark, 8 to 8½; white, extracted, 7 to 7½; amber, 6 to 7; dark, 5 to 6; beeswax, 28 to 30.

W. C. TOWNSEND,
 Jan. 25. 86 West Market St., Buffalo, N. Y.

CHICAGO, Ill.—Trade in comb honey after the first of January is unusually slow; however, fancy white will sell on arrival at 14 cents per lb. Buckwheat comb at 10 cents per lb.; other grades in proportion. Our stock of extracted honey is almost exhausted and we can use shipments to good advantage and give prompt sales. Extracted sells from 6 to 8 cents per lb., depending upon color, quality and package.

S. T. FISH & CO.,
 Jan. 24. 189 So. Water St., Chicago, Ills.

NEW YORK.—Our market is quiet on comb honey; especially so on the lower grades which have accumulated during the past four weeks; and prices have to be shaded in order to effect sales for quantity lots. Extracted is selling well and the stocks are light. Beeswax quiet. We quote as follows: Fancy white, 12; No. 1 white, 10 to 11; fancy amber, 9; No. 1 amber, 8; fancy dark, 6; white, extracted, 7 to 7½; amber, 7; dark, 5½ to 6; beeswax, 27 to 28.

HILDRETH BROS. & SEGELKEN,
 Jan. 25. 120 West Broadway, New York

NEW YORK, N. Y.—The market is well stocked with comb honey, especially with buckwheat and mixed grades. Fancy white finds a ready sale as does extracted of all kinds. We quote as follows: Fancy white, 12 to 13; fair white, 10 to 11; amber, 9 to 10; buckwheat, 6½ to 7½; white, extracted, 5½ to 7; amber, 6 to 6½; dark, 5½ to 6; Florida, white, 6½ to 7½; Florida, light amber, 6 to 6½. Other grades of Southern honey from 55 to 65 cents per gallon according to quality. Beeswax in good demand at 26 to 27. Write us—

FRANCIS H. LEGGETT & CO.
 Jan. 21. W Broadway, Franklin & Varick Sts.

**THE
 A. I. ROOT CO.,
 10 VINE ST., PHILADELPHIA, PA
 BEE-SUPPLIES.**

Direct steamboat and railroad lines to all points. We want to save you freight.

Bee - Supplies.

Root's goods at Root's prices. Powder's honey jars. Prompt service. Low freight. Catalog free. Walter S. Ponder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Sent Free

our large illustrated catalog of Bee Hives Smokers etc. Theo. Bender, Canton, O.

1-9-t Please mention the Review.

Free

A beautiful present with every order. The cheapest place in Mich. to buy supplies. Send for explanatory price-list. **W. D. SOPER,** Box 565 Jackson, Mich.

1-99-tf

Please mention the Review

Over 500 PREMIUMS

won last year on my Barred, and white P. Rocks, 1't Brahmas, Bl'k Minoreas, White, Buff, and Brown Leghorns. Stock for sale. Eggs, \$1.00 for 13; \$2.00 for 30; \$5.00 for 100. Send for circular.

3-09-5t

CHAS. RUE, Minerva, Ohio.

Please mention the Review.

A. D. D. Wood, who has had twenty years of experience in the manufacture of comb foundation and the rearing of queens is again manufacturing

Bee-Keepers' Supplies,

at Lansing, Mich. You can have his circular for the asking. Write now. 3-90-tf

Please mention the Review.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking. 3-90-tf

THE JENNIE ATCHLEY CO.,
 Beeville, Bee Co. Texas

Holy Land QUEENS. Golden Italian

1800 Send your address on a postal card for my 1800 queen circular and price-list. Parties wanting two dozen or more queens, write NOW. Satisfaction guaranteed to each and every customer. 1800

E R. JONES,
 3-08-12t Milano, Texas.

J. W. BAILEY, Pub.

F. L. THOMPSON, ED.

The Western Bee-Keeper

is exclusively devoted to apiculture in the

ALFALFA REGIONS AND TO ASSOCIATION WORK

of all kinds among bee-keepers; also gives the main points of what the other bee-papers are saying. Monthly, 50 cents a year.

No Supply house connections.

Seeks to present BOTH SIDES of issues.
2347 Fifteenth St., Denver, Colorado.

Some Odds and Ends That Will b Sold Cheap.

For a dozen or more years Mr. M. S. West of this place dealt in bee-keeper's supplies. Since his death, two years ago, his daughter has endeavored to close out his stock of goods, and has succeeded to large extent. There are still a few odds and ends, and she has brought them to me and left them for me to sell. Here is a list of the articles with prices at which they will be sold.

One ten inch foundation mill, (second-hand) Root's make, complete with dipping tank, etc. in excellent condition. \$10 00

One ten-inch foundation mill (second-hand) Root's, (one of recent make) dipping tank, etc in good order. 15.00

Three Woodcock foundation fasteners, each, 75
Eighty seven entrance guards, each, 05
Thirteen Porter Bee Escapes 2.25

Thirty-three Simplicity hives, in the flat, sixes, ends, covers and tin rabbetts, but no frames nor bottom boards, each. 40

Send all orders to W. Z. HUTCHINSON,
Flint, Mich

THE MONITOR PAPER FILE

Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music &c., by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome. PRICE.—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper

Bee keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.

J. H. M. COOK, 62 Cortland St., N. Y. City

Please mention the Review.

QUEENS, Untested, 75 c.; 6 for \$1.00; tested, \$1.00; 6 for \$5.00; breeders \$2.00. The best stock, imported or golden. W. H. LAWS, Lavaca, Ark.

We are headquarters for the

Albino Bees,

the best in the world. If you are looking for the bees that gather the most honey, and are the gentlest of all bees to handle, buy the Albino. I can furnish the Italian, but orders stand 50 to 1 in favor of the Albino. I manufacture and furnish supplies generally. Send for circular.

S. VALENTINE,

3-09-31

Hagerstown, Md

Please mention the Review.

HAWKEYE GRUB AND STUMP MACHINE

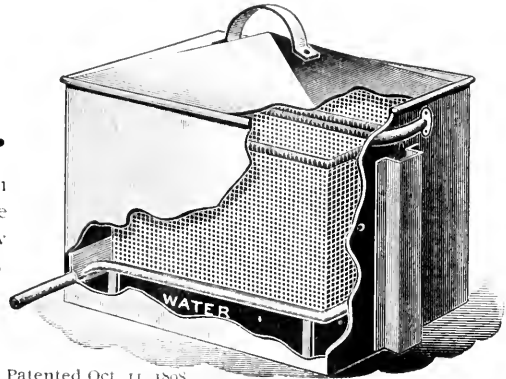
Works on either Standing Timber or Stumps. Pulls an Ordinary Grub In 1 1/2 Minutes.)
 Makes a Clean Sweep)
 of Two Acres at a Sitting.)
 A man, boy and a horse can)
 operate it. No heavy chains)
 or rods to handle. You can-)
 not longer afford to pay tax-)
 es on unproductive timber)
 land. Illustrated catalogue)
 Free, giving prices, terms)
 MILNE MFG CO, 337 8th St., Monmouth, Ill. Address Milne Bros. for SHETLAND PONY Catalogue.



Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1898

Wanted, for the Salvation Army Colony, Amity, Colorado about twenty colonies of bees. Address, stating price, etc., THOS. HOLLAND, Amity, Colo.

—If you are going to—

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Our Prices are worth looking at. We are making the new

Champion Chaff Hive

with dovetailed body and supers and a full line other Supplies, and we are selling them CHEAP. A postal sent for a price list may save you \$ \$ \$ \$.

R. H. SCHMIDT & CO.,
Box 187 Sheboygan, Wis

4-94-1f

— If you wish the best, low-priced —

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

1899 Queens 1899

For Business—Queens for Strong Colonies—Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list.

12-97-tt

J. P. H. BROWN, Augusta, Ga.

Please mention the Review.

Queens bred in the North are hardy and fertile. Every bee-keeper should try one of these Northern grown queens. Pure bred Italian queens at 75 cents each; or 12 for \$6.00.

WM. H. BRIGHT, Mazeppa, Minn.

Please mention the Review.

To stick things, use **MAJOR'S CEMENT.** Beware!!! Take no substitute.

2-98-12f

Please mention the Review.

Best on Earth. 19 Years Without a Complaint.



Best Bee Smoker
BINGHAM'S
BeeSmoker

Smoke Engine	largest smoker made	3 inch stove	Dozen	Each
Doctor		3 1/2	9.00	1.10
Compu sor		3	6.50	1.00
Large	2 1/2	5.00	.90
Plain		2	1.75	.70
Little Wonder (wt. 10 oz)		2	4.50	.60
Honey Knife	6.00	.80

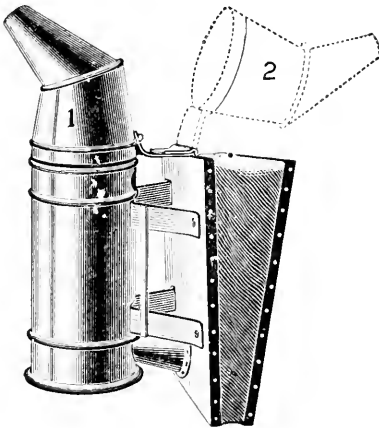
For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

\$50 for a Bee-Story.

THE PROGRESSIVE BEE - KEEPER wants a good bee-story. The story should be not less than 15,000, nor more than 20,000, words; and we will pay \$50.00 in cash as first prize for such a story. There will also be second and third prizes. No one financially interested in the company will be allowed to compete, or act as a judge; and we guarantee that none but competent and impartial parties will decide the contest. For further particulars address

PROGRESSIVE BEE-KEEPER,
Higginsville, Missouri.



The accompanying cut shows the Higginsville Smoker with the nozzle thrown back for filling. This smoker is strong and well made of the best material, has a strong draft, and will burn any kind of fuel. (one smoker, 75 cts.; three for \$1.80. When sent by mail add 25 cts. each for postage. Send for catalog of other supplies.

Leahy Mfg. Co., Higginsville, Mo.

If the

REVIEW

Is mentioned when answering an advertisement in its columns a favor is conferred upon both the publisher and the advertiser. It helps the former by raising his journal in the estimation of the advertiser, and it enables the latter to decide as to which advertising mediums are most profitable. If you would help the Review, be sure and say "I saw your advertisement in the Review," when writing to advertisers.

Page & Lyon,

Mfg. Co.

New London, Wis.

Proximity to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

ORDER

EARLY.

There are indications that the demand for supplies will be very large this season, and everyone should order as early as possible. We have large facilities for manufacturing all kinds of *Bee-Keepers' Supplies*, and will serve our customers as quickly as possible.

Falcon sections are the finest made. 1899 catalogue ready Feb. 1st. Copy of the *American Bee-Keeper* 20 pages sent free. Address

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wired*. Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPEOUL BROOK, N. Y.

YOUR PROFITS

Next season will depend largely upon how your bees come through the winter. Many bee-keepers believe that after bees are put into winter quarters nothing more can be done for their welfare until spring has come. All who believe this, and all who believe that care *is* needed, but are a little uncertain as to what that care should be, ought to buy the book **ADVANCED - BEE CULTURE**, and read the chapter entitled "Care of Bees in Winter." Remember, too, that the book contains 31 other chapters.

Price of the book, 50 cts.; the Review one year and the book for only \$1.25.

W. Z. HUTCHINSON,

Flint, Michigan.

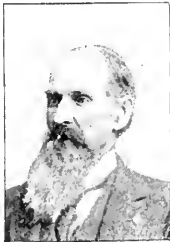
Listen! Take my advice and buy your bee supplies of August Weiss; he has tons and tons of the very finest



FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

18



99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.50; 1,000 for \$2.50; 3,000 for \$6.75; 5,000 for \$10.00; 10,000 for \$17.50.

No. 2 sections are not made to order, but when in stock are sold at \$1.50 per M.

J. FORNCROOK,

Watertown, Wisconsin.

WINTER

Losses are not always the result of the same cause. They may come from starvation; from poor food; from improper preparations; from imperfect protection; from a cold, wet, or possibly, a poorly ventilated cellar, etc., etc. Successful wintering comes from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "ADVANCED BEE CULTURE." Five of its thirty-two chapters treat as many different phases of the wintering problem.

Price of the book, 50 cts.; the REVIEW one year and the book or \$1.25. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,

Flint, Mich.

Violin for Sale.

I am advertising for the well known manufacturers of musical instruments, Jno. F. Stratton & Son, of New York, and taking my pay in musical merchandise, I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Stradivarius," Red, French finish, high polish, and real ebony trimmings, price \$14.00. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver shield, ebony screw-head, German silver ferules, and pearl dot in the end, price \$2.50. The case is wood with curved top, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this on th, and would accept one-half nice, white extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apiarian Supplies. Send for circular. 1-96-6

Please mention the Review

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1.25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEAXES & MINER; Ronda, N. C.

Make Your Own Hives.

Bee-Keepers

Will save money by using our Foot Power Saw in making their hives, sections and boxes.

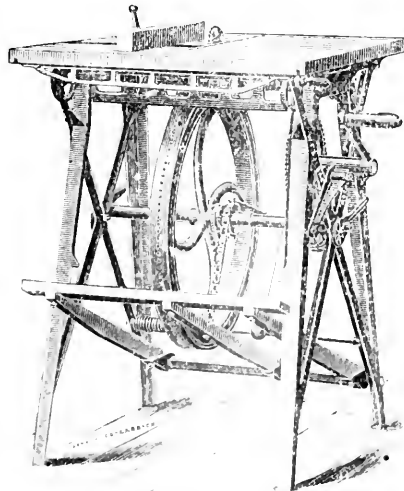
Machines on trial. Send for Catalogue.

W. F. & J. D. BARNES CO.,

384 Ruby St.,

Rockford, Ills.

11-98-121



COMB

FOUNDATION

WHOLESALE AND RETAIL.

Working wax into foundation, for cash, a specialty. Hives, Sections, and a full line of Supplies. The best of everything. Write for Catalog, with prices, and samples of Foundation and Sections. Beeswax always wanted for cash or trade.

GUS. DITTMER.

10-97-121

Augusta, Wis.

The A. I. Root Co.'s Goods, WHOLESALE AND RETAIL.

Please mention the Review

Early Queens,

Ready now, at \$1.00 each; after April 15 75 cents each. For particulars send for circulars. Two yards and the earliest location in the United States

4-99-11

J. B. CASE, Port Orange, Fla.

The Coming Section.

It has all of the advantages of the plain section, and does away with the fence separator. It can be used with any plain separator. Send for a sample. **W. H. NORTON.**

1-99-21

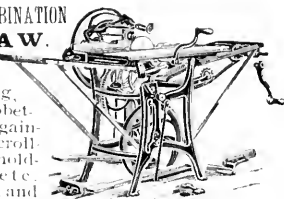
Skowhegan, Maine.

M. H. Hunt & Son

Wish to send you their catalog of Root's Goods. If you are a dealer, get our wholesale list. Try us for prompt shipments and good service. Beeswax wanted. **M. H. Hunt & Son,** Wayne Co. Bell Branch, Mich.

Please mention the Review

UNION COMBINATION SAW.



For ripping, cross-cutting, mitring, rabbeting, grooving, gaining, boring, scroll-sawing, edge molding, beading etc. Full line of foot and hand power machinery. Send for catalogue A.

1-99-121

Seneca Falls Mfg. Co.

48 Water St., Seneca Falls N. Y.

Farm Bee - Keeping

Is one of the leading departments in the *Modern Farmer and Busy Bee*, the best Farm and Bee paper in existence. Write for sample copy and for clubbing rates with any paper you want.

E. TAYLOR ABBOTT,
St. Joe, Mo.

SPECIAL OFFER—The price of the Modern Farmer and the Busy Bee is \$1.00, but I will club it with the Review for only \$1.60

W. Z. HUTCHINSON, Flint, Mich.

JOHN F. STRATTON'S
CELEBRATED
GUITARS,



Importer of and Wholesale Dealer in all kinds of **MUSICAL MERCHANDISE,** 811, 813, 815, 817 East 9th St., New York.

Please mention the Review.

There is a Difference in Bees.

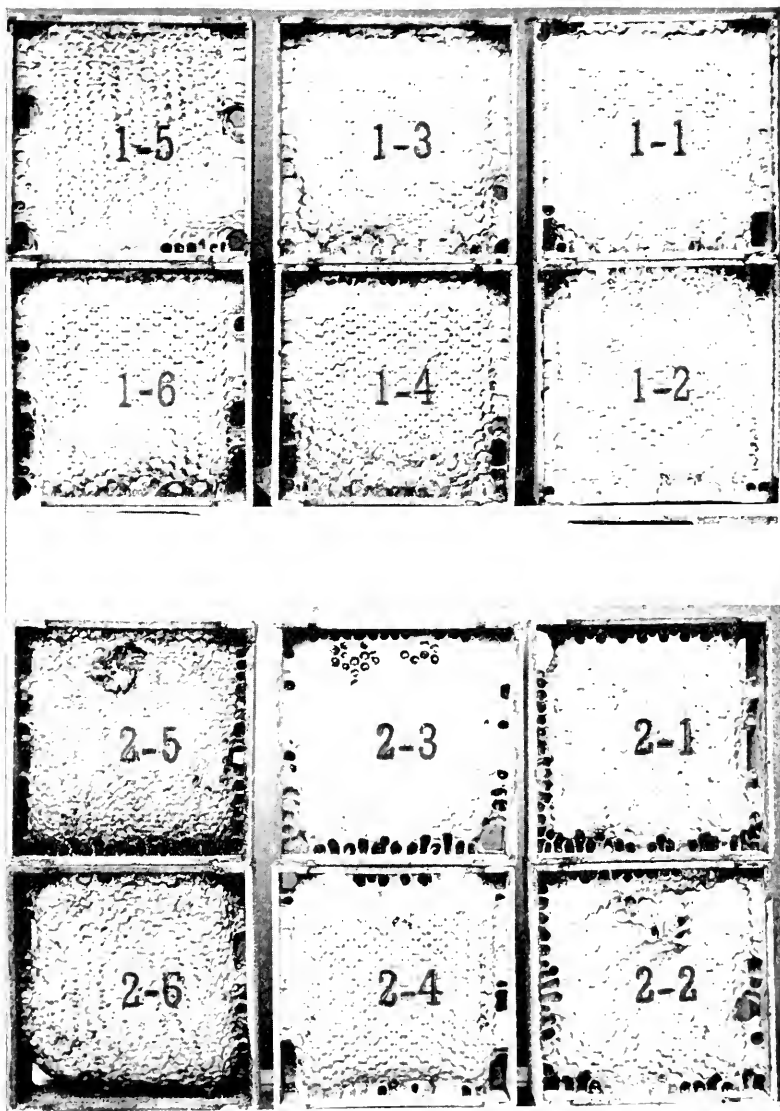


Every owner of a large apiary knows this knows that some colonies store more honey than others, that some are more easy than others to handle, that some are more hardy and winter better than others. For years we have been breeding up a strain of Italian bees possessing these desirable qualities in a high degree. Reports from customers prove our success. A trial order will convince. Tested queens, by return mail at \$1.00 each.

J. W. K. SHAW & CO., Loreauville, La.

3-99-31





COLORADO GRADING OF HONEY—UPPER LOT FIRST GRADE.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL. XII. FLINT, MICHIGAN, APRIL 10, 1899 NO 4

THE GRADING OF HONEY.

Also Some Hints and Suggestions Regarding
its Shipment.

F. L. THOMPSON.

At the last annual convention of the ⁶⁴ Colorado State Bee-Keepers' Association, held Nov. 30 and Dec. 1 and 2, the committee on grading recommended the following rules, which were adopted by the Association:

No. 1.—Sections to be well filled; honey and comb white; comb not to project beyond wood; wood to be well cleaned; sections to weigh not less than 21 pounds net, per case of 24 sections; but cases in lots must average 22 pounds net. [That is, if a few cases in a lot weighed 21 pounds each, that would not prevent the whole lot from being first grade honey, provided the average of the whole lot was 22 pounds.]

No. 2.—Includes all amber honey, and all white honey not included in No. 1; to be fairly well sealed, and not weigh less than 18 pounds net per case of 24 sections.

Culls.—All cull honey shall be sold in the home market.

No doubt, plenty of minor criticisms could be made on the above; and while it

may not correspond to what many would think *ought* to be, yet it may be taken as perhaps as close an approximation to the actual commercial conditions in this State as is possible to obtain. The most reasonable objection I have heard comes from a bee-keeper on the western slope, who says his whole crop of white honey averages a fraction less than 21 pounds net, and yet he got better prices and better grading than some of his neighbors who had full weight, 1-lb. sections. He does not wish to discard separators. I have been told, however, that the same buyer who cleaned out most of the Montrose County product last year said that he might insist on a 22-lb. average another year. That will be seen when the time comes. The experience of the Denver bee-keepers seems to be in favor of the 22-lb. average. My own experience shows that to get a 22-lb. average of *separated* honey, with our long flows, during *part* of which the yield is scanty, will require considerable picking over and rejection of otherwise desirable sections. But I am willing to follow the majority if it seems necessary.

The object of adopting a special grading was to have a chance of putting a good share of our nice white honey in the best grade. The Washington grading can not

be lived up to. To illustrate this, a section was exhibited at the convention which had the comb perfectly straight, completely capped, and white, and the wood just a little soiled. According to the Washington grading, this is neither No. 1 nor fancy. It could not be fancy, for the wood is soiled; it could not be No. 1, for the comb is straight. Moreover, as Mr. Aspinwall lately remarked, in the Review, a slight soiling of the wood is not objectionable, but desirable.

The committee also exhibited another section which they could not agree upon; and a vote of the convention was taken by ballot on the grade it should go into. Twenty-eight voted that it should go into the first grade; and ten that it should go into the second grade. But the trend of the discussion that followed showed that it should go into the second grade. It was a white, straight comb, well filled, but the bottom row of cells on one side was all empty, all except a few cells of the next row empty, and five of the third row.

It was urged that only a few cells were unsealed. To this it was replied that it could not be called well capped; and that it is hard to establish rules after going above the first row. Another section was exhibited, which contained no more unsealed cells, but they were differently arranged, so as to make sort of a patch; which section hardly anyone put in the first grade.

The photographs I send represent sections graded by a committee as an illustration of the above rules. At the convention, too, sections were graded, so that each one present could see with his own eyes what the rules meant. To attain the same result as nearly as possible in this article, I append a description of each section in the photographs, based on a personal inspection of the sections which appear in the photographs. I will refer to them by numbers. There happened to be no amber honey available at the convention to illustrate the second grade, but that feature would not show in the

photograph anyhow. The six sections shown illustrate second grade white honey, though not necessarily white comb. It is, of course, understood that no matter how white and straight the combs are, if the honey is amber, it is second grade. This is in accordance with the actual conditions of the market; there is no such thing as fancy amber; No. 1 amber; nor No. 2 amber; but amber is No. 2 in this State—and elsewhere, too, to judge by sales to outsiders. The words "white" and "dark," therefore, in the following description, refer entirely to comb; not to honey.

All of the six sections in the first grade are almost free from propolis stains on the wood, and all are separated sections. Of course, each one must decide for himself on the matter of separators. If he can, without separators, obtain a high enough percentage of combs which do not project beyond the wood, well and good. I think this matter is worthy of more attention, in the way of scientific, *mathematical* experimenting, than it has had hitherto—*i. e.*, does it follow, because a man makes an assertion that he can get along with or without separators, that he really *knows* that his percentage of bulged combs is as low as it ought to be to pay him in dollars and cents? How can he know unless he counts and calculates? And how many do so? Very few; but many make assertions. It is, of course, so largely a matter of locality that each one should do his own experimenting. My impression is, that the average weight of the six sections showed is distinctly higher than my usual average of separated honey in the localities where I have kept bees. I must, therefore, bestow some attention on the problem of whether it will pay me, in my locality, to do without separators. Others may obtain heavier honey than I do, and will not need to experiment in that line. To show the importance of combs that do not project, it is only necessary to mention the fact that during the past season one call was made for car of *separated* honey. With

bulging combs to avoid on the one hand, and light weights on the other, it is necessary for each bee-keeper to *know* what he is about, which he can do, in this case, only by personal observation.

DESCRIPTION OF SECTIONS.

1—1. White comb, completely capped; full weight; surface straight, and even clear to the wood all around; two small pop-holes below.

1—2. White comb, with a scarcely perceptible tinge toward the bottom (in the photograph, this section is upside down); completely capped, full weight; surface and pop-holes as in 1—1.

1—3. White comb, with a *slight* water-soaked appearance along the bottom, and a very slight tinge of yellow; completely capped; good weight; comb slightly rounding, with the outside row of cells along the top and sides on a slightly lower level than the others.

1—4. Shows a good white appearance, with a slight tinge of yellow; completely capped; good weight; surface slightly tapering next the wood; four pop-holes; two scarcely noticeable.

1—5. Color not just white, but not much stained—some of the cells show a water color in a small part of their surface, which gives a somewhat darker appearance as a whole than the others; all capped except about half a dozen cells at the bottom; good weight; straight surface, clear to the wood, except that the bottom projects a little beyond the surface of the comb, though not beyond the edge of the scallop; four pop-holes.

1—6. Very slightly propolis-stained; some of outside row of cells unsealed; weight a trifle under medium; straight surface, rounding off around the edges; three fair-sized pop-holes.

2—1. Slight tinge of yellow; outside row of cells mostly unsealed; weight a trifle under medium; surface straight, rounding off at edges; four pop-holes, three rather large, one scarcely noticeable.

2—2. Fairly white comb, with slight propolis-stain near top; about one-half of outside cells unsealed; weight medium;

surface mostly straight, a little irregular at edges, with a burr-comb near the top; one pop-hole; wood slightly stained.

2—3. Rather white comb; eighteen or twenty unsealed cells near the top; rather light weight; surface somewhat rounding, and rather far back from the edges of the wood; two pop-holes, one small; some stain on wood.

2—4. Good white comb, very slight yellow tinge at top; outside cells mostly sealed; full weight; surface projecting $\frac{1}{8}$ inch beyond wood, showing abrasions, and not quite level; three pop-holes; wood not much stained.

2—5. Dark comb (from our point of view) *i. e.* relatively dark, but not absolutely so—prominently yellowed by propolis; most of outside cells unsealed; good weight; surface straight, rounding at edges, burr-comb near top; four small pop-holes; some stain on wood.

2—5. Darkish yellow, not quite so intense as 2-5; outside cells sealed except at bottom, where they have no honey at all, which, together with large pop-holes, makes inferior attachment; weight under medium; surface straight, rounding off at edges; four pop-holes, one rather large; some stain on wood.

The average of the second grade sections shown is rather below the average of our second grade honey as it actually exists; but the sections are well adapted to bring out the points involved.

The committee did not designate what constitutes cull honey; but on discussing this with Mr. F. Rauchfuss, we agreed that it should include all combs having more than one-third of one side unsealed; those very badly spotted with propolis, especially the red variety (this is a very small percentage); those not sufficiently attached for shipment, including those in which the top or bottom bar has become accidentally detached from the comb; wood badly mildewed (quite exceptional); connected combs, or those very bulging, or having very prominent burr-combs, or leaking badly, or cracked from any cause; and those averaging less than 18 pounds net per case.

It was not thought good policy to encourage trade in culls (though two inquiries for culls were received) on account of the use to which they may be put by the vendors of glucose sold as honey, by cutting them in strips and pouring liquid glucose over them, and selling the whole for pure extracted honey. This rule consigns the cull honey of the western slope bee-keepers to the melting-pot; for to all intents and purposes, there is no home market there. Nevertheless, I shall in this point also follow the majority, if thought best. I do not want to injure the trade; neither do I care to earn my already small profits twice by working hard to nearly give away the culls. The only point is, I do not object to holding the culls, from which I can at least get wax and feed-honey, and which are small in amount anyhow, but I do object to the assumption that there always is a home market. The spirit of the ruling I am in favor of.

It seems appropriate here to speak also of a somewhat different subject. During the past two years, by co-operating and shipping outside of the State, in car lots, better prices were obtained; and a few points from the experience thus gained may be timely. They are supplied by Mr. Frank Rauchfuss, who had the work in charge.

When shipping in cold weather, the honey should always be kept in a heated room for at least 24 hours before loading, and 48 hours would be better. This is to avoid the cracking of combs. The pile of honey in the car will not lose its heat within a reasonable time.

In this State, we simply can not afford to use 12 pound cases. They cost entirely too much in proportion to the amount of honey they contain. For that matter, even the 24-pound cases cost too much.

In local shipments, up to 50 cases, they should be crated in crates holding 8 or 12 cases each. These crates should fit tightly all around, but contain a space above and below the cases for packing material, such as excelsior or straw. A sheet of pa-

per should be laid on top of the cases before putting the packing material above. If one makes his own crates, it is better to make them to hold 8 cases. When they are to be reloaded on the way, it is advisable to crate even as many as 100 cases. Handles on the crates are not probably of any service; but if made, they should be put on about the middle of the crate, so that if used, the crate may be lifted high enough to permit of walking freely. The address, and a caution card on the handling of honey, should be put on top of the crate. The freight handlers usually aim to have the address-side of a package up. It is also well to add the word GLASS in large letters.

Larger lots should be piled in one end of the car, three or four high when double-tier cases are used, and six high for single-tier. If the shipment is made to a city of some size, the freight handlers will not put anything on top of the cases if they are requested not to do so; as the whole car may contain mixed freight destined for that point. But concessions of that nature can not be obtained when the town to which the honey is shipped is small. In that case, the freight is preferred to be near the car door. The pile of honey should be boarded up, and packed with hay or straw. If the dimensions of the car admit, no packing is needed at the sides, but the cases may be fitted solidly against the sides, unless packing is required merely to fill up, but at the end of the car a cushioning is required. Four or five inches would be enough for this, if the packing material could be tightly compressed; but as this is much easier accomplished when there is space enough for a man to get in and tramp on it, twelve or fifteen inches is better. When the material is all in, a board should be fastened above it, to prevent it from working up. A slight littering, say $1\frac{1}{2}$ inch, of packing material should be strewn on the bottom of the car before loading, in order to remove inequalities caused by bolt-heads, etc., so that the pile will be uniform throughout.

In loading a whole car, the same instructions apply. The cases should be piled three deep if double-tier cases, or six deep if single-tier. The car should be loaded solid from end to end, with no alley-ways between two portions of the load. To accomplish this, the car can be loaded solid from one end up to the doors, then several lines of cases continued on to the other end, on the side opposite to the door where the cases are handed in, then the cases piled solid in the remaining space, commencing with the end partially loaded. Of course the cases must be perfectly uniform, so that the last ones will be a perfect fit in the places left for them. It would be well to see to it before loading that the tops and bottoms of the cases are not wider than the end pieces. The doorways should be boarded up inside in such a manner as to be flush with the interior of the car. This is done by nailing vertical strips on each side of the doorway, so that when boards just long enough to reach across are nailed to these strips, their inner surfaces will continue the line of the inner wall of the car. When the piling and packing is done, newspapers should be spread over the pile, and strips of wood laid on them to keep the paper in place. A quarter's worth of old newspapers will more than suffice for a carload. Carloads packed as above arrived at a far eastern State in perfect condition.

DENVER, Colo. Feb. 17, 1899.



DRAWN COMBS FOR SECTIONS.

How to get Them - Their Advantages.

I. W. BECKWITH.

DIFFERENT parties have told us that they have the bees build the comb in the brood-frames, and then cut it up and put the pieces in the sections; but I have

not seen where any of them explain how they get the bees to build the comb properly for transferring; and, perhaps, what I shall say on the subject may draw them out; and, as some of them have practiced this plan much longer than I have, they are well qualified to criticize and enlarge on what I shall say.

I cage the queen of a populous colony that has a good supply of young bees and take away all of the combs except one containing eggs and young larvæ. I put this comb between two empty ones at one side of the hive. The object of these empty combs is to catch the pollen which might otherwise be deposited in the new comb that they build; rendering it unfit for the purpose intended. As soon as the comb of brood is capped I replace it with another. I keep up the strength of the colony by shaking young bees from other colonies in front of the hive. By allowing but little brood in the hives there is but little tendency to build drone comb, even while the bees are raising a young queen. (See my article on page 329 for 1898). The empty combs that I give catch but little honey on the sides next to the brood, except at the top, the parts next to the brood being reserved for pollen. I exchange these for empty ones as often as necessary. I fill the rest of the hive with frames furnished with very light starters of wax, not foundation, although a very narrow strip of extra thin foundation would not be objectionable, but the wax is cheaper and much more easily put on, and is just as good in every respect. I think it is not necessary for me to tell how to put on the starters.

One L frame full of comb fills eight $4\frac{1}{4}$ x $1\frac{1}{4}$ sections. The comb should rest on the bottom of the section and fit well against the two sides, but if it does not quite reach the top, no matter. A drop of melted wax near each upper corner will generally hold it in place if it is inclined to fall over, which it will seldom do if well fitted. I sometimes stick a pin through the section into the comb, espec-

ially if it is filled with honey, and draw the pin when I clean the section.

I sometimes extract the honey before cutting the comb from the brood frames; but when one colony is building the combs while another is finishing them, that is not necessary; but if any honey has been capped I uncap it, unless a whole piece is capped evenly and the comb is of proper thickness.

I know of some writers who will say this is too fussy. Of course, it is fussy; and the same may be said of all the work in the apiary; and, in my opinion, this fussing pays as well as any part of the work.

I will mention some of the advantages of this plan.

No trouble getting the bees into the supers; consequently a greater number of filled sections, especially if the honey flow is not very strong.

The combs may be produced during a flow of honey that is not desirable to have in the sections.

Such colonies as do not finish their work neatly may build the comb and others finish with white cappings.

The sections will be but little soiled and the cappings will have a cleaner and neater appearance.

The comb will be fastened to the wood evenly on all sides.

And "last but not least" *no fish-bone*.

LANDER, Wyo. Dec. 20, 1898.



RENDERING WAX.

How Sulphuric Acid may be of Assistance in the Matter. A Test for Ceresin.

ARTHUR C. MILLER.

THE PROPOS of the article in the January Review, on wax refining, and your editorial thereon, I beg to call your attention to an item of importance. If old

combs are properly treated *before* the melting, the pollen and silk will not absorb the wax nor produce the jelly-like gum referred to; and much of the annoyance of reduction will be avoided. I find the best method is to place the combs in a strong solution of sulphuric acid and water (cold) about a week prior to the time of melting. If the combs are well broken up and occasionally stirred in this solution, the acid will decompose these troublesome substances and a large part of them will remain behind when the crushed comb is removed to the melting pot.

I wish to emphasize the necessity of slow melting of the wax and not allowing it to *boil*, as when the mass reaches that temperature, the propolis is quite apt to combine with the wax. If, after this, the press is applied, all of the wax will be recovered in the best possible condition.

Caution: When melting wax, always add to the water acid of some kind, preferably sulphuric, sufficient to neutralize any alkali in the water, otherwise said alkali will affect part of the wax, forming a sort of soap.

If you will try the following experiment, you may be able to arrive at an approximate idea of the amount of adulteration from ceresin, to be found in any wax under investigation. Take a 7-inch test tube, fill it $\frac{1}{3}$ full of water, make with it a saturated solution of potash, and hold over an alcohol lamp until it boils. At the instant of boiling, drop in a piece of wax the size of a very small pea, and instantly remove from the flame. If this is done rightly, it will produce a perfect soap or emulsion if it is pure beeswax; but if it contains ceresin, the latter will rise to the top. You may have to try this experiment several times on what you know is pure wax before you are able to produce a perfect emulsion, as sometimes an instant's too long of boiling will cause the wax to separate from the solution.

PROVIDENCE, R. I. Jan. 31, 1899.

A SOLAR WAX EXTRACTOR.

One Peculiarly Adapted to the Melting of Cappings and the Purifying of Wax.

WM. McEVROY.



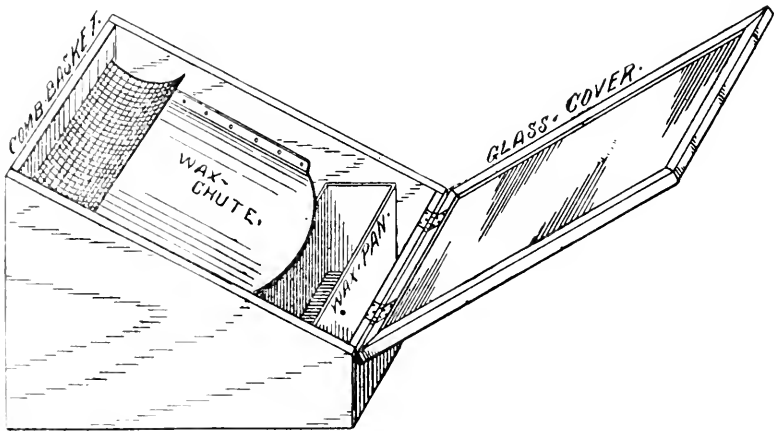
ANY thanks to you, Mr. Beekwith, for that very valuable letter on rendering wax; and, also, for the photo of the press which appeared in the Review for January 1899. I shall make a press like

it; and when rendering old combs will use it; and thereby get a much larger amount of wax than can be gotten out of old combs in any other way.

in the melting up of old faulty combs of anything that has been brought to the front in the bee industry for many years.

While on my rounds through the Province of Ontario I have seen, during the last nine years, many thousands of old combs in use that should have been made into wax, and would have been had they been mine; because I do not believe in keeping even one old comb that is not perfect in every respect.

I have a fine solar wax extractor which I bought of its inventor, Mr. Alpaugh; and it is worth \$10.00 a season for melting the cappings into wax. It has a fine, wire-cloth basket, about the size and shape of an old-fashioned, wooden, saptrough, which hangs across the high end; and when the cappings melt the wax falls down in showers upon a slanting sheet of tin, and then runs down to the end of it, and drops into a tin pan. The basket is hung so high that the sun shines in be-



THE ALPAUGH SOLAR WAX EXTRACTOR.

Mr. Gemmill, of Stratford, Ontario, Canada, who is the most thoroughly practical bee-keeper that I ever knew, has for some time been using a press of his own contrivance; and his great success in getting so much more wax out of old combs than was ever supposed to be in them, is going to cause one of the biggest "stirs"

tween it and the slanting sheet of tin. When the cappings are melted I lift the basket out of the extractor, turn the basket upside down, and, from a tea-kettle, pour some boiling water all over it. This cleans it very nicely in two or three minutes. I then fill it again with cappings and hang it in the extractor. The comb-

basket is about two feet long, one foot wide, about seven inches deep, has a wooden rim around the top edge of it, and, as I have already said, is the shape of an old, log sap-trough.

These solar wax extractors should be made about 32 inches high at one end, and slant down to 8 inches at the other, and when the comb basket (wax-strainer) is hung up across the high end, it should be six inches above the sheet of tin that runs slanting down to the wax pan. Extractors like these should be bolted upon a platform, so that any person can with one finger turn it to face the sun.

After the large plate of glass is put in the sash that covers the extractor, the sash should be fastened with hinges at the lower end of the extractor. When I melt wax over, and run it into pans, I always wind some papers around boards and cover the pans so tightly that no air can get at the wax; and, by doing that, I have not had one cake of wax cracked in over twenty years.

WOODBURN, Ont. Feb. 8, 1899.



RENDERING BEESWAX.

An Improved Boiling Process; The Solar Extractor; how the Latter may be used in Purifying Wax.

C. DAVENPORT.

PROBABLY few, if any, of those who read these lines have done more experimenting, or tried more methods of rendering old comb into wax, than I have. I have had a great deal of this work to do, and I will describe the method I have practiced of late.

First, however, I will say a few words about solar wax extractors. There seems to be considerable difference of opinion as to their value for rendering old comb; some asserting that a large per cent. of the

wax is lost by this method, while others say that all, or very nearly all, of the wax can be secured by this method. I have found that a great deal depends upon the extractor and the method of using it. If an extractor is made right, very nearly all of the wax can be obtained from any comb, no matter how old; provided it does not contain pollen. For use in the North an extractor should have double glass, and be made with close joints, so that it will hold the heat; then, in order to secure all of the wax, the combs must not be piled on top of each other, but spread over the inside, one deep, and left until all wax ceases to drain out; the time varying, of course, according to the heat of the sun. I have taken the refuse from old comb so treated, boiled it, and then put it into a powerful screw press, and obtained but very little wax; nowhere nearly enough to pay for the extra work. I have not only tried this experiment once but a number of times, with the same results. If, however, the combs contain pollen, or are piled on top of one another in the extractor, anywhere from 20 to 50 per cent of wax will be obtained from the refuse, if it is boiled and put under a strong pressure. The length of time required to treat old comb in a solar extractor, in order to obtain all of the wax, is so great as to make its use entirely out of the question; if much is to be rendered; besides, as a rule, most old comb contains pollen; so I have settled upon the old fashioned method of boiling, as being the quickest and most effective way of rendering old comb. By this method $\frac{7}{8}$ or more of the wax can be obtained without the use of a press; as I have demonstrated by careful tests and actual weights.

A very important part of the boiling method is to first soak the combs in water two weeks or ten days. I take one or two or more barrels, as may be required, and fill them with comb; then pour in as much water as they will hold, weighting the combs down with stones. I should have explained, however, that after I have

put a bushel or so of combs into a barrel, I take a stick that is three or four feet long and two or three inches in diameter and with it pound and break them up into small pieces; then another basket of comb is thrown in and mashed up; and so on, until the barrel is filled. This mashing or breaking up of the combs is important. Perhaps soft water might be better for this soaking, but I take hard water right out of the well.

When I am ready to boil the comb I place a large wash boiler (used exclusively for this purpose) on the stove, and fill it about half full of water. I have two sacks (also used exclusively) for this purpose of such a size that one will fit in the boiler with some room to spare after it is filled with comb. After filling a sack with comb I tie a stout string around the mouth of it; and this string is long enough to hang over the side of the boiler, and thus furnish a convenient means of turning it over during the boiling or for removing it when that process is completed. It is then thrown into the boiler and no attention paid to it until the water begins to boil briskly. I then take a long round stick about four inches in diameter at the large end, rounded and made very smooth with sand paper so it will not tear the sack, and with it press and work the sack around, keeping it under the water, and turning it by the string previously mentioned. This pressing of the sack and contents is vigorously and thoroughly done. After the water begins to boil it requires only a short time for the wax to all escape from the sack. In order to tell when the sack has been in long enough, I raise it up by the string and let it drain until most of the water has run out, then catch a few drops in a dipper. If I find these few drops free from wax, the sack is taken out. If traces of wax are seen it is boiled longer. The object of having two sacks is that the operator may be kept busy; as a sack, when first removed from the boiler, is so hot that the refuse cannot be emptied out.

After two or three sacks of comb have been boiled, the wax is dipped off by means of a long handled dipper and put into a large pan. Afterwards it is either boiled in another water to free it from impurities; or, if at a time when a sun extractor will work, it is freed from impurities by running it through that. As I have mine arranged it will free wax from foreign matter as well or better than can be done by the use of water.

My present solar wax extractor is a small one called the Doolittle; and, as there are probably thousands of these in use, it may be of interest for me to explain how I arranged mine so it would cleanse or purify wax. In the first place, when I received it I put in another bottom over the one already there, as there were cracks between the boards of which it was formed. The whole inside was also painted black. The sheet iron tray on the inside was so made that the cover could not fit down tight, so a strip was cut off this sheet iron, on each side, the whole length, so that it would fit down inside the extractor. The sides of this tray were then bent over a little, so that when a strip was nailed on each side, underneath, to support it, it was still low enough so it did not prevent the cover from shutting down tight. Strips were also nailed on all around the edge of the cover in order to make it fit as tightly as possible. The piece of screen that went across the tray was taken off and the tray reversed, thus bringing the open end up and the closed end down. In this closed end a few fine holes were punched about an inch and a half up from the bottom, so that the liquid wax could, when it rose that high, escape through into the pan below. I keep the extractor inclined but slightly, so the wax will run slowly, and most of the foreign matter settles on the tray before the wax rises high enough to drip into the pan below. The extractor being made so tight, the heat is retained and the wax in the pan stays liquid so long that the dirt settles to the bottom the same as

when water is used. Running it through the second time will remove almost all foreign matter. For cleansing wax in this way, and for rendering cappings is about the only use I make of the solar extractor; for the boiling process is so much quicker. After one acquires the knack of it, one can, by using an extra boiler or kettle in which to heat water, render a large amount in one day; and, by the process which I have described, the refuse will not contain enough wax to pay to fuss with any press that I know any thing about.

It is very important, however, to have the sacks I have mentioned made of the right material; woven cloth will not answer at all. They must be made from coarse, *knit*, cotton stuff, like that in a cheap but heavy, coarse, knit cotton sock. Mine are made from a coarse quality of knit, cotton underwear that I bought for this purpose; as such material could be procured in such form only. Fine, or close-knit, goods will not answer; and if any try to use woven cloth of any kind they will find that there is a large per cent. of wax left in the "slum-gun." It is an easy matter to test the great difference the material makes, by making a small sack out of woven cloth, fill it with comb, boil and treat it as I have described; then use a knit cotton sock for a sack and note the difference in the "slum-gun" after it is cold. If the refuse from old comb that has been rendered by boiling contains wax, it can be readily detected after it is cold; but refuse from a solar extractor may contain much wax without one being able to detect it unless it is further treated in some way.

Possibly it might be of interest to some for me to briefly explain how I came to find out that the difference in the material from which sacks are made has so much to do with results. A few years ago I was one day rendering old combs, by the boiling process, out of doors, in a large open kettle. For a sack I was using an ordinary grain sack, and, as the

refuse contained a large per cent. of wax, I put it through a press. A little boy who was staying at our place at the time, was much interested in the work. He found a small, old kettle that had been cast aside, and wanted to try the work himself. So I started a small fire for him, and told him to go into the house and ask for a small sack. They told him there was none; but the hired girl had washed some stockings and hung them on the line to dry and one of them had fallen down. He took this and filled it with old comb, and gave it a vigorous stirring in the kettle, as he had seen me do. Later, when he brought the refuse for me to press, I saw there was no wax in it.

In conclusion I will say that if hot wax is put into any dish it is a very difficult matter to clean the dish, hence, one should have a boiler, dipper and pan to be used for this purpose only. A strong solution of water and concentrated lye will, however, remove wax from any thing; but, in the case of tin, it discolors it.

SOUTHERN MINN. March, 1, 1899.



THE CANADIAN PURE HONEY BILL.

Some Statements Corrected.

S. T. PETTIT.

DEAR Mr. Hutchinson: I need not tell you that when people get excited or deeply moved over discussing an important matter it sometimes happens that exaggerations creep in; but in the case here referred to actual inventions were employed, and our bill suffered. We have now all had time enough to come to ourselves sufficiently to let truth prevail. I wish for nothing more.

In the Bee-Keepers' Review for 1895, page 348, the following may be found: "It would help some toward peace if Canadians would cease trying to get a law

passed for the purpose of persecuting their neighbors. The sugar honey law, which has been offered to two parliaments in succession gives itself away by its wording; evidently not so much intended for general enforcement as for a handy club to hit prominent heretics." Certainly, these are strange statements. Comments are unnecessary. The bill below, is a sufficient answer.

Then, farther along, the writer continues "The act is so draconically worded, that the most innocent beginner in the land could be put in prison under it for no greater crime than feeding sugar to his starving bees to keep them alive over winter."

Doubtless, Mr. Editor, some one must have imposed upon the Review. I wrote the Bill, and I am not ashamed of it, and I regret that it did not become law unmutated, but, to place beyond controversy the point as to whether, when first introduced to Parliament, it contained the necessary proviso for feeding sugar to bees when necessary to do so for food for them, I wrote T. S. Sproule, M. P., who had the bill in charge, and here is his reply, and also the bill which, in due course, he kindly sent me.

MARKDALE, Jan. 31, 1899.

My Dear Pettit—

I was most agreeably surprised, on receipt of your letter of the 26th inst, to hear from an old friend whom I have so often thought of and wondered how he was faring in life. I need scarcely say I trust our pleasant associations together during the time you were in Ottawa, and the faithful and energetic way you stuck to and advocated the "Pure Honey" question, endeared you to me to such an extent that I can never do other than think in the most kindly way of you. I am perfectly satisfied that in the first Bill there was provision for feeding bees sugar when required for food, but it is so long since, and memory is so treacherous, that I might be mistaken; and, to put it beyond contradiction, I have written the clerk of the Distribution Office to send me a copy of the original Bill as introduced; and when that is received I will forward it to you, and then you can put an effectual quietus to those untruthful

statements which from time to time appear in the bee journals.

Yours truly,

T. S. Sproule.

S. T. Pettit Esq.,
Belmont, Ont.

(Copy of the Bill.)

HER Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

No imitation of honey, or "sugar honey" so called, or other substitute for honey manufactured or produced from cane sugar or from any other substances other than those which bees gather from natural sources, shall be manufactured or produced or offered for sale in Canada, or sold therein; and every person who contravenes the provisions of this Act in any manner shall, on summary conviction, incur a penalty not exceeding four hundred and not less than one hundred dollars, and in default of payment shall be liable to imprisonment for a term not exceeding twelve months and not less than three months: Provided that this Act shall not be interpreted or construed to prevent the giving of sugar in any form to bees, to be consumed by them as food.

Yes, the bill was offered to two parliaments in succession; but it did not fail because of its faultiness, but because of the malicious and unscrupulous attacks upon it from those within our own ranks; assisted mightily by mixers and adulterators. We have similar laws to protect our butter and cheese: and we know how to appreciate them.

BELMONT, Ont. March, 15, 1899.



Good things
From Other Journals.

SELECTED BY DR. A. B. MASON.

BEE-KEEPING AN ENNOBLING PURSUIT.

IN the report of the late annual meeting, of the Ontario Bee-Keepers' Association, published in the Canadian Bee Jour-

nal, the president, Mr. M. B. Holmes, in his admirable address, uttered these truthful and forceful words:—

It is only natural that we look backward over the time that has so quickly passed since our last meeting, and note the successes, the reverses, the mistakes, the griefs and the shadows which have fallen to our lot; while, at the same time, we lay our plans to avoid (if possible) the griefs and mistakes, and to court only success, and with the experience which we have of necessity gained, we certainly ought to be better bee-keepers and better men and citizens in every way.

In this connection I venture (with pardonable pride) the assertion that those who have, for any considerable time, made bee-keeping a special study, are almost invariably good men and good citizens.

How it makes our hearts thrill with pleasure to know that a leader among such grand men, and masters in our loved pursuit as compose the Ontario Bee-Keepers' Association, utters such words of cheer; words that meet with a glad response from the kindly, noble hearts of so many of our fraternity; those who, with loving thoughts and kindly words, are not only willing, but anxious to do all they can to advance the interests of our specialty.

Although we are prone to forget "those things which are behind," and reach out for "those things which are before," it is well to be reminded by such as Mr. Holmes that it is a good thing to let our thoughts revert to the past and note our "successes;" and consider well what has contributed to our success; as well as to study well the *causes* of our "reverses" and "mistakes" so as to be able to remove them.

Experience, we know, is a splendid teacher, although she sometimes "charges high for tuition," and, although griefs and shadows may have been mixed with our successes, they may generally, if not always, be but the school-master who is trying to help us; and, if we accept and improve by means of these lessons we surely shall be better and more successful "men and citizens" and bee-keepers.

As I write these words there come to me the words of one of our largest honey producers and most noted bee-keepers. I'll not tell you his name; but at the Buffalo Convention of the U. S. B. K. Association, in 1897, he gave us a *splendid* talk. Although he has not been in the habit of attending bee-keepers' conventions during late years, yet when I wrote him recently asking him to write a paper for the coming Philadelphia convention, knowing that anything he might write would be of value, his reply was:

It would please me vastly to become a factor, however small, and work once more with those * * who are unselfishly laboring to place our industry on a higher plane. Among the very pleasant memories of my life are the days I have spent in conventions with bee-keepers. Bee-keepers as a class, to my mind, are way up. There have always been fine noble men in our ranks; men whose last thought would be to use the occasion for purely selfish ends. I think the high moral standard of the men in our business, is remarkable.

It is pleasant to feel and know that the leaders in our specialty, both men and women, are good and noble; working unselfishly for the good of our enchanting pursuit.

Mr. Holmes closes his address by hoping "that the Ontario Bee-Keepers' Association may have an ever increasing prosperity and flourish forever." My! but isn't that a big "hope?" "An ever increasing prosperity!" Well, if his "hope" is realized (and I guess we all "hope" it will be) and it prospers for the next decade in the same ratio it has since its organization, I'm afraid its members will feel a good deal "stuck up;" but I hope they'll not be stuck up with any thing worse than honey.

BEE-KEEPERS WHO ARE "CLIPPERS."

Following Mr. Holmes' address was a paper by Mr. H. G. Sibbald on "Spring Management," which, with the discussion following it, is so full of good things that it is a difficult matter to select the good without taking too much space, and it would be too late to be of benefit this Spring, but I may say that the essay-

ist recommended the clipping of all queens. This brought out quite a lengthy but very interesting discussion by such men as Mr. I. B. Hall, who advised to "keep on clipping," and that he had "been a clipper" for 23 years, and we know he's a "clipper" in more ways than one. And such men as Wm. McEvoy, Mr. Gemmill, Mr. J. K. Darling, and a goodly number of others, are all "clippers."

Mr. A. Boomer's experience has been such that he is not in favor of clipping, and Mr. R. F. Holterman said: "I would not like to lay down a universal rule for clipping." Mr. Darling was forced into it by a very disagreeable neighbor, and, he added, "I don't know that he ever did me a greater favor in his life. I know he didn't; he has saved swarms for me that I would have lost if I hadn't clipped."

It seems to me that Mr. Holterman gave very poor reasons for not being a "clipper." Living in the city, as I do, not having a place to keep our bees near the house, and not keeping enough to make it pay to watch for swarms, I believe I would not keep any if I couldn't clip the queen's wing, or have some other method for keeping the lady of the house from gadding off with a swarm whenever she wanted to. I would sooner lose a queen occasionally during swarming time than to quite often lose both the queen and the swarm.

ANTIDOTES FOR BEE-STINGS.

I presume most bee-keepers have often wished they had some reliable remedy for the unpleasant results that usually come on being stung; especially to those who have not become accustomed to being stung. I have often wished for such a remedy that could be used on visitors and neighbors who will sometimes get stung when in the region of our bees; and I've never found a better remedy than the *immediate* application of some one of the "essential oils;" like the oil of cinnamon, or the oil of wintergreen; or the oil of cloves; but to be of the greatest benefit the application *must* be made *at once*. To

wait a minute makes a wonderful difference in the good accomplished. For many years we have kept a small bottle of the oil of cinnamon where it could be had in an instant when needed.

The following, which the Canadian Bee Journal copies from the British Bee Journal, may be still better; at any rate I am going to try it, for we want the best there is for our friends. Here is the article referred to.

Your correspondent * * asks in the British Bee Journal * * whether some of your medical readers will advise a course of treatment for bee stings. * * The unpleasant results from the sting of a bee are due to formic acid. An antidote must therefore be sought for in the application of an alkali. The sting is left in the flesh with the poison-bag attached; don't remove it with the finger and thumb, as by so doing you squeeze the bag and empty the rest of the poison into the puncture; but take a pen-knife and scrape the sting out close to the sting, after which immediately apply the following mixture: Scrubb's ammonia, hazeline and soft-soap, in equal parts.

Needless to say that the bottle should be kept handy when manipulating bees, as, unless the antidote is applied at once, it will be of little use, the poison being absorbed so rapidly. * * It should be kept well corked. * * * If it is as successful with others as it has been with me, I shall be happy to give the readers of your Journal detailed instructions as to its manufacture.

In using any of these remedies, note the importance of using them *immediately* after the sting is removed; and, of course, the sting should be removed immediately after entering the flesh, and by *scraping*, instead of pulling it out.

HOW TO SECURE THE BEST BEES.

In the February number of the American Bee-Keeper is a brief article by Mr. G. M. Doolittle on "The Best Bee;" but when I had written this far I noticed it was copied from Gleanings. It had escaped my notice in Gleanings, and, being in too much of a hurry to look it up in that journal, I'll quote from the American Bee-Keeper. Mr. Doolittle says:—

From my standpoint a true solution depends upon which we are producing, comb

or extracted honey. If I were producing extracted honey altogether I think I would select the darker Italian, or those produced from queens reared from an imported mother, allowing these queens to mate with whatever drones there were about the apiary, * * whether from Italians, hybrids, or black stock. If I were working for comb honey exclusively, then I would procure a good queen of the golden variety, rearing all queens from her, and allow them to mate with any drones they might chance to meet. * * Such direct cross always gives the greatest vigor. * * All my experience goes to prove that thoroughbred golden Italian queens, mated to drones of either black or hybrid stock give bees equal to the very best for comb-honey purposes. * * I should prefer not to have these queens meet drones from young queens reared from imported mothers * * for the reason that, as a rule, workers having much imported blood in them do not cap their honey nearly so nice and captivating to the eye as do those having more of the golden, hybrid or German blood in them.

To sum up I would say, first have your queens mate with drones as distantly related to your queens as possible; second, use queens as closely related to imported Italian stock as possible where working for extracted honey, for there are no bees in the world, in my opinion, that excel those one generation from imported stock, for honey-gathering. Third, where white capping of combs becomes one of the great objects to work for * * then choose the golden Italians.

The editor of the American Bee-Keepers comments, in part, by saying:—

We became convinced years ago that the bee-keeper who regarded color as an index of honey-gathering qualities, was liable to disappointment, and each succeeding year has tended to confirm the validity of our claim. * * * We have no reason to doubt the existence of superior honey-gathering strains, * * * and we presume that Mr. Doolittle's careful selection in breeding has given him the very best of these to be found among the golden Italians; but we are not speaking without experience when we say that color is not a safe guide in the selection of stock, either as to prolificacy, industry, or comb-building qualities. * * The object of bee-keeping being the production of honey, either comb or extracted, the honey-gathering qualities of the bees employed is the paramount requisite. Mr. Doolittle gives it as his opinion that no bees in the world excel those one genera-

tion removed from imported stock, in this respect; * * that while the golden Italians possess the desirable trait of superior work in capping their honey, they are in no way second, as to honey-gathering qualities, to those he recommends for the production of extracted honey. Why, then, the advisability of using the darker bee at all, there being no objection to the whiteness of cappings in the case of extracted honey?

There is much in little in Mr. Doolittle's brief article on what queens to raise, and how to have them crossed so as to produce the best results; and my experience with the darker, and the golden Italians has been nearly the same as his; but I have a preference for the darker strain, for they seem to do just a little better in the way of extracted honey production. It seems to me that Editor Hill draws the right inference from what Mr. Doolittle says about the honey producing qualities of the darker, and of the golden strains of Italian bees. For Mr. Doolittle says "I think I would select the darker Italian in producing extracted honey, and would rear all queens for producing comb-honey from the golden variety." If the golden variety of bees are as good honey producers as the darker, then why have more than one variety, and that the golden?

TOLEDO, Ohio, March 25, 1899.



Department of criticism

CONDUCTED BY R. L. TAYLOR.

Blame where you must, be candid where you can,
And be each critic the Good-natured Man.
GOLDSMITH.

QUEEN TRAPS AND THE CONTROL OF INCREASE.

Though perhaps not strictly within my domain, I desire first to notice an unpublished account of the experience of Mr. S., of Hopkins Mo., in managing an out-apiary with queen-traps, without increase,

with only one visit a week. He had done it in pursuance of some general advice I had given him, and now he writes to find out wherein he was wrong in his practice, suggesting that an answer in the Review would reach him. The part of his letter that is material at present is in substance as follows: "Season of '07 we had a great white clover honey flow, long continued; and I averaged 100 lbs. of extracted honey a colony, but I lost seven swarms, and three colonies out of twenty-five were queenless in the fall. I visited them every week, returned virgin queen or old one, cleaned traps of drones, at last giving virgin queen a chance to mate. I did not like the traps. The hives were in a hickory grove, the weather was hot, and no wind could reach them on three sides. Every time I went I found the trap and end of the hive covered with bees, although there were one or two empty cases on top. I think some young queens got through the zinc, and so led away swarms. Again, several virgin queens may be caught in the trap and all perish." In the first place, with no chance for the circulation of air, your apiary was in an improper situation for colonies so strong as yours appear to have been. Next, it was a mistake, in so hot a place, and with such a honey-flow, not to have allowed an increase of one swarm from each colony; even if the colonies had to be remitted in the fall or the following spring. To have managed the making of such increase, you should, upon finding a colony that had swarmed, have at once taken from it all brood combs, with sufficient bees to care for the brood, and put them in a new hive, leaving the queen and the rest of the bees in the old hive, giving them new frames furnished with foundation or starters. I think you would have gotten more surplus by that course. There is a limit to the number of bees that can be kept in one hive, sometimes, even if their dissatisfaction does not amount to enough to compel them to swarm. But, if you had to prevent increase, your greatest error

was that, instead of stamping out the swarming fever at once, you nursed it by returning queens, both old and young ones. When the prime swarm issued, the old queen should have been removed; that would have allayed the fever until the young queens began to emerge, when the proper course to pursue would have been to remove all queen cells, and young queens except one, and then to take off the trap. A few young queens, of which you would have plenty, kept well fed in cages to be used as needed in supplying colonies would often enable you to remove cells a little before the queens began to emerge, thus simplifying the matter to some extent. You say you think queens got through zinc, and that you lost some swarms, but you do not say what evidence you have of those facts. As you were present but a small part of the time, I surmise you arrived at your conclusion because you found a colony now and then depleted of bees. If that is so, may it not be that, instead of going away, your swarms went to a different hive? a very natural thing for them to do under the circumstances. My queens, at least, do not get through the zinc. That several young queens should be found dead in a trap is nothing to be alarmed at. There would yet be one left in the hive. If the last queen should get into the trap she would survive there a long time—certainly longer than a week. During very hot weather you would probably find it an advantage, by way of preventing the bees from flying out, to add to the ventilation of the hive by laying three or four small nails, or other equivalent, on the top edge of super so as to secure a small opening between it and the cover. Finally, it would be wise to secure the mating, in nuclei, of a few of the numerous young queens you would find, to be used later in replenishing queenless colonies.

The above is germane to a topic lately discussed to some extent by editor Root and Dr. Miller in *Gleanings*, 90 and 122, instigated by the plan given by Mr. Getz

(Gleanings, 90) for the prevention of increase. His plan is to return the bees and remove the queen of the prime swarm, and then, having adjusted a trap, to let the young queens "fight it out." Both Mr. Root and Dr. Miller object to this method, and with the best of reasons. Whatever may be the strength of the desire to swarm under other circumstances under these of an overflowing colony and young queens emerging it may well be called insane. I have had them swarm under these circumstances after the honey-flow had ceased entirely. Mr. Getaz says "It will take but a few days to determine which queen will remain." If he admits that a week or ten days are "a few days," he may be measurably correct. I am convinced that this length of time is none to long; for, under the "insane desire," the bees are careful of their queen cells and will protect their queens against each other. I remember once in particular of having a colony which I supposed had but one queen left, nevertheless, it kept up frequent attempts to swarm for several days; and, upon investigation, I found it had had two queens all of the time. Little work of any kind is done while the bees remain in this state of uncertainty and excitement; and the chances are that the week or ten days will take the heart out of the honey-season. The only way I know of meeting the situation adequately is to apply the advice herein before given to Mr. S.

Editor Root vigorously combats Mr. Getaz's plan, but it is difficult to determine from his language what specific course he would advise. He says: "It will not do to thwart the bees—that is, once let them get the desire and *then* forestall them. The thing to do is to *keep away the desire*. Control of increase based on any other plan is almost sure to be a failure. 'To keep away the desire.' Right here Stenog stops long enough to observe: 'There is a great sermon in these words; for what evils have not been hatched by a failure to kill the brood by crushing out that *desire*.'" I

thought I understood what the editor meant until he modified it by adopting Stenog's idea, "to kill the brood by crushing out the *desire*;" then his meaning became altogether murky and involved. If his idea is to adopt a method, with the notion that thus the swarming instinct can be prevented, my answer is that, as a general proposition, I long since came to the conclusion that that is impracticable. For a year or two, under peculiar circumstances, one may think he has learned how "to keep away the desire;" but he is sure to find out, sooner or later, that, under ordinary circumstances, his plan is futile. If I have correctly divined that to be his notion, then his opinion seems to be that "the desire" is a sort of disease that must run its course after it once gets hold of a colony. I cannot fall in with that. A bird desires to sit when she has her nest supplied with her complement of eggs. Destroy her nest and eggs, and she no longer desires to sit; but proceeds to build another nest. It is a rough simile, but a queen with the immediate prospect of more queens is the nest of eggs that provokes the swarming desire. Destroy the conditions by removing the queen, and desire ceases at once. It is likely to be revived again when a queen emerges from one of the cells. Now, eliminate all prospect of another queen and you eliminate, effectually, all desire to swarm for that season. By that course I feel certain the bees can be thwarted successfully.

Dr. Miller also relates that he found the plan of letting the young queens fight it out unsatisfactory; and that the young queens "only too often," although not small, got through the zinc. His zinc, then, must have been improperly made, or else it has become wrinkled. As I said, my queens do not get through the zinc.

REARING BEES THAT BECOME USELESS CONSUMERS.

In the article by Mr. Getaz, referred to above, he devotes considerable space to the subject of strong colonies in relation

to large hives; and in the course of his discussion he takes occasion to deny that there are even such things as "useless consumers." This is an old question, but, apparently, it still needs discussion. Mr. Getaz, in considering another point, lays down certain principles that may be of use in considering this. He says (Gleanings, 89) "Suppose the honey-flow begins July 1st. The worker-bee emerges from the cell three weeks after the egg is laid. Two weeks after, she begins her field-work. This field-work lasts four weeks and then she dies. . . . It follows, then, that the oldest field bees in the hive July 1st are those that hatched from eggs deposited nine weeks before—that is April 28th; and the youngest those from eggs deposited five weeks before July 1st, or May 26th; so, in order to have the largest number of field bees before July 1st, it is necessary that the queen should lay her full capacity of eggs from April 28th to May 26th." Mr. Getaz uses this to emphasize the necessity of having colonies strong when they come out of winter quarters; but that does not destroy its validity for use in elucidating another point.

In the more thickly settled parts of Michigan the clover and basswood honey-flow usually ceases about the middle of July; and, since the swamps have been drained and cleaned up, there is very little nectar to be depended upon after that date; and, if one should be so fortunate as to get some in the fall, it is all needed as an encouragement to the rearing of the greatest amount of brood possible to supply the hive plentifully with bees for winter. It is evident that the more old bees there are over and above the numbers necessary to care for the brood and gather the nectar, the less of it will the brood get; for the great probability is that the lesser numbers will fully stock the field.

Now let us go back. As the honey-flow ceases about July 15th, it is clear, from the facts laid down by Mr. Getaz, that no bees from eggs deposited after

June 10th do any thing at all to aid in gathering the crop. And yet, it is from this time on, for three or four weeks, that the bees, if given a large hive and left to themselves, rear by far the greatest amount of brood of any time of the year. All of these bees, over and above the number that would have been reared in a small brood chamber, wear themselves out uselessly during the latter part of July and August, scouring the almost barren field. And, although they have been of no use, practically, their production and maintenance have cost heavily. That bees then will fill a large hive with brood after the date mentioned is no valid recommendation for a large hive for this and similar localities. And this is what "that foolish talk about 'useless consumers' amount to," I answer, for Mr. Getaz says "And what does that foolish talk about 'useless consumers' we hear so often amount to? No, sir; these 'consumers' repay a good deal more than their board when the following spring comes." I am not sure that he understands, if I am to judge from his language, at what time of the year the useless consumers are reared that occasion the "foolish talk." Surely, he cannot think that those consumers I have referred to can have any appreciable, favorable influence over the strength of the colony the following spring. If it could be shown that a large hive could be of any service in bringing bees through the winter in good condition, or in increasing the amount of brood previous to the 10th of June, a strong point in favor of a large hive would have been gained; but, unfortunately for such a hive, a small one is found amply sufficient to hold all the brood that can be accumulated by a good colony, in this locality, previous to the 10th of June; and, hence, it is large enough. Even C. P. Dadant, the great champion of large hives, admits (Gleanings, 91) that it is debatable whether a large hive is the better one for a Northern locality such as this. Referring to the 28th of April, the editor, in commenting

on Mr. Getaz' article, says "Unfortunately that is too early for most northern States. We usually cannot get our hives full much before the 15th of May here." What he means by "full" I do not exactly know, but I should like to have him state from personal examination and measurement, for the information of the small-hive men, exactly how many frames full of brood his large double-decker colonies have on May 15th next.

LAPEER, Mich., March 25, 1899.



EDITORIAL offerings.

THREE MILES, instead of five miles, is the distance that the Review ought to have said that Mr. Davenport had known German bees to gather honey profitably.

DR. MILLER writes that if putting bees into a cellar without giving them a flight after moving them results in harm one time in ten, he hardly wants to risk that tenth time.

E. R. JONES, of Milano, Texas, has gotten out a circular of bees, queens and nuclei that contains an unusually large amount of information in regard to the rearing and introducing of queens. I am half-tempted to copy some parts of it into the Review, but, as those interested can obtain a copy by writing for it, and so many things are pressing for a place in the Review, I must let it pass with this short notice.

SPRING MANAGEMENT of the right kind is the foundation of our honey crop. Colonies sometimes starve in the spring, or are greatly weakened, or retarded in breeding, by a lack of stores. Mr. H. G. Sibbald of Ontario puts combs of honey outside a division board, and has it so arranged that the bees can have access to

these combs. This removes all danger of starvation, and greatly encourages the rearing of brood. At the end of fruit bloom he puts the two outside combs of honey in the center of the brood nest; first one, and then, in three or four days, the other. He scratches the surface of the combs. This plan converts the early dark honey into bees.

NO-WALL FOUNDATION.

Mr. T. F. Bingham writes "I take a little modest pride in the illustrations, comments and promises given on page 218 of the current volume of Gleanings. I say this because the Michigan bee convention, held in Mt. Pleasant in 1896, raised the money for the making of the first machine that would make no-wall foundation. Gleaning says it does not 'know for sure, just what shape the ideal foundation will take.' In this connection it is worth while to notice that not one adverse report has ever been made against the no-wall foundation. To be sure, it has not been extensively used in many apiaries; but it has realized the expectations of its designers."

GETTING BEES STARTED TO WORKING IN THE SECTIONS.

A subscriber writes me that if I will tell him through the Review how to get the bees started to working in the sections I will thereby confer a great favor upon him, and, he thinks, upon many others. I know that some most excellent bee-keepers treat this phase of bee-keeping with something akin to contempt. "If the bees get plenty of honey they will go to work in the sections; if they don't, they won't," say these good friends of mine. Locality may have a bearing—the same may be said in regard to the variety of bees employed. If there is a steady but not profuse flow of honey from early spring up to the beginning of the white clover harvest, just enough honey to keep the bees breeding nicely, and then white clover comes on

with a rush, just as the hives are full of brood, there will be little difficulty in getting the bees to go into the sections.

Suppose, instead, that the season begins with a light flow, and gradually increases—no sudden jump, as there often is at the opening of white clover—the probabilities are that some of the colonies, many of them if they are light Italians, will begin preparations for swarming. Could the energies, thoughts and aspirations of the bees have been turned section-ward as soon as there was sufficient honey brought in to more than supply the brood, it might have made all of the difference between a good crop and a very small one with some of the colonies. There is no question that Italians are very loth to store honey far from the brood. They will crowd the very last cell in the brood-nest before they will build a cell in the supers to hold the surplus.

In my experience, nothing will so quickly and surely lure the bees into the sections as will nice empty combs. As I have often said, in my locality and with my management, I often find a super of unfinished combs, kept over from the previous season, fully as valuable as a super of finished combs of honey; simply because it will so quickly and surely start the bees to working in the sections. Of course, it is not necessary to have every section contain a partly drawn comb, even two or three sections will start the bees to work, but when no separators are used, and I use none, the results are much more satisfactory if every section contains a partly drawn comb.

Where a section hive, like the Heddon, is used, a transposition of the two parts of the brood-nest brings what was the center of the brood-nest up against the supers, and has a tendency to start the bees to work in the sections. As I have already intimated, black bees, or those having a dash of black blood in their veins, will much more readily store their surplus away from the brood-nest.

Contraction of the brood nest would, of course, force the bees into the supers; but this is something that I have practiced to a very limited extent; that is, with old established colonies, and I have not formed a very favorable opinion of the practice. It might be all right with large hives, but with the eight-frame Langstroth I see little necessity for it.

NARROW SECTIONS.

No one realizes so clearly as does an editor how difficult it is to always know to a certainty whether or not an item will prove of interest, or the reverse. To illustrate: Some months ago, in making up the pages of the Review, the matter in type lacked three or four lines of filling the required space. More to make it come out right, than for anything else, I set up three or four lines saying that I had used 1000 sections only $1\frac{1}{2}$ inches in width; and that I liked them. Since then I have received several inquiries regarding the matter. I may say that last year was not the first time that I have used sections of this width. When living at Rogersville I used 4,000 of this width. The only objection to the use of this width is the little extra expense and labor. One advantage arising from their use is the straightness and uniformity of the combs. One and one-half inches from center to center, is about the natural width that bees build their combs when no separators are used (and I used no separators); and perhaps this is the reason why the bees are less inclined to bulge the combs when sections of this width are used, than is the case with wider sections. Thin combs, such as are built in such narrow sections, are much quicker filled and sealed than thicker combs. Perhaps this does not always result in more honey being stored in the aggregate, but I think it does sometimes; especially if there is a copious flow of rather thin honey, and the bees are slow in capping it. If a colony is not very populous, and only a limited surplus room can be given, it is sometimes quite an ad-

vantage to be able to soon get off a case and get on another. With this width of section the combs are unusually well attached to the wood. The edges of the combs are not narrowed and rounded down as in wider sections. The surface of contact is just about as great as in sections two inches wide; while the weight of the comb is much less. When Mr. H. R. Boardman was here last summer he spoke of this point; and thought the results attained in this direction almost equaled those secured by plain sections and fence separators. Sections of this size and weight are very salable; and they may be given a trial in the old style Heddon case, or with the T super, without bringing in any new fixtures whatever.

EXTRACTED.

A FOUL BROOD LAW FOR MICHIGAN.

The Work that is Necessary in Order to
Secure its Enactment.

As has been noticed before in these columns, there is now before our Michigan legislature a bill similar to that passed by the Wisconsin legislature for the suppression of foul brood in that State. It was drawn up by Mr. J. M. Rankin, of our Agricultural College, and introduced by the Hon. H. J. Dudley. By the way, Mr. Dudley is the successor of the Hon. Geo. E. Hilton. The bill is now in the hands of the committee on Ways and Means, has been ordered printed, and will doubtless be reported out to the house before these lines are read. Mr. Dudley is on the Ways and Means committee, as, also, is the Hon. F. Moore, who is an old and close friend of Mr. Rankin. Mr. Hilton writes me that he (Hilton) is leaving no stone unturned to secure the passage of the bill, and that if bee-keepers of the State

do their duty it *will* pass. There is little doubt that the bill will be reported out favorably; but that is only half of the battle. On this point I believe that I can do no better than to quote from the American Bee Journal a short article recently contributed by the Hon. J. M. Hambaugh of California. Mr. Hambaugh was once a member of the Illinois legislature, and evidently knows whereof he speaks. Referring to the fact that Illinois bee-keepers are working to secure the enacting of a foul brood law, he says:—

I am really gratified to see our old friends in "Suckerdom" taking such aggressive and bold steps for the obtaining of a foul brood law in that State.

Mr. Stone, as you know, is an old "wheelhorse," and always ready for battle, and many a tilt have we had in defense of the bee-keepers' interests in the days of "Auld Lang Syne."

As for Mr. Dadant, every blow that he administers is a "sledge-hammer blow," and now that he has appeared above board in the aggressive vindication of the foul brood law, we shall expect good results to emanate therefrom. And now, fellow bee-keepers of my native State, wouldn't it be a grand idea for you to bring proper influences to bear that would elevate Mr. Dadant to a "Member of the Illinois General Assembly?" You would have a powerful exponent of your rights and privileges in the law-making machinery of the State. With such a member (if he is a Frenchman) to intrust to his keeping such a measure as the foul brood law as now proposed, you could rest assured that his keen foresight would quickly map out the ways and means by which to bring about the necessary votes and support of the Bill to enact it into law. He would reason like this:

Never can this proposed measure be gotten upon the statute books without the necessary number of members in both branches of the legislature to approve of the Bill, and the governor to sign it; and in order, first, to bring this about, the members must first be convinced that there is some true merits in the Bill.

Secondly, that it is really and absolutely wanted by their constituency.

Thirdly, that it will ultimately achieve the ends at which it is aimed.

And now, in order to bring this about, he must bear in mind the old adage, "Eternal vigilance is the price of success."

He must also know that there is work to do. He must not only have a strong representative lobby before the committees of the two houses, but from all parts of the State must come strong appeals from the constituent bee-keepers, to the various members composing these committees, to vote favorably on the measure. The more cudgels that can be wielded over the heads of members by their constituents, the better; and, remember, that a favorable consideration of a Bill before the committee is equivalent to one-half the battle.

After the bill is favorably considered, see after the measure closely that it is not pushed to the rear and "pigeon-holed," but promptly brought to its place on the calendar.

And now is the time for the importuning of the members for a favorable consideration, with all the force that can be brought to bear, from every bee-keeper that can be mustered into service, in the way of writing to their representatives and senators, and sending petitions, etc., in behalf of the measure, and see to it that a strong, vigilant vanguard is ever on deck to throttle opposition in whatever way it may present itself, by counter active arguments and work from its advocates and the opponents' constituency.

And now, fellow bee-keepers, if you are in earnest and need the law, it is your duty to work for the same. I appreciate Mr. Stone's energy and grit. I know him of old, but it is not within the province of any one man to convince a whole legislative body of men to enact a law, where there is no approval at his back from the people who are directly interested, and a legislator is quick to note this point.

Now, as neither Mr. Dadant nor Mr. Stone are members of that "disreputable" body, you must secure the services of the next best man you can get, and, let me beg of you, don't get one to introduce the Bill and then sit back and let the Bill take care of itself, as was done with a former foul brood bill, which I have a recollection of. It was a case of "The father of the Bill didn't father it."

What is now needed is that bee-keepers all over the State of Michigan write to their representatives in the legislature and urge the passage of the bill. The American Bee Journal has already published the bill and urged its readers to write. Gleanings has been requested to do the same; and I presume that it will

do it. The Review has once before urged upon its readers the importance of this duty; but it requires line upon line to get bee-keepers stirred up sufficiently to do so simple a thing as to write a letter. Mr. Rankin says that he has written 200 letters to bee-keepers urging them to write to their representatives. He has also written an article on the subject for the Michigan Farmer; and "has spared neither time, pains nor postage." That is the only way to get the law.

Now, friends, let me ask you once more, and it is probably the last time that I will have an opportunity to ask you, to not neglect this matter. Don't think that you are only one, and that if all the rest write it won't matter. Suppose every one should do that way? Don't argue with yourself that there is no foul brood in your apiary nor in your vicinity. Don't be too sure of that. It may be nearer than you think; and the way to keep it away is to have it stamped out before it comes any nearer. As I have said before, it is not necessary to write a long nor an elaborate letter. Simply write your representative that there is a bill before the house for the appointment of a commissioner whose duty it shall be to work for the suppression of the bee-disease known as foul brood; and ask him to vote for the measure because the disease is present in nearly every county, and is rapidly spreading. Tell him that this disease not only destroys the colony of bees in which it gains a foothold, but that when the colony becomes weakened, it is robbed by the bees of some healthy colony, and that in this way the seeds of the disease are carried to the colony that does the robbing; and so the pestilence is spread from hive to hive, and from apiary to apiary. Call his attention to the fact that a bee-keeper with a few colonies of bees is likely to be careless and indifferent in the matter; and that there is need for some one possessed of authority and skill in the matter. Mention the fact that bee-keepers alone are not the only ones who will suffer from a decline of the

bee-keeping industry, but that horticulture and fruit growing will lack the perfect fertilization of the blossoms that comes only from the visits of bees. Tell him that the effect of a bill like this is not a mere conjecture; that over in Canada foul brood did fair to practically ruin the bee-keeping industry when an inspector was appointed. When the inspector examined 160 apiaries in 1890 he found foul brood in 150 of them. In 1898 he examined 150 apiaries and found the disease in only 35 apiaries.

♦ ♦ ♦

SUPPLY-DEALING EDITORS.

Also Something About Plain Sections.

In the February number of the Progressive Bee Keeper, Bro. Doolittle pays his respects to the tendency of supply-dealing editors to boom new things. In so doing he makes use of the following language:—

The excitement now going on in some of our bee papers over plain sections and fence separators reminds one of a similar craze which came over the bee papers some years ago, regarding reversible hives and frames. The reversible excitement raged very nearly equal to the one of the present, and caused hundreds and thousands of bee-keepers to put dollars into the thing; which dollars, if we are to judge by the quietness regarding reversible frames of the present day, were entirely thrown away; for if there are any bee-keepers now using either reversible hives or frames, they are not enough pleased with them to say anything regarding that pleasure. It is to be sincerely hoped that this plain section and fence separator matter will not prove such a bankrupt affair as did the other. History tells us that through the influence of the New York Tribune, Horace Greeley was enabled to push to an issue the battle of Bull Run, when neither the country nor the army was prepared for it; thus bringing defeat and sacrificing hundreds of lives for the unadvisable "push" of one man; and while there can be no such momentous issue at stake in bee affairs, as there was in this country in the early sixties, yet I can not help but think that the course pursued by some of our bee-

papers in pushing new things, is as ill advised as was the pushing of the battle of Bull Run by the Tribune. I am not opposed to giving any new thing publicity, and a chance for such new thing to make its "mark in the world;" but it does seem that the throwing of the whole force of a periodical into such things as reversible hives and frames, deep cell comb foundation, plain sections and fence separators, etc., is ill advised, and has a tendency to influence the readers of such a periodical to invest money in something which will surely sink it for them when the craze is off, and reversible hives and frames, deep cell foundation, etc., are declared flat, dead failures. As for me, I am willing to "bide a bit," and use the old sections a little longer, especially as they brought the *top price* in the market the past fall, in an open race with all the others.

In my opinion, this word of caution or warning from Mr. Doolittle is timely. A bee journal editor who makes and sells supplies becomes so favorably impressed with some new hive, implement or device as to begin its manufacture and sale. Henceforth his journal will "boom" the new article. With a view to being impartial, he may allow in his journal the publication of objections to the new comer, but they will be overwhelmed by articles in its favor, by pictures, and by editorial argument. On the other hand, some other supply-dealing editor, one who does not deal in the new device, finds difficulty in recognizing its merits. The contributions and editorials appearing in his journal are almost certain to cast reflections upon this new candidate for public favor, and to uphold standard goods. Both of these editors may be thoroughly honest, but self-interest has biased their judgement, to the detriment of their journals.

A year or two ago the great power possessed by Gleanings was employed in trying to popularize the deep cell foundation. Perhaps that is putting it a little too strong; perhaps it would be nearer the truth to say "introducing or bringing it to the notice of bee-keepers." On the other hand, the Progressive used its influence in trying to defeat its introduction, or even its manufacture as an experiment.

It proved a failure; and Gleanings was honest enough to admit it. In my opinion, neither of these journals took the wisest possible course. To use a common expression, it is better to "go slow" on new things. I know it is true that people are not compelled to buy these new things. Neither are they compelled to buy patent medicines; but they are led to do so by the most excellent manner in which they are advertised. Many bee-keepers have great faith in the judgment of the editor of their favorite bee journal; and when he endorses a new thing, they are inclined to invest in it. If his judgment proves correct, well and good. But suppose his judgment and the article both turn out to be poor in this particular instance, what then? An editor ought to be very careful how he allows his journal to "boom" a new thing, yes, or to condemn it, until repeated tests under varying conditions have fully decided its value.

The present attempted introduction of plain sections and fence separators furnishes another illustration of the difficulties under which supply-dealing editors do their work. The beginner in bee-keeping who read Gleanings alone would be almost certain to send his order for plain sections and separators. If he read only the Progressive or the Canadian Bee Journal there would be little danger even of his experimenting with them.

I am willing to admit, and have admitted, my *belief* that the use of plain sections and fence separators leads to a more perfect filling of the sections. I think that any one who is not prejudiced will admit this upon seeing a crop of honey thus produced. If this is a fact some may ask, what is the objection to "booming" them? I think that there ought to be some further attempt to discover exactly what it is that causes the more perfect filling. The fact that the section is the same width all around can not possibly have any bearing upon the subject. It can make no difference whether the side-pieces of the sections extend out and meet the separators, or pieces on the sep-

arators extend out and meet the sections. One is exactly equal to the other. It seems as though the freer communication afforded by the open separators was the only point left. In opposition to this view, Mr. Daggitt recently called attention to the fact that sections filled without the use of any separators whatever were no better filled, if as well, as those where separators were used. In this connection it would be well to remember that with old-style sections and no separators there is no *lateral* communication. I have been having some correspondence with Mr. Byron Case, of Navarino, N. Y., who has had some experience with the Betsinger case—having some 100 of them in use. In this case the separators are fixed, fastened solidly in the case. The sections are of the plain style and are held exactly bee-space from the separators—thumb-screw pressure keeping them in place. He says that the bees fill these sections solidly, exactly as they would a brood-frame. The point that I would make is this, there may be some better way of securing this perfect filling than by the use of plain sections and fence separators; and let's try and find out if there is before spending very much of our money for fences.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee-Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

Fancy.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs un-even or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

CLEVELAND, O. White honey is in good demand, and the supply very light. Dark grades are moving slowly. We quote as follows: Fancy

white, 13 to 14; No. 1, white, 12 to 13; fancy amber, 10 to 11; No. 1, amber, 9 to 10; fancy dark, 7 to 8; White, extracted, 7 to 7½.

A. B. WILLIAMS & CO.

Mar. 25, 80 & 82 Broadway, Cleveland, Ohio.

BUFFALO, N. Y.—So far as we have noticed there is no strictly fancy 1-lb. comb honey in our market. It would bring about 12 cents. Other grades range from 10 to 6 cents and require more or less pushing. No extracted here to speak of. Fancy beeswax wanted at 25 to 30 cents.

BATTERSON & CO.

Mar. 17, 167 & 169 Scott St., Buffalo, N. Y.

CHICAGO, ILL.—The season is over when sales of large lots of comb are made; and we quote as follows: Fancy white, 13; No. 1 white, 11 to 12; fancy amber, 10; No. 1 amber, 7 to 9; fancy dark, 8; No. 1 dark, 7; white extracted, 6 to 7; amber, 6 to 7; dark, 5; beeswax, 27 to 18.

R. A. BURNETT & Co.,

Mar. 17, 163 So. Water St., Chicago, Ill.

BUFFALO, N. Y.—Honey has sold slower since the first of January than I ever knew it to sell at this time of the year. I quote as follows: fancy white, 11½ to 12; No. 1 white, 11 to 11½; fancy amber, 10 to 11; No. 1 amber, 9 to 10; fancy dark, 8 to 8½; white, extracted, 7 to 7½; amber, 6 to 7; dark, 5 to 6; beeswax, 28 to 30.

W. C. TOWNSEND,

Jan. 28, 86 West Market St., Buffalo, N. Y.

CHICAGO, ILL.—The stock of honey is small. Fancy white comb honey is selling at 14 cents per pound; buckwheat, comb, 10 cents per pound; and other grades 11-12-13, depending upon package and quality. Extracted is very scarce; some trade prefers dark color, price from 6 to 8c per lb., depending upon color, flavor and package. Beeswax 27 to 30.

S. T. FISH & CO.,

Mar. 17, 189 So. Water St., Chicago, Ills.

NEW YORK.—Our market is quiet on comb honey; especially so on the lower grades which have accumulated during the past four weeks; and prices have to be shaded in order to effect sales for quantity lots. Extracted is selling well and the stocks are light. Beeswax quiet. We quote as follows: Fancy white, 12; No. 1 white, 10 to 11; fancy amber, 9; No. 1 amber, 8; fancy dark, 6; white, extracted, 7 to 7½; amber, 7; dark, 5½ to 6; beeswax, 27 to 28.

HILDRETH BROS & SEGELKEN,

Jan. 25, 120 West Broadway, New York

NEW YORK, N. Y.—The market is well stocked with comb honey; especially with buckwheat and mixed grades. Fancy white finds a ready sale as does extracted of all kinds. We quote as follows: Fancy white, 12 to 13; fair white, 10 to 11; amber, 9 to 10; buckwheat, 6½ to 7½; white, extracted, 5½ to 7; amber, 6 to 6½; dark, 5½ to 6; Florida, white, 6½ to 7½; Florida, light amber, 7 to 6½. Other grades of Southern honey from 55 to 65 cents per gallon according to quality. Beeswax in good demand at 26 to 27. Write us.

FRANCIS H. LEGGETT & CO.

Jan. 21, W Broadway, Franklin & Varick Sts.

KANSAS CITY.—We quote as follows: Fancy white, 14; No. 1 white, 13; fancy amber, 12½; No. 1 amber, 12; fancy dark, 11; No. 1 dark, 10; white extracted 6½; amber, 6; dark, 5½; beeswax, 22.

C. C. CLEMONS CO.,

Mar. 17, 423 Walnut St., Kansas City, Mo.

THE

A. I. ROOT CO.,

10 VINE ST., PHILADELPHIA, PA

BEE-SUPPLIES.

Direct steamboat and railroad lines to all points. We want to save you freight.

Over 500 PREMIUMS won last year on my Barred, and white P. Rocks, L't Brahmas, BFK Minorcas, White, Buff, and Brown Leghorns. Stock for sale. Eggs, 21.00 for 13; 22.00 for 30; 25.00 for 100. Send for circular.

3-90-51

CHAS. RUE, Minerva, Ohio.

Please mention the Review.

Free

1-90-1f

A beautiful present with every order. The cheapest place in Mich. to buy supplies. Send for explanatory price-list. W. D. SOPER, Box 565 Jackson, Mich.

Please mention the Review

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking.

3-90-1f

THE JENNIE ATCHLEY CO.,

Beville, Bee Co. Texas.

If You Wish Neat, Artistic

PRINTING,

Have it Done at the Review.

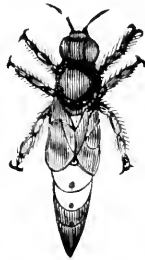
Doolittle's Scientific Queen - Rearing.

ALL ABOUT REARING QUEEN-BEES.

Every bee-keeper should have a copy of G. M. Doolittle's great book on rearing the best queen-bees. It is as fascinating as a love-story and as practical as an arithmetic. Here is a list of

ITS INTERESTING CONTENTS.

Importance of Good Queens.
 Nature's way of Rearing Queens.
 Another of Nature's Ways.
 Old Methods of Rearing Queens.
 Later Methods of Rearing Queens.
 New way of Rearing Queens.
 Getting the Bees off the Cells.
 What to do with the Queen-Cells.
 Queen-Cell Protectors.
 Nuclei—How to Form and Multiply.
 Bee-Feeders and Bee-Feeding.
 Securing Good Drones.
 Introduction of Queens.
 Introducing Virgin Queens.



Keeping a Record of Cells, Queens, Etc.,
 Queen-Register.
 Clipping the Queen's Wings.
 Shipping, Shipping-Cages, Bee-Candy, etc
 Queens Injured in Shipping.
 Quality of Bees and Color of Queens.
 Rearing a Few Queens.
 Later Experiments in Queen-Rearing.
 Latest Feats in Queen-Rearing.
 Production and Care of Comb Honey.
 Management of Weak Colonies.
 Getting Boxes ready and Putting them on.
 Swarming.
 How to Get the Largest Yield of Honey.

Doolittle's Book and the Bee Journal for Only \$1.60.

The price of Doolittle's book alone is \$1.00, but we will mail it with the weekly American Bee Journal for one year, both for \$1.60. The book is bound in cloth and well illustrated. The Bee Journal alone is \$1.00 a year.

If you have not seen the weekly *American Bee Journal* for 1899—with its new type and sparkling contents—send us your name and address at once on a postal card, asking for a copy. You will want it regularly when you see it. It's the greatest bargain in current bee-literature. Address,

Geo. W. York & Co., 118 Mich. St., Chicago, Ills.

Sent Free

our large illustrated catalog of Bee Hives Smokers etc. Theo. Bender, Canton, O

1-99-11

Please mention the Review.

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costellow, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.

A. D. D Wood, who has had twenty years of experience in the manufacture of comb foundation and the rearing of queens is again manufacturing

Bee-Keepers' Supplies,

at Lansing, Mich. You can have his circular for the asking. Write now 3-99-11

Please mention the Review.

Bee - Supplies.

Root's goods at Root's prices. Poulder's honey jars. Prompt service. Low freight. Catalog free. Walter S. Poulder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Holy Land YOUR CHOICE Golden Italian
 QUEENS.

My 1899 circular is free; and "Jones he pays the freight" on it. I'll tell you more next time.

E R. JONES,

3-98-121

Milano, Texas.

J. W. BAILEY, Pub.

F. L. THOMPSON, Ed.

The Western Bee-Keeper

is exclusively devoted to apiculture in the

ALFALFA REGIONS AND TO ASSOCIATION WORK

of all kinds among bee-keepers; also gives the main points of what the other bee-papers are saying. Monthly, 50 cents a year.

U. S. No Supply house connections.

Seeks to present BOTH SIDES of issues.

2341 Fifteenth St., Denver, Colorado.

Some Odds and Ends That Will be Sold Cheap.

For a dozen or more years Mr. M. S. West of this place dealt in bee-keeper's supplies. Since his death, two years ago, his daughter has endeavored to close out his stock of goods, and has succeeded to large extent. There are still a few odds and ends, and she has brought them to me and left them for me to sell. Here is a list of the articles with prices at which they will be sold.

One ten inch foundation mill, (second-hand) Root's make, complete with dipping tank, etc. in excellent condition... \$10.00

One ten-inch foundation mill, (second-hand) Root's, (one of recent make) dipping tank, etc. in good order..... 15.00

Three Woodcock foundation fasteners, each, 75

Eighty seven entrance guards, each, 05

Thirteen Porter Bee Escapes 2.25

Thirty-three Simplicity hives, in the flat, sides, ends, covers and tin rabbits, but no frames nor bottom boards, each, 40

Send all orders to W. Z. HUTCHINSON.

Flint, Mich.

THE MONITOR PAPER FILE

Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music (&c.), by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome. **PRICE.**—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper.

Bee keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive. **J. H. M. COOK, 62 Cortland St., N. Y. City**

Please mention the Review.

QUEENS, Untested, 75 c; 6 for \$4.00; tested, \$1.00; 6 for \$5.00; breeders \$2.00. The best stock, imported or golden. **W. H. LAWS, Lavaca, Ark.**

Please mention the Review.

We are headquarters for the

Albino Bees,

the best in the world. If you are looking for the bees that gather the most honey, and are the gentlest of all bees to handle, buy the Albino. I can furnish the Italian, but orders stand so far in favor of the Albino. I manufacture and furnish supplies generally. Send for circular.

S. VALENTINE,

3-29-97

Hagerstown, Md.

Please mention the Review.

HAWKEYE GRUB AND STUMP MACHINE

Works on either Standing Timber or Stumps. Pulls an Ordinary Grub in 1 1/2 Minutes. Makes a Clean Sweep of Two Acres at a Sitting. A man, boy and a horse can operate it. No heavy chains or rods to handle. You can not longer afford to pay taxes on unproductive timber land. Illustrated catalogue Free, giving prices, terms.



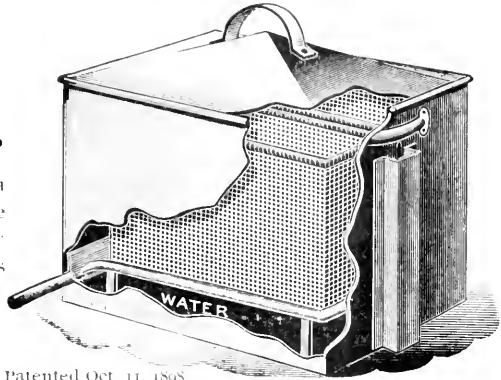
MILNE MFG. CO. 337 8th St., Monmouth, Ill. Address Milne Bros. for **SHEPHERD PONY** catalogue.

and testimonials. Also full information regarding our: **I. X. L. GRUBBER, IRON GIANT GRUB & STUMP MACHINE, 2-HORSE HAWKEYE** and other appliances for clearing timber land.

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1895

Wanted, for the Salvation Army Colony, Amity, Colorado about twenty colonies of bees. Address, stating price, etc., THOS. HOLLAND, Amity, Colo

- If you are going to -

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Our Prices are worth looking at. We are making the new

Champion Chaff Hive

with dovetailed body and supers and a full line other Supplies, and we are selling them CHEAP. A postal sent for a price list may save you \$ \$ \$ \$.

R. H. SCHMIDT & CO.,
Box 187 Sheboygan, Wis.

1-98-1f

- If you wish the best, low priced -

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Oldell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

1899 Queens 1899

For Business Queens for Strong Colonies - Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list.

12-97-1f

J. P. H. BROWN, Augusta, Ga.

Please mention the Review.

Muth's HONEY EXTRACTOR PERFECTION Cold-Blast Smokers

Square Glass Honey Jars, Etc.

For Circulars, apply to CHAS. F. MUTH & SON Cor. Freeman & Central Aves., Cincinnati, O. Send 10c. for Practical Hints to Bee Keepers.

1-97-1f

Please mention the Review

To stick things, use MAJOR'S CEMENT. Beware!!! Take no substitute.

2 98-12f

Please mention the Review.

Best on Earth. 19 Years Without a Complaint.



Smoke Engine	largest smoker made	4 inch stove	Dozen	Each
Doctor	3 1/2	**	9.00	** 1.10
Compu tor	3	**	6.50	** 1.00
Large	2 1/2	**	5.00	** .95
Plain	2	**	4.75	** .70
Little Wonder (wt. 10 oz.)	2	**	4.50	** .60
Honey Knife	.....	.....	6.00	** .80

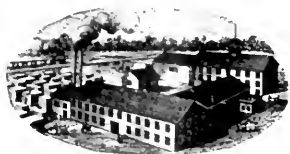
For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

BEEES!

If you keep bees, subscribe for THE PROGRESSIVE BEE-KEEPER, a journal devoted to bees and honey. Fifty cents a year. Sample copy free. Also illustrated catalogue of bee-keepers' supplies.

Address LEAHY MFG. CO.,
Higginsville, Mo.; or at 1730
South 13th St., Omaha, Neb.;
or at 404 Broadway, East St.
Louis, Illinois.



Bee-Supplies.

We have the best equipped factory in the West. Capacity, one carload a day. We carry the largest stock and greatest variety of everything needed in the apiary, assuring *Best Goods* at the *Lowest Prices*, and prompt shipment. Illustrated catalogue, 72 pages, free.

We also manufacture tanks of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free. Address

E. Kretschmer, Red Oak, Ioa.

Page & Lyon,

Mfg. Co.

New London, Wis.

— ♦ ♦ —
Nearness to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

ORDER

EARLY.

There are indications that the demand for supplies will be very large this season, and everyone should order as early as possible. We have large facilities for manufacturing all kinds of *Bee-Keepers' Supplies*, and will serve our customers as quickly as possible.

Falcon sections are the finest made. 1899 catalogue ready Feb. 1st. Copy of the *American Bee-Keeper* 20 pages sent free. Address

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Densen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Densen *wired*.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y.

IF THE REVIEW

Is mentioned when answering an advertisement in its columns a favor is conferred upon both the publisher and the advertiser. It helps the former by raising his journal in the estimation of the advertiser, and it enables the latter to decide as to which advertising mediums are most profitable. If you would help the Review, be sure and say "I saw your advertisement in the Review," when writing to advertisers.



18

99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.50; 1,000 for \$2.50; 3,000 for \$6.75; 5,000 for \$10.00; 10,000 for \$17.50.

No. 2 sections are not made to order, but when in stock are sold at \$1.50 per M.

J. FORNCROOK.

Watertown, Wisconsin.

Listen! Take my advice and buy your bee supplies of August Weiss; he has tons and tons of the very finest



FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

WM. BAMBER.

Of Mt. Pleasant, Mich., has his own saw-mill, and a factory fully equipped with the latest machinery, located right in a pine and basswood region, and can furnish hives, sections, frames, separators, shipping cases, etc., at the lowest possible prices. Making his own foundation enables him to sell very close. Send for samples and prices before buying, and see how you may save money, time and freight. Bee-keepers' supplies of all kinds kept in stock. 5-99-31

Violin for Sale.

I am advertising for the well known manufacturers of musical instruments, Jno. F. Stratton & Son, of New York, and taking my pay in musical merchandise. I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Stradivarius," Red, French finish, high polish, and real ebony trimmings, price \$11.00. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver shield, ebony screw-head, German silver ferules, and pearl dot in the end, price \$2.50. The case is wood with curved top, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this on fit, and would accept one-half nice, white extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apian Supplies. Send for circular. 1-96-6

Please mention the Review

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1.25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEANES & MIXER, Ronda, N. C.

Make Your Own Hives.

Bee-Keepers

Will save money by using our Foot Power Saw in making their hives, sections and boxes.

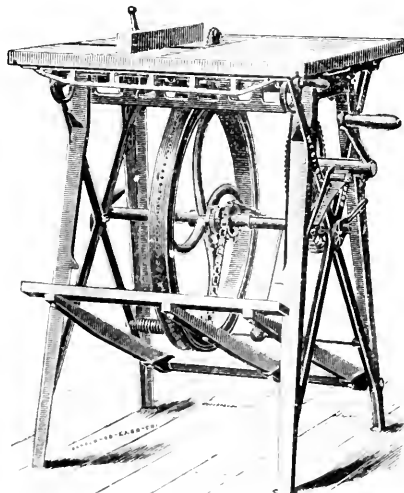
Machines on trial. Send for Catalogue.

W. F. & JNO. BARNES CO.,

384 Ruby St.,

Rockford, Ills.

11-95 121



COMB

FOUNDATION

WHOLESALE AND RETAIL.

Working wax into foundation, for cash, a specialty. Hives, Sections, and a full line of Supplies. The best of everything. Write for Catalog, with prices, and samples of Foundation and Sections. Beeswax always wanted for cash or trade.

GUS. DITTMER,

10-07-12t

Augusta, Wis.

The A. I. Root Co.'s Goods, WHOLESALE AND RETAIL.

Please write to Toronto.

Early Queens, Ready now, at \$1.00 each, after April 15, 75 cents each. six for \$4.25, in May, six for \$3.75. For particulars, send for circulars. Two yards and the earliest location in the United States.

1-09-11 J. B. CASE, Port Orange, Fla.

The Coming Section.

It has all of the advantages of the plain section, and does away with the fence separator. It can be used with any plain separator. Send for a sample. W. H. NORTON, Skowhegan, Maine

M. H. Hunt & Son

Wish to send you their catalog of Root's Goods. If you are a dealer, get our wholesale list. Try us for prompt shipments and good service. Beeswax wanted. M. H. Hunt & Son, Wayne Co. Bell Branch, Mich.

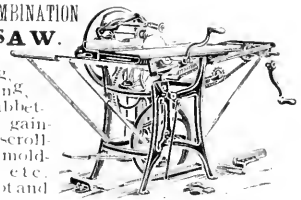
Please write to Toronto.

There is a Difference in Bees.

Every owner of a large apiary knows this. Knows that some colonies store more honey than others, that some are more easy than others to handle, that some are more hardy and winter better than others. For years we have been breeding up a strain of Italian bees possessing these desirable qualities in a high degree. Reports from customers prove our success. A trial order will convince. Tested queens, by return mail at \$1.00 each.

J. W. K. SHAW & CO., Loreauville, La.

UNION COMBINATION SAW.



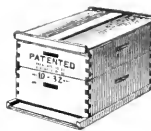
For ripping, cross-cutting, mitring, rabbeting, grooving, gaining, boring, scroll-sawing, edge molding, beading etc. Full line of foot and hand power machinery. Send for catalogue A.

1-09-12t

Seneca Falls Mfg. Co.

48 Water St., Seneca Falls N. Y.

Please mention the Review



5-09-21

FACTS About Bees.

REVISED EDITION

How to get

GILT EDGED HONEY

Send to stamp to

THE A. I. ROOT CO., Medina, Ohio.

Or F. Danzenbaker, Box 66, Washington, D. C.

Please mention the Review.

Silver Gray Carniolan Queens.

—ALSO THE—

Golden and 3-banded Italian.

Untested, 50 cts. each; tested, 75 cts. Purity of stock and safe arrival guaranteed.

5-00-11 C. B. BANKSTON, Rockdale, Tex.

Please mention the Review.

JOHN F. STRATTON'S CELEBRATED GUITARS,



Importer of and Wholesale Dealer in all kinds of MUSICAL MERCHANDISE, 811, 813, 815, 817 East 9th St., New York.

Please mention the Review.





"HOMEWOOD," THE RESIDENCE OF MR. R. M'KNIGHT.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

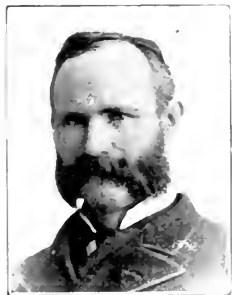
W. Z. HUTCHINSON, Editor and Proprietor.

VOL. XII. FLINT, MICHIGAN, MAY 10, 1899. NO 5

HONEY DEW.

A Scientific Explanation of its Source.

R. M'KNIGHT.



AN article on honey dew appeared in the American Bee Journal, of the 12th of January, from the pen of Prof. Cook, in which he quotes an extract from the British Bee Journal wherein it is said: "Honey dew is a saccharine substance or sweet juice, which, at times, and under certain atmospheric conditions, exudes from the leaves of trees and plants." The Prof. is not a believer in this theory of the source of honey dew. He admits, however, that, "the cultured editor is a recognized authority on all such subjects," and expresses the belief that Mr. Cowan never saw this article, else he would not allow such an erroneous statement to appear in his Journal.

I was interested in the Professor's article; because I always believed honey dew to be what it is alleged to be in the

paragraph quoted—a sweet exudation from the leaves of trees and plants; and, because, if honey dew be what Prof. Cook says it is, "a secretion of plant-lice, scab-insects etc." (I omit the technical terms) then the nectar (?) thus produced has something revolting in its associations. If the Prof. had given us a convincing reason of the faith that is in him, or, better still, a scientific explanation of how this ambrosial secretion is produced, I might still retain the respect I have had for a good article of honey dew; but he has done neither one nor the other. The Professor has given what may appear to him to be satisfactory reasons (two of them) for the conclusion he has arrived at. After careful examination, for years, he says he has always found "plant-lice, scab-insects, or else larvæ of insects, often working in scores where honey dew was present;" hence he concludes "these to be the source of the nectar." Their presence in thousands under such conditions is no proof that "they are the source of the nectar" on which they delight to revel. Bees, ants and wasps, are also found where this so called secretion abounds, but no one believes them to be its source. He tells us, too, that in common with other observers, he has found honey dew in quantity on the leaves of the lower branches of trees, "where no aphides were

to be seen;" but accounts for the presence of this secretion in the apparent absence of the secreters, by the supposition that they were located on or near the top of the tree—so high they could not be seen from the back of his horse, however. There must have been myriads of those

The Professor's second reason is founded on "The economy of Nature." "Energy," he says, "is never expended by plant or animal that does not in some way benefit by such outgo." Few people will question the truth of this statement, but many will doubt the Professor's applica-



A PROMENADE BY THE ORCHARD SIDE AT MR. R. M'KNIGHT'S.

tiny creatures on the top of that tree, if they so abundantly bespattered the leaves of its lower branches with their sweet secretions. One would reasonably suppose that the foliage of the intervening branches would protect the leaves under observation, from such secretions reaching, or resting upon them. There are few observant bee-keepers who have not seen just what Prof. Cook witnessed; namely, plenty of honey dew where no aphides were to be seen; and where they could not well be present without being seen. They have, doubtless, also seen honey dew so abundant, betimes, that it would take a long stretch of the imagination to believe that it had its source where Prof. Cook says it comes from.

tion of it in this instance; namely, that plant lice secrete honey dew in order that bees, ants and wasps may be attracted to their immediate presence, which, in their turn, repel the birds which else would feed on and destroy the insects. Is it a fact that the presence of bees, ants and wasps *repel* the insectivorous birds that feed upon these so called secretions? Professor Cook's theory of the origin of honey dew is not a tenable one, while that of Mr. Cowan is most reasonable. It requires but a slight knowledge of the life and growth of the vegetable world to be convinced that honey dew is a sweet exudation of the leaves and young shoots of trees and plants. A brief consideration of vegetable growth will the better enable

us to understand this. See Johnston's "How Plants Feed," for an exhaustive treatment of this subject.

I set out with the statement, then, that the atmosphere is the *indirect* source of both honey and honey dew; that these two articles are nearly identical; the only difference being that the honey in the course of its elaboration imbibes from the flowers of plants and trees a portion of their aroma—which is always wanting in honey dew. To make this at all clear, it will be necessary to briefly advert to the composition of the atmosphere and to the elaboration of plant food from its elements.

The general composition of the atmosphere is familiar to all. It is chiefly made up of two gases—oxygen and hydrogen, which are present in nearly equal proportions. While these play an important part in vegetable growth, it is the carbonic acid of the atmosphere that is the basis of vegetable tissue, and the source of honey and honey dew. The proportion of this element is only one twenty-five thousandth of the bulk of the atmosphere. Its chemical formula is C, O_2 , which means that it consists of one atom of carbon and two of oxygen. As it is the carbon of this gas that largely enters into the tissue of trees and plants, and as it forms such a small proportion of the volume of the atmosphere, it is consoling to know that the best authorities say that 28 tons of carbon is carried by that amount of air which rests over each square acre of the earth's surface. As not one-third of the earth's surface is covered vegetation, and the air is ever in motion, the local supply is ever renewed; and what is being exhausted in plant food is restored by combustion and the perpetual decay of vegetable matter. Thus the equilibrium is, and will be maintained another evidence of "the economy of nature."

Having stated that carbonic acid is the indirect source of honey dew, and glanced at its presence and proportion in the atmosphere, it now remains for us to con-

sider how it is appropriated by the vegetable world, transmuted into that which goes to make up the greater part of its products—honey dew among the rest.

It is enough for our purpose to say that the outer skin or epidermis of the leaves and green shoots of trees and plants are studded with minute cells—inspiratory and respiratory organs. It is estimated that these range from 800 to 170,000 to the square inch in various plants. The carbonic acid of the atmosphere is inhaled through these pores, and under the influence of light, heat, moisture, and other agencies; undergoes various transformations in the sap-cells beneath. During the progress of digestion there are several well marked changes that take place in plant-food thus inhaled. The first is the *fixation of carbon*. This again is transmuted into starch; the starch into sugar, which, in turn, is converted into what finally goes to form wood tissue. (See Gray's Structural Botany.) From the Saccharine stage of digestion comes our *honey* and *honey dew*. The former is in some manner, as yet, unexplained, determined to the flower, while the latter is the result of the sap-cells, under certain atmospheric conditions, becoming gorged, when a portion of the sweet juice they contain exudes through the pores of the leaf and green shoot, and rests on their surfaces—hence our honey dew.

Thus we see that Mr. Cowan's definition is the correct one; namely; "A saccharine substance, or sweet juice, which at times and under certain atmospheric conditions exudes from the surface of the leaves of trees and plants."

The difference in color it sometimes presents, may be, in part, accounted for by the *smut* Prof. Cook speaks of; but it is more likely to be the presence of aphides in great numbers which at times are found devouring it, and that the inferior quality of the article is the result of its being largely mixed with the excreta of these insects such stuff when stored in the hive is unfit food for either man or bees.

OWEN SOUND, ONT., Feb. 20, 1899.

THE TAYLOR-MILLER CONTROVERSY.

Some Exceedingly Fine Points Made Still
Sharper.

C. C. MILLER.

DIRECT VERSUS SECOND-HAND KNOW-
LEDGE.



(¹⁰) On page 81 of the Review, Critic Taylor says my loss of faith in him "may have a tendency to the acquiring of knowledge directly where that is possible, instead of 'mostly second-hand,' which was

the way he says he acquired his knowledge of the length of time a queen lays." Much as I value knowledge acquired directly, I do not despise that obtained second-hand; and if no one placed any value upon second-hand information the publication of bee journals would immediately cease. I am indebted to many, very many bee-keepers; and not the least among them to the interesting Michigan experimenter, R. L. Taylor, for items of knowledge that I value.

At the same time I confess the obligation to acquire knowledge "directly where that is possible," but if Mr. Taylor insists that my knowledge should be directly obtained as to the length of time queens lay in different localities, I must enter a mild demurrer. Even for the sake of knowing how long queens lay, it can hardly be expected of me to spend a year each in all the varying localities. When Mr. Taylor stated the length of time of queen-laying, and "did take into view all the readers of the American Bee Journal," does he mean to say that he got his knowledge directly in the different localities of said readers?

THE LENGTH OF TIME THAT QUEENS LAY.

Mr. Taylor thinks my answer may do for Dadant's latitude, but Lapeer and Marengo should have some consideration. It will hardly be supposed, I think, that I had no direct knowledge of my own locality, or that I did not take that into consideration, but I did not think that alone should be considered. Mr. Taylor's statement as to the matter certainly does not agree with the observations I have made at Marengo, and the statement in Dadant's Langstroth was hardly meant to apply only to Hamilton, Illinois. Text-books are not supposed to apply to single localities or latitudes. If Mr. Taylor is correct in his view, it may be in order for the editor of Review to explain how it is that he says on page 90, "Let a colony begin breeding in mid-winter, here in Michigan." He also tells of three and four combs nearly full of sealed brood in March, without saying how long before that the queen laid. Grant that the results were disastrous, the fact remains that by any fair rule of inferences queens do commence laying as early as the first of January, and it is not so unreasonable to suppose that many queens in Michigan do commence earlier than the time mentioned by Mr. Taylor without disastrous results. But if Mr. Taylor has direct knowledge as to the different regions, I yield my second-hand light.

ABOUT THAT WORD "SIC."

Mr. Taylor insists that I was asking for the definition of "sic." Another person, he says, sought to enlighten me, thinking me not sufficiently well informed, I suppose, to know the meaning of the word. But I could hardly think that Mr. Taylor thought me so illiterate, for he distinctly gives me credit for skill in the use of language, which presupposes a knowledge of the meaning of words. The very fact that I said that coming after the word "boil" it looked as if he might be objecting to something about that word, seems to be on its face pretty

strong proof that I knew the definition of the word. If I had wanted the definition of the word, I think I should have asked, and I thought he would have expected me to ask "What is the definition of the word 'sic'?" When one wants the definition of a word, he asks "What is the definition of that word?" or "What does that word mean?" and not "What do you mean by saying so and so?"

So when I said, "Coming as it does twice after the word 'boil,' it looks as if he might be objecting to the use of that word, but as I know of nothing incorrect in the word, or the way in which it is used, I shall be obliged to him if he will tell what he means by saying 'sic,' it did not seem possible to me, with the view I had of Mr. Taylor's intelligence, to believe that he thought I was asking for the definition of 'sic.'" But as he insists that such was the case, I accept his word, and hereby apologize for under-rating his honesty and overrating his intelligence.

HOW MANY DICTIONARIES MUST ONE POSSESS BEFORE WRITING FOR JOURNALS.

I protest most emphatically against the position taken by Mr. Taylor on page 85, and still more emphatically do I protest against the position of the editor and publisher of the esteemed Review. Briefly stated, that ruling is that any one who attempts to write for any bee journal must possess a majority of dictionaries under penalty of being gibbeted in the Review for the use of a word not sanctioned by said majority. It seems to me that all that should be required of a writer is to have one reputable dictionary, and if he finds a word given in that dictionary he ought to be allowed to use it as there given. Don't you think, Mr. Editor, you can concede that much to some of us who haven't a number of dictionaries but have had a number of poor crops?

IS "BRING TO A BOIL," AN ALLOWABLE EXPRESSION?

Mr. Taylor says I used the expression "bring to a boil" instead of "to boil," "to cause to boil," "to let boil," etc. That is hardly correct. I used the word "boil" as a noun with the definition given in the standard dictionary: "The act of boiling; the state of boiling or being at the boiling-point." If a cook says she boiled some milk, it is understood that the milk continued at the boiling-point for some time. If she says she brought the milk to a boil, it is understood that it did not continue at the boiling-point unless she specifically says she brought it to a boil and kept it at the boil. It is only fair to say that I used the word without knowing whether it was in any dictionary or not, just as I use many another word in common use. If a word is in common use among good writers and speakers, one is justified in using it, and if it is not found in his dictionary, so much the worse for the dictionary. The noun "boil" is in frequent use in reputable books, magazines and newspapers. I may mention "Common Sense in the Household," an authority in matters culinary, and written by a lady of good literary reputation without reference to that book; and The Chicago Daily Record, one of the best daily newspapers in the world.

Mr. Taylor broadly hints that the noun "boil" as I used it is "practically condemned by a decided majority" of the dictionaries, and that "there is no vacancy for the word to fill." I don't believe a single dictionary condemns it. They may not contain it, but if that is considered condemnation, there are hundreds of other words condemned in like manner that are in constant use by the best speakers and writers. I shall not cease to use the word "telephone" because it is condemned after that style by a Webster's unabridged dictionary that lies before me. It is not necessary that there shall be a "vacancy for the word to fill." It is only necessary that it shall have

come into reputable use, vacancy or no vacancy. But I think there is something of a vacancy for "bring to a boil." I know of no other way to express the same thing in so short a space. Flagrant as may be the crime of charging another with ignorance, I cannot help thinking ignorance or something is the matter with Mr. Taylor if he does not say it is an entirely proper thing to say "bring to a boil."

A CARD OF THANKS.

I take occasion to thank Mr. Taylor for calling attention to an error of mine. Ignorance is the only excuse I have for saying what I did about mammoth clover. Alas for the many things concerning which I have a full supply of ignorance! but if you will faithfully point out all the mistakes I make, Bro. Taylor, between us we may make known a good deal of truth.

But there comes again that same old "sic" on page 87 to trouble. Sort of Banquo's ghost. "It might be a good plan to take part in (sic) the cellar." Now please, Bro. Taylor, tell me what you mean by saying "sic." I don't mean what is the definition of "sic," but what under the sun have I done, or said, or thought, that makes you put that "sic" there?

WHY DO STRONG COLONIES LOSE LESS THAN WEAK ONES.

In the very interesting article by Adrian Getaz, he says, on page 74, "As to the loss of bees, in my locality, the strong colonies lose less than the small ones. In fact, considerably less in proportion to their size, than the weak colonies. Exactly why, I don't know."

Allow me to give a possible explanation. In winter the bees assume a form more or less spherical, and the outside bees are the ones that suffer the most from the cold. In other words, an outside blanket of bees protects the rest of the ball. Of course the outside bees don't always remain the same, but that doesn't change the principle. For the sake of illustration, suppose this blanket of bees is one-

half inch thick. If the ball of bees be three inches in diameter, the blanket will contain 42 per cent. of the entire lot of bees. But if the ball be six inches in diameter, then the blanket will contain only 29 per cent. of all the bees. It is possible, also, that a thicker blanket may be needed for the small than for the large ball, making the difference in mortality still greater.

MARENGO, ILL., March 16, 1899.



RENDERING BEESWAX.

Some Experiments with Slum-gum from the Ferris Extractor. The Hatch-Gemmill Press.

F. A. GEMMILL.

"Many a little makes a muckle"



YOUR announcement, in a late issue of the Review, that Mr. Beckwith's article describing the methods employed by him in rendering and pressing old combs in order to secure all the wax they contained, had brought out several articles on the rendering of wax, and that a future issue of the Review would be devoted to a discussion of the subject, was no surprise to me.

The fact that you had also published, in substance, what was said in our convention at Guelph, on this important matter, had no doubt much to do with bringing out criticism on the methods generally employed for securing the best results, with the least time, labor, and expense; and I am now glad that such has been the case.

When the subject was being discussed, as stated, I had no thought, much less desire, to impress the bee-keeping fraternity

with the idea that the methods employed with such success by myself were the best and only methods in vogue for securing the desired ends, but the presence of foul brood in my neighborhood, in years past, had compelled me to melt up thousands of old combs, and I was giving the result of that experience. Quite naturally, I resorted to all available means which, in my judgment, appeared to be of value. Among other plans I tried that advocated by the Dadants; that of crushing the combs in cold water, and allowing them to remain for, say 48 hours, in order that the cocoons and pollen may become thoroughly water-soaked, and thus prevent the absorption of wax. Afterwards the broken comb is placed in a gummy-sack, and immersed in boiling water so that the wax, as it melts, rises to the surface and can be dipped off. I found this plan as good as any; consequently, I followed that system to the greatest extent. However, I longed for some improvement; or, to be more explicit, some means by which the same, or better, results might be obtained with less labor. As a consequence I betook myself to the Boardman solar extractor, made and operated as nearly as possible in accordance with the inventor's instructions, and gave the same a good trial, only to find that for such combs it did not give as good results as the previous plan; unless I used pressure on the refuse or slum-gum.

Of course, there was yet the Doolittle method, of melting and then pressing the combs with the lever, in an iron kettle or caldron containing boiling water, and operated in the open air, but, from the experience of a friend who tried it one summer while curing foul brood, I could not bring myself to adopt it *in toto*. Nevertheless, I became convinced that, in my case, a press was a necessity. Before arriving at this decision, I, at the suggestion of my friend Hall, tried a modified, steam, Swiss extractor, (sometimes called a Jones), such as has many times been illustrated in the various bee periodicals, only on a much larger scale than gener-

ally used. The Salisbury plan was not tried, for the reason that it was not available in my case.

My selection of a press fell on the Hatch, with some improvements added by myself; but, as I am not an inventor, I desire here and now to give honor to the inventor of this or any other article of value I may have occasion to utilize; and, until a better article is furnished, I shall continue to use and advocate the same.

I need not further trespass upon your valuable space, nor the patience of your readers, except to state, for the benefit of those not already familiar with the success attained so far, that my average yield of wax secured from any given amount of old brood combs has been three pounds from a set of eight Langstroth combs; while my friend J. B. Hall, already referred to, one of Canada's best apiarists, secured a like proportion; viz, from three and one-half to three and three-fourth pounds from eight Quimby combs; they, of course, being larger than the Langstroth. I have never yet heard of such an amount being secured by any process when no *high* pressure was used.

I have always been willing to acknowledge, uphold and encourage inventive genius; and, lately, my attention being called to the advertisement of Mr. C. G. Ferris, of South Columbia N. Y., in which he claims that his new, improved, steam, wax extractor will secure all the available wax in old brood combs when used according to instructions, without the use of a separate wax press, I wrote to Mr. Ferris, and a correspondence took place between him and myself, as you Mr. Editor, are already aware, the substance of which was to the effect that, if the machine would do as he stated, and we could satisfactorily arrange matters regarding the duty, that I would purchase one and give it a fair and impartial trial; and, as a result, I am now in possession of one of his single-basket machines.

I regret that, owing to circumstances over which I had no control, I am not able, at this writing, to give the result of

more than one experiment with this extractor; and, although this machine is by far the best of the kind that I have seen, being a marvel in regard to combination and workmanship, yet I cannot, so far, say all that I had hoped to say in its favor. For Mr. Ferris' sake I hope that later experiments may give better results; although, with such combs as were treated, I am not overly sanguine that it would not pay me to use the press on the residue. At the same time, I wish it to be remembered that I am only one man, with a hobby of my own regarding this matter, and it is possible that the acme of success would be too much to expect from a first trial; even though I do not count myself a novice in manipulating a steam wax extractor.

In order that I may be better understood relative to said experiment, which was conducted by my son and myself, it will be necessary for me to state, that the steam, Swiss, or Jones extractor, which has been used in the past by myself; is on the same principle as the Ferris, with the difference that the latter is oblong, the basket being made of about 1-12 inch thick galvanized wire having nine open spaces to the square inch, while the Swiss is round in form, and the basket made of perforated zinc; the holes in the same being much smaller and numbering thirty to the square inch.

Having an eye to economy, both extractors were operated in the honey house; not, however, with the intention of comparing the capacity of each, as that was not the object in view—my own being much larger.

After cutting out the combs from the frames, each extractor was given as near as possible a like amount, and I was not long in finding out that the Ferris first commenced to yield wax, and also the first to be ready to receive a fresh supply; providing the contents of each were occasionally stirred, and both run until no more wax was forthcoming. I attribute this to the difference in the size of the perforations in the comb basket; as, with the

smaller openings, the refuse was more likely to become soggy or tenacious in body unless more frequently stirred in order to allow the wax to free itself, so to speak.

When no more wax was obtained from the extractor, in other words, had ceased to flow, the refuse, according to instructions, was removed from the Ferris machine, and laid to one side for further treatment, while the material from the Swiss was immediately dumped into the Hatch press, and the remaining wax secured there and then, thereby obviating any further treatment.

After being through with the steaming, the refuse or slum-gum previously taken from the Ferris, was returned to the comb-basket in that extractor and the *follower*, made from the same kind of material as the basket, was now gently pressed into position on top and then fastened, as per instructions, and the whole flooded with boiling water, leaving sufficient room for the accumulation of any wax that might arise to the surface. The whole was now boiled for one hour (possibly two hours would have been better) and allowed to remain on the stove over night.

The following morning the wax was removed from the surface; the amount being small, in proportion to the quantity steamed out, and of a very dark or greenish color. The latter defect I attribute to the cooling of the wax in a galvanized iron vessel. Two such treatments were required for the amount of refuse first secured by steaming.

Now came the crisis for which I had longed, and that was, to see how much, if any, wax yet remained in the slum-gum after it had been steamed and flooded *à la Ferris*. Accordingly, this same refuse was once more heated to the boiling point and then transferred to the wax-press, only to find that my expectations were, to a great extent, realized; as wax in paying quantities (to me at least) could be procured by such treatment. Samples of this wax have already been sent to the editor and Mr. Ferris for their inspection and

benefit, thus satisfying myself, for the time being, that my method (minus the flooding) was to be preferred to secure the same ends, on account of less time and labor being required.

Of course, I cannot tell what would have been my success with one of Mr. Ferris' two or three-basket machines; but one thing I do know, and that is, that I faithfully, and to the best of my ability, gave his extractor an honest and impartial trial with the following results:—

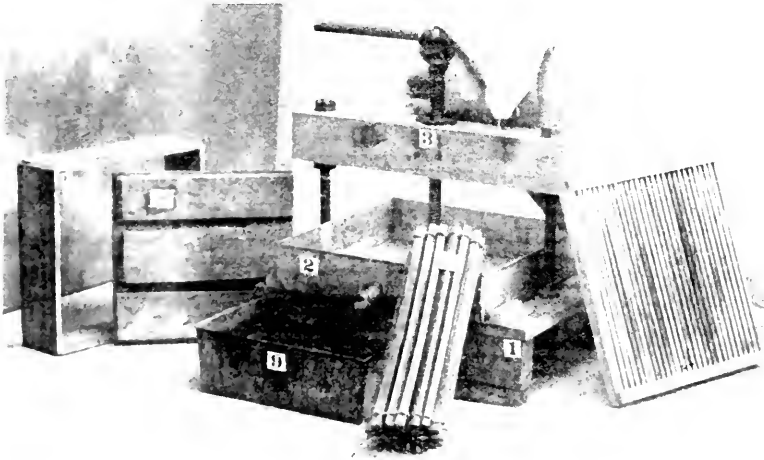
Steamed out. 4¼ lbs.
 Flooded out. 1¼ lbs.
 Pressed out. 2½ lbs.
 Total 8 lbs.

The combs used were seven years old, containing much pollen and many cocoons. I presume that those containing no pollen, and that had been used for

same time, I am not altogether unacquainted with some of them; having met Mr. Elwood and Mr. Coggshall on several occasions; and, while but very few apiarist in Canada keep more than two or three hundred colonies, we, nevertheless, are content, as a rule, with about 100. In the meantime, should Mr. Ferris desire any further particulars, or have any other suggestions to offer, I shall not only be willing but pleased to accede to his request; as my object is not to depreciate any man's worth, but rather to assist in furthering his interest when any branch of apiculture can be advanced. Facts are facts—honesty the best policy.

DESCRIPTION OF THE HATCH-GEMMILL WAX-PRESS.

No. 1 is the stand. It is 2 ft. x 1 ft. 8 inches in size. The legs, or feet, are



THE HATCH-GEMMILL WAX-PRESS.

brood combs only one or two seasons, would probably have given results favoring the extractor to a greater extent.

In conclusion, I think Mr. Ferris, for his kind invitation to visit him, with the assurance that, if no unforeseen circumstance prevents, I will, in the near future, accept this invitation, and be taken around among bee-keepers who are the owners of thousands of swarms. At the

made of 2 x 6 inch scantling, 2 ft. long set on edge. Upon these are nailed 1 in. thick boards for a top.

No. 2 is a tin tray 18 in. square by 4 in. deep, with a spout in front, flush with the bottom.

No. 3 is a common iron bench-screw, 1¼ in. in diameter, 16 in. long, and having a piece of gas-pipe for a handle. It is fitted into a sound piece of oak 3½ in.

square and 2 ft long. Two inches from each end is bored a hole to receive the one in. iron upright. Care must be taken to have these holes, as well as the one in which the screw is fitted, perfectly true, in order that the press may work satisfactorily. The iron uprights are 20 in. long, by 1 in. diameter, and have a thread running out at each end to receive 2 iron nuts at both top and bottom of each. Under the center of the stand is a similar piece of oak, for receiving the bottom ends of the iron uprights, and sustaining the pressure of the screw when in use.

No. 2 is a woollen mat made of 3/4 in. thick slats 7/8 in. deep, spaced a scant 1/2 in. apart, and cleated at the ends with a slat of the same size as those composing the mat itself, viz., 7/8 x 3/4 in. laid on flatwise. This is laid directly on the bottom of the tin tray, cleated side up, and is full width of the inside tray, and 1/2 in. shorter.

No. 3 is a woollen form with top or bottom being made of 1/2 in. stuff, and is 3 1/2 in. deep by 15 x 16 1/2 in. in size, outside measure.

No. 4 is a piece of gunny sacking, about 2 ft. 6 in. square. Some prefer to make it up in the form of a bag for receiving the refuse or slum-gum as it comes from the boiler or steamer; previous to being pressed. It is more easily emptied and washed when made up.

No. 5 is another wooden mat, made up with string twine after the fashion of a window blind, that will roll up, and is for laying out the refuse. It is the same size as the form No. 3, less say 1/2 in. all around. Either kind of mat will answer the purpose.

No. 6 is a 1/2 in. w. mat, 1 1/2 in. high, of lumber, and fits inside of the form the same as the mat last described. It is strongly cleated at the ends, and it will be in the form of a piece of 2 x 2 scantling in the center of it, on which is a flat piece of iron for the screw to press upon.

No. 7 is a tin dish for receiving the water, and a tin box that may run out when

screwing down the refuse. It ought to hold about a gallon.

The whole machine ought not to cost more than \$2.50, or \$3.00 at the outside—about \$2.00 if you do all but iron work.

When ready to operate, proceed as follows: Place the tin tray in position, then lay the woollen mat on the bottom of the tray, then put on the form, fitting it inside of the cleats on the mat; next place the gunny sack in position by laying it evenly on the tray and pressing into the corners, first soaking it in boiling water for a minute, now pour in the refuse hot of course, bring the ends together, overlapping them a little on the top, put on the follower, and turn the screw gradually at first, and then as tightly as possible. You will soon conclude it pays to use such a press—at least it pays me.

Since sending the foregoing I have read in the April Review the articles by Messrs. Miller, McEvoy, and Davenport on wax rendering, and will simply say that I have no doubt that the acid plan is good. I presume it is on the same principle as the Salisbury method, which I have not tried. I may do so, soon.

I agree with Mr. McEvoy in regard to what he says about the Alpaugh solar extractor. I have one; and, for rendering cappings, and remelting or purifying dirty wax, I believe it is unsurpassed. Please tell the man who kissed the "blarney stone" just before he wrote that article, that I can swallow most anything but what he said regarding myself.

Mr. Davenport's experience corresponds so nearly with my own, viz., that more wax can be secured by the boiling process, when properly done, than by any other, that I offer no objections to those who do not object to boiled wax, especially if long-boiled notwithstanding this, a good press is a good thing under any and all circumstances.

STRATFORD, Ont., April 3, 1866.

THE BEE-KEEPER'S ELDORADO.

Milkweed and Crimson Clover as Honey-Plants. Bees as Fertilizers.

CLARK A. MONTAGUE.

IF the suggestion of the Editor I will try to tell the readers of the Review something of the honey resources of this immediate part of northern Michigan.

We have most of the common early bloomers; the willows, maples, etc., a fair supply of black locust, and as large and varied a supply of fruit bloom as can be found.

The red raspberry and locust usually give us a small amount of surplus. The others mentioned assist in building up the colony.

The first *sure* source of surplus is crimson clover; which fills the blank between fruit bloom and the other clovers and milkweed. It is worth to us all the other clovers combined. Last season, from this one source, the stronger colonies each filled a super holding 8 L. frames. This was before any of the other clovers were in bloom.

Then comes our standby, the milkweed, which has failed but once in the 19 years since I commenced to keep bees. I get from 75 to 150 lbs. per colony from milkweed alone. I feel sure that putting the average yield from this source at 100 lbs. per colony, spring count, is a very moderate estimate.

We get considerable honey from basswood; though it is a more or less complete failure about three years out of five. Most of the large basswoods have been cut and sawed into lumber. There is plenty of the second growth; and I think most of the honey comes from that.

We get more or less full honey; which is dark and not so good for winter stores; it is mostly golden rod and buckwheat.

In the Review for February, the editor comments favorably on Dadant's opinion that one must keep from 300 to 500 colonies to be sure of a living from bee-keep-

ing. But, Mr. Editor, did you stop to think that location is *almost* everything? Here, we need make no allowance for a failure of the honey crop; as such a thing as a complete failure is unknown. The smallest yield I ever had was 50 lbs.; the largest 300 lbs., per colony. I have never had any large yields from individual colonies; although I have increased one colony to seven and taken 700 lbs. from the lot. My average for '96, '97, and '98, were 150 lbs., 129 lbs. and 131 lbs., respectively.

There seems to be much misinformation regarding milkweed honey. Even Dr. Miller, American Bee Journal, page 791, for 1898, is under the impression that the color is amber; whereas it is nearly as light as basswood. We think it the best honey we have although some prefer the stronger flavors of basswood or buckwheat.

I wish to touch upon one other subject; the value of the honey bee to the fruit grower. In doing so I am compelled to take issue with most of those considered authorities on this subject. The following I take from the "Farm Journal."

This quotation from Press Bulletin No. 8, of Kansas Experiment Station, shows the effect of *bees* on fruit: "If *bees* are kept from fruit blossoms by netting or other artificial means, the amount of fruit set is little or none. It not infrequently happens that inclement weather prevents or hinders the flying of *bees* during the period when flowers are receptive. A fruit tree, half of which was subjected to a continued spray of water during the flowering period, produced no fruit upon the sprayed portion, but an abundance upon the other. A failure due to the above mentioned cause can not well be prevented, but may be modified by having *bees* near at hand to utilize the short favorable periods which do occur.

An insufficient supply of *bees* will hinder the setting of fruit. While other insects may take part in the carrying of pollen, the fruit raiser must rely chiefly upon honey *bees*. Experience shows that though hungry *bees* may fly two or three miles, hives should be within half a mile of the orchard or small fruit patch.

I have underlined the word *bees* in several places. To make common sense it

should read "*insects*." Keeping honey bees simply increases the number of *insects* which help with the fertilizing.

We had fully as large crops of as nice, or nicer, fruit *before there were any honey bees in the neighborhood*, as we have ever had since. During the past 19 years we have had from two to seventy colonies in the orchard, and, as a matter of faith, believe they have done *some* good, though we could not see it.

ARCHIE, Mich. Mar. 25, 1899.

Notes From Foreign Bee Journals.

BY F. L. THOMPSON.

THE CONTROL OF DRONES AND THE MATING OF QUEENS.

Mr. Pender in Australian Bee Bulletin says "I have proved to my own satisfaction, at any rate, that drones in an apiary over one mile away have but little influence over our queens, if we are careful to provide plenty of drones." He keeps 100 nuclei in a separate yard, with 5 to 10 full colonies to furnish the drones for mating. These are not allowed to raise their own drones to maturity, although a patch of drone comb is left in each to satisfy its desire for rearing drone brood. This brood has its heads sliced off at regular intervals. But in the upper stories of these colonies are kept frames of drone brood brought from desirable colonies in the yards run for honey. An excluder prevents the queen from laying in these combs, and the drones are allowed to fly through a hole bored in the upper story. By keeping the colonies droneless which furnish the drone brood used, a comb of sealed drone brood may be procured every 10 days to remove to the queen mating apiary. Mr. Penberthy, at the convention where Mr. Pender's paper was read, said that a queen

will please herself whether she will be mated or not by throwing out a smell. His experience was that his queens went two or three miles away to where there were black drones. The strongest queens were mated furthest away. He had only three out of forty queens purely mated, although black bees within a mile away were rare, and his home apiary of 140 Italian colonies had plenty of drones.

Mr. Pender also said in his paper that it is desirable to have queen cells raised in an apiary away from the nuclei, because then young queens do not get into queen rearing hives, destroying their queen cells. He has carried hundreds of queen cells during the last two seasons to his mating apiary, and had the young queens fertilized there with the best results. Mr. Seabrook said carrying queen-cells was a great mistake, as one has to very careful in carrying them, and the least jerk often produces deformed queens.

CONTROLLING SWARMING WITH THE HEDDON HIVE.

Mr. Bolton uses Heddon hives. Two or three weeks before swarming time, he makes a round in order to apportion to each colony the right number of hive sections which its strength calls for, and any colony having two hive sections has the upper one inverted, thus securing the abandonment of any young queen-cells that may have been started. That means no swarming at that apiary for the next nine days. On the ninth day the hives are again inspected, and whatever ones have no queen-cells, or have queen-cells apparently under eight days old, again have their upper sections inverted. Those which have cells nearly ready to seal, or being sealed, are swarmed artificially by shaking them off in front of a single hive section, with starters, on the old stand, and are given their own super above an excluder. The two stories of brood removed are used in adding to one-story colonies. The same process is repeated in the apiary at the end of another

nine days, and so on as long as necessary. When all the one-story colonies have been built up, further sections of brood removed in artificial swarming are either used for increase, or put on top of artificial swarms. In this manner inversion is not used to stop swarming, but to postpone it, and at the proper time the swarming propensity is taken advantage of by the bee-keeper. If queen-cells are desired, a top section of brood from an artificially swarmed colony (which, as will be apparent from the foregoing, contains some queen-cells just about to be sealed), is placed right side up over an excluder over some other fair colony, being careful to pick off all cells that appear to be over three days old. The cells left will be just right for use at the next ninth-day visit, with no necessity of coming before then. Mr. Bolton thinks the use of the Heddon hive enables him to control swarming with one-third the labor that other hives would require.

"EVAPORATED" BEES.

W. E. Fackender reports the sudden disappearance of bees from the hives in much the same manner as they "evaporated" around Denver three years ago, an effect attributed by some Denver bee-keepers to smelter smoke in connection with dews or fogs. He mentions that smelting works were in operation five or six miles away from his location. Around Denver, the effect was noticeable ten miles away.

GETTING RID OF ANTS.

F. Halloran, having much trouble with small black ants, tried a number of plans that ought to have been efficacious; but failed in all until he put wood ashes around the hives.

HONEY FOR HORSE-FEED.

Here is something novel, at any rate: "If you have any dark grades of honey you don't know what to do with, put it in your horse-feed and you will see what sort of a coat he will get. Feed at night. It will keep him warm, and the bees won't find it out."—J. J. Parry.

SPECIALTY AND CO-OPERATION.

W. McNally thinks specialty in bee-keeping pays. In the Bee-Keeper's Record he says "When an apiary has been built up by a good hand in a good district, until it contains about 250 colonies, and divided into one home-apiary and one or two others at some little distance away, this number can easily be managed by one man, with some extra help during the swarming season. In an average season, and at lower wholesale prices than any yet obtained, such combined apiaries will yield a clear profit of 100 pounds sterling per annum towards labor." He adds "There is such an un-business-like method of dealing with, and want of uniformity in disposing of the article [honey] that nothing short of co-operation amongst bee-keepers can put the honey trade on a sound basis. The establishing of creameries, for instance, and the improved methods of dairying have built up their trade in milk and butter production of late years in a degree that no amount of individual effort could ever have accomplished. Where such companies as devote themselves to this work are established, a uniform market article, bearing their own particular brand, is sent out, which earns a reputation for itself. I, therefore, feel convinced that the honey trade will have to follow similar lines before the greatest amount of good is secured to the producer."

REARING QUEENS BY SIMPLY REMOVING THE OLD QUEEN.

Willie Atchley in the December Southland Queen has declared himself opposed to the advice of many of the best queen-breeders, by stating that properly selected queens, reared by removing the old queen from a colony, are as good as any; but he fails to tell how he does the selecting. Possibly the following from an English queen-breeder, H. W. Brice, may have something to do with the matter: "Two lots of cells are started in nearly every instance, the first being from larvae within the hive when the queen

was removed, and the second batch started some forty-eight hours later, and *nearly always upon larvae which were only eggs when the queen disappeared.* The first batch of cells raised may be any number from three to fifteen, or even more. On the other hand, the second batch will consist of perhaps of two or three, and occasionally only one. But whether one, two, or three, the last batch always produces the best queens, and on these later cells being seen the older ones should be all removed and the younger ones taken care of."

DENVER, Colo., Feb. 16, 1899.



Good things From Other Journals.

SELECTED BY DR. A. B. MASON.

GIVING BEES WATER IN SPRING.

There are so many good things in all of the bee-journals that it seems too bad that every bee-keeper can't have and read them all; but, in looking them over, I often find articles that don't give a new thought or even call attention to any thing of value; and I also often find articles of a column or more containing facts that could be easily stated in a few lines. I was reminded of these facts as I scanned one of our bee-journals this morning. I laid it down and picked up a copy of the *Modern Farmer and Busy Bee* for March 15th, and the first words I saw were "access to water." As that was a subject in which I felt interested, I looked to see who used those words, and saw that it was C. P. Dadant; and that he was writing about "Spring management of the Hives;" and I felt sure he had something of importance to say. I found that he urges the importance of caring for the bees in the spring, feeding them if need be. He says:—

If no honey is at hand, good sugar syrup will do, and it may be made much

thinner for spring feed than for winter nourishment. In fact, it is almost indispensable that the bees have access to water when they are raising brood, as at this season, well diluted food will probably cause less need of trips to the water trough, or to the pond. * * In the spring about half sugar and half water in weight, warmed up so as to be lukewarm, would make good feed.

On the same page Mr. W. J. Stephenson in an article on "Water for Bees," says:—

I suppose * * this subject is less looked after, * * than any other subject pertaining to bee culture, but I dare say it is not the least important. By watching bees about puddles, branches, and creeks, anybody can tell that they need water, and that they want it during the brood rearing season. * * I think it advisable to put out two kinds of water, salt and fresh. Last season our bees visited refuse places to obtain salt. When I commenced to put out salt water for them they immediately quit visiting such places. * * When fixing salt water, it must be barely salt enough to taste it, or else the bees will not have it. Bees will consume twice as much salt as fresh water.

In Langstroth on the Hive and Honey Bee, revised by the Dadants, they more than once emphasize the importance of water for bees; and on page 126 say:—

Water is necessary to bees to dissolve the honey, which sometimes granulates in the cells, and to raise brood. They can raise a certain amount of brood without water, but they seem to suffer more or less in consequence. In winter, they breed but little. * * yet we have noticed that as soon as the bees are brought out of the cellar, if the temperature is sufficiently warm, a great many may be seen sucking water. * * Berlepsch was right when he advised bee-keepers to give water to bees in winter. * * Mr. Vogel, editor of the *Bienen-Zeitung*, on the 19th of March, gave to a colony a comb containing crystalized honey, and another containing about three-fourths of a pound of water. Within sixteen hours, both combs were emptied by the bees. * * * "During the early part of the breeding season," said Dr. Bevan "till the beginning of May, I keep a constant supply of salt and water near my Apiary, and find it thronged with bees from early morn till late in the evening."

And on pages 354 and 355, under the heading Spring Dwindling, they call attention to the fact that

Apiarists in general, do not attach enough importance to the necessity of furnishing water to bees in cold springs, in order that they may stay at home in quiet. * * * In March and April, the rapidly-increasing amount of brood causes an increased demand for water; and when the thermometer is as low as 45°, bees may be seen carrying it in at noon, even on windy days, although many are sure to perish with cold. * * * During a protracted period of unfavorable weather says Berlepsch "we gave all our bees water, and they remained at home in quiet, whilst those of other apiarists were flying briskly in search of water." At the beginning of May our hives were crowded with bees; whilst the colonies of our neighbors were mostly weak. * * * One hundred colonies required eleven Berlin quarts per week, to keep up brood rearing uninterruptedly. * * * That bees can not raise much brood without water, . . . has been known from the times of Aristotle.

Within a few days I have had the importance of water for bees brought to my notice more forcibly than usual. On the 4th of April, as the day bid fair to be warm, I took some of my bees from the cellar and placed them on their summer stands; but before they had a chance for a good flight it turned suddenly cold. The hives were packed in chaff, but the next day, with the thermometer at 40°, the bees began to fly, and I wondered why they were in such a hurry to get out. I soon found out. The lawn in front of the hives has been covered with manure during the winter, and at this time was moist with water from a light fall of snow the day before, and I saw that nearly all the bees that left the hives almost immediately lighted on the manure and commenced sucking up the water; which, being almost icy cold, chilled the bees so that only a few returned to their hives. Sponges and cloths saturated with warm water and placed at the hive entrances at once stopped their eagerness to leave their hives.

In removing the bees from the cellar I noticed a goodly number of larvæ lying on top of the hive beneath the one removed. They were somewhat shrunken and rather dry. I have seen this same

dry and shrunken condition before, but gave the matter no further thought. Since noting what is quoted above, it has occurred to me that perhaps this is caused by a lack of water while the bees in the cellar are actively engaged in brood rearing; and, being a little curious to know how they would act if furnished with water, I stopped writing and took a small sponge and saturated it with warm water, and with a lamp I went to the cellar and pinned the wet sponge to the front of a hive, against the bees hanging there. Well, it was just a picnic to see the nice, clean little ladies turn almost immediately, and without any buzzing or bluster, put out their tongues and take a drink. Occasionally a cranky one would start out on the dead run, to see what was going on, I suppose, but the instant she found the sponge was wet she would stop so quickly as to nearly set her on her head. Each colony watered seemed to be equally anxious for a drink.

About half an hour after I had placed the sponges I again visited the cellar, and not a bee was on a sponge, although fully half the water had been taken from them, and I found the sponges quite cold, but on again saturating them with warm water the bees were ready for another drink, but not so anxious for it at first.

TOLEDO, Ohio, April 19, 1899.



Department of Criticism

CONDUCTED BY R. L. TAYLOR.

Blame where you must, be candid where you can,
And be each critic the Good-natured Man.
GOLDSMITH

WHY DOES MR. ROOT PUT ON A
SECOND STORY?

Mr. Getaz in the American Bee Journal, 146, in speaking of two-story brood-nests, suggests that "E. R. Root wants to add

the second story at a time when the honey gathered is dark and comes in moderate quantity, and replace it by supers only when the more abundant flow of white honey comes, preferring to turn the dark honey into bees. These bees are to gather the white honey which follows." This last remark is rather startling. It seems to strike Mr. Getaz so, too, for he adds "If the honey flow is short I should think it better to put on supers at once than to rear bees that would be too late to help during the honey flow." This remark may also be taken as a commentary upon his position as pointed out in the preceding paragraph. Then the honey flow is always too short, and the surplus dark honey before the white honey flow, is, I may say, always mythical, so infrequent are the exceptions. But the chief point is, why does Mr. Root wish to put on a second story? I had conceived a different notion of it from that expressed by Mr. G.

WHAT KIND OF BEES ARE THE
ADEL BEES?

In the American Bee Journal, 150, in reply to a question about the yellow banded Adel bees, Dr. Miller says "If I am not mistaken it is a strain of Italian bees to which that name is given just as you might take a colony of Italian bees and give them a particular name." Doesn't Mr. Ally claim that they are a strain of Carniolan bees?

QUEENS LAYING OUT OF SEASON.

Dr. Miller, referring to Dr. Mason's report that his bees breed in the cellar, and to my statement that queens cannot be depended on to lay later than Sept. 10, and that they average only 5½ months of laying in the year, wonders if Dr. Mason and myself cannot make some kind of a compromise, and suggests swapping queens. No; I thank you. I prefer things in their season.

PROPOLIS AND TRAVEL-STAIN.

Dr. Miller says: "That guess of the editor that 'in the majority of cases it is chunks of propolis' that blacken combs will hardly do. Don't queenless bees

deal in propolis? J. E. Crane says that brood-combs in a queenless colony were pure white after four months. That could be better explained on the theory of one of the foreign journals that the dark color is caused by the first dejections of the young bees." Gleanings, 121. I think the doctor's guess will hardly do either. There are other facts to be taken into account. Although queenless colonies may possibly "deal in propolis" to some extent, if such bees build comb, fill it with honey, and cap it, they are likely by that time to be so reduced in numbers, that they scarcely visit much of the new comb at all; much less are they able to gather propolis and smear it upon such comb. Besides, the cappings of honey in supers often become discolored where young bees are not found in time to color it with their "first dejections."

DANGER OF TOO HIGH TEMPERATURE IN
A BEE-CELLAR.

The doctor, in Gleanings 165, says: "If my bees had dysentery in the cellar, I'd run up the temperature for a few hours to 60 or 80 degrees. I don't know, but I *think* it helps." I have never had the temperature in a cellar with bees up so high as 60 degrees, but I have had it high enough to lead me to believe that I should be liable to have a "circus" if it rose to 60 degrees, to say nothing of the higher temperature. So I think the doctor's advice might prove dangerous for a novice, unless he were in a position to apply the brakes upon the appearance of the very first signs of an outbreak.

Quoting my remark about jumbling language by Dadant and himself the "Boiler" says (American Bee Journal, 170) "That is a slight intimation that there is no difference after all in the views of the two men. Will Mr. Taylor look at the Review 55 where Mr. Dadant says, 'Queens to us in early spring are the most expensive part of a colony' and try your hand at reconciling that with editor Hutchinson's statement that they are the *least* expensive part of a colony." Certainly, Mr. Boiler, I interpret Mr. Dadant

to mean precisely what you interpreted him to mean when you wrote that he was "emphatic in the assertion that . . . queens are the part of most especial value." That does not conflict with the editor's statement.

LAPEER, Mich., March 25, 1890.



EDITORIAL offerings.

HUNTING WILD BEES is a subject upon which I would like a good article.

MR. E. T. ABBOTT is no longer connected with the *Modern Farmer and Busy Bee*; and may soon start another journal of his own.

TWO WORLDS is the title of the \$50 prize story, written by Mrs. J. M. Null, that has been commenced in the *Progressive*. It starts out quite storified.

"HE, SHE, OR IT." Which shall we call the worker bee? The choice is certainly between "she" and "it." There are some arguments for both, but it seems to me that "it" gets the best of the argument.

THE LEAHY MFG. CO., receives a well deserved, two-column "write up" in their local paper, the *Advance*. It traces the business from the beginning with Mr. Leahy running a foot power saw, until the present, when it is the largest business in Higginsville.

TOO MANY PREMIUMS are given by us bee-keeping editors to suit one of my western subscribers. He says that when he pays his dollar he wants "a dollar's worth of journal; not sixty-five cents worth of journal and thirty-five cents worth of premium."

BLACK CLOTHING and the aversion with which it is regarded by the bees receives further consideration in *Gleanings*; and it does seem as though the testimony given in proof of this aversion is incontrovertible. My own experience, as I have before stated, has been that bees have a decided aversion to black.

TRAVEL-STAIN has received quite a lot of attention in *Gleanings*. I think that I have read all that has been published on the subject. There seems to be a difference of opinion as to whether this dark, reddish-brown color is a stain that comes from the bees running over the comb, or from the incorporation of bits of propolis or old comb into the cappings. Perhaps both views are correct. That is, it may sometimes arise from one cause, and sometimes from the other. One thing is quite clear, viz., that it is always found in close proximity to old brood combs. The moral is to have the sections capped at some distance from the brood-nest; that is, unless the brood-combs are new.

WHEN QUEENS DIE.

In *Stray Straws*, in *Gleanings*, Dr. Miller says "Unless I am entirely mistaken, the rule is that all queens in strong colonies are superseded, and that supersedure usually takes place toward the close of the harvest, when it causes no loss, so its just as well if a queen doesn't last more than a year." If queens that had been worked almost to death were always superseded in the fall, all would be well, but it is exactly as Mr. Dadant has put it, so many colonies turn up queenless in the spring. The bulk of the *early* orders for queens are for queenless colonies. Of course, I do not *know* that it is overwork of the previous season that causes a queen to die in winter or early spring, but there are indications that might lead one to that belief.

MR. GEMMILL'S article on wax-extractors was in type and "made up" in the form when a note came from him saying that he had made two more experiments by rendering brood combs, only three years old, that contained very little pollen, and the proportion of wax secured by pressing the refuse was somewhat less than in the former experiment; but not sufficiently so to enable him to profitably dispense with the press. By the use of the press he still secured $\frac{1}{4}$ as much wax as by steaming.

DESTROYING FOUL BROOD BY BOILING.

It has been explained to us why repeated boilings may destroy some minute forms of life, like foul brood, when a single boiling, even if long continued, might not be sufficient. The first boiling destroys the mature organisms, but not the spores, which are started into growth. A later boiling destroys the mature organisms that were started into growth by the first boiling. As some spores are slower in starting into growth, a third boiling is resorted to make assurance doubly sure. Harry S. Howe says that this plan is of no value in treating honey infected with the germ of *Bacillus alvei*, for the reason that the spores will not develop in honey. We might boil the honey as many times as we wished and not kill the spores if each boiling were just a little too short to kill them. Mr. Howe's experiments seem to show that 15 minutes boiling is sufficient.

GETTING BEES STARTED TO WORKING IN THE SECTIONS.

Last month I had an editorial on this subject. My advice was to have "bait" combs in the sections. In *Gleanings* for April 15 I find an article on this subject written by Mrs. A. J. Barber of Colorado. She says that she always had trouble with her bees by their loafing and hanging out on the fronts of the hives after the sections were put on. Some of the colonies would swarm instead of going to work in the sections. I think that her experience

is a very common one. Three years ago she began the practice of giving part of the colonies supers of half-depth extracting-frames full of combs, one super to each colony. In four or five days these combs were full of honey, while those colonies having simply sections filled with foundation were loafing or swarming. She then raised the supers of extracting combs and put supers of sections underneath. In two weeks the sections under the extracting-combs were better filled than the sections put upon hives that had no extracting combs given them. The honey in the extracting combs was just so much clear gain. This plan is practically that of giving sections of comb left over from the previous season. Mrs. Barber has only about one-third as many swarms from colonies treated in this way that she does from other colonies. The editor of *Gleanings* endorses this plan; saying that he can speak from actual, personal experience. There is more in this plan than some of us realize. To a certain extent, bees are creatures of habit. Let them form the habit of storing honey in the supers instead of getting ready to swarm, and they are quite inclined to stick to the habit.

SOME GLIMPSES OF MR. M'KNIGHT'S HOME.

In this issue of the Review are two views that show glimpses of Mr. McKnight's beautiful home. When I received the photos. I was quite curious to know more than the photos, alone could tell. In answer to my inquiries Mr. McKnight sent me a delightful letter. Of course, it was intended for my eye alone, but, as the sight of these pictures will arouse the same curiosity in others that it did in me, I am sure that Mr. McKnight will pardon me if I allow my readers to look over my shoulder. Here is what he wrote:

My Dear Hutchinson: I have your favor *re* photos. The girl with the dog in her arms is my daughter and eldest child—she has been my house-keeper for

the past three years. The other is a neighbor's daughter who happened to be in at the time. The photos were taken with my own camera, but the exposures were made by a young fellow; a friend of the visiting lady.

The walk shown in the photo. of the house is a short-cut from the town. The hedge on the right is privet, and that on the left cedar. The carriage-drive comes in at the other side of the lawn, and is not taken in the picture.

The other photo. shows a sanitering ground, along the east side of the orchard. In the summer it is largely patronized by town people and strangers, as, from all points, it commands a complete view of the town, the harbor, and the lake. The maples on the right grow on the immediate brow of the hill, as you may see by their roots. The hill is 160 feet above the valley in which the greater part of the town is located. The row of evergreens is designed as a wind-break to the orchard from the lake breeze. You will notice a privet hedge along its base. It was rather handsome when well trimmed; but both its beauty and its usefulness have departed; as it is now overshadowed by the spruce. Some of the trees in the distance are a part of the original bush—the only piece now within the residential part of Owen Sound. It forms a good back-ground and is a protection to the orchard as well. The grounds embrace about 4½ acres—and they are admitted, I believe, to be the finest site in the town. They cost me \$10,000. When Mr. Hooker of London was staying with me during the Chicago Fair we were one evening sitting on the rustic seat in the distance, when he declared he had witnessed no finer prospect in all his travels in Europe. Mr. Cowan was also much taken with the situation. Mr. and Mrs. Cowan stopped with me for ten days during their first visit in 1887. My apiary was located in the orchard which lies behind the house and inside the row of evergreens shown here. I have occupied this place for twenty-three years, and laid out the grounds, planted all the trees, shrubs, hedges, etc., which are now, like myself, getting old.

I fear that my bee-keeping correspondence is about over. I have no bees at home now; not being able to attend to them. I still have an apiary about fifteen miles from here; but I do little in it personally.

Am pleased to see the Review maintain its high degree of excellence.

Yours truly,

R. McKnight.

THE TAYLOR-MILLER-SIC CONTROVERSY.

Two good friends of mine, Dr. Miller and Mr. Taylor, are using a great many words in discussing a subject that is of little moment to bee-keepers. It is true that they have kept the original subject in view and used arguments instead of personalities or abuse, and the only fault I have to find is that so much space is being used in the discussion of a subject in which bee-keepers, as bee-keepers, can have but little interest. I think that the discussion of Trusts, which was cut off at a very interesting point, would have been much more profitable than this one regarding the use of a verb as a noun, the meaning of the word "sic," etc. Why have I allowed it to be continued to such a length? The point is this: If the Review, or one of its correspondents, criticises the language or methods of a man, it is in duty bound to allow that man the fullest opportunity to defend himself. This must be done, even if at the expense of considerable space. Let come what will, the Review must be fair. However, I see but little necessity now for the saying of much more upon this particular subject. It has been narrowed down until it is simply a matter of personal opinion, and further discussion would probably be fruitless.

One point in Dr. Miller's article in this issue calls for a word of explanation from me. I have reference to where he intimates that the publication of Mr. Taylor's views thus makes those views the view of the Review. I think not. They are simply the views of Mr. Taylor; and the Review is responsible only for the advisability of making them public. To show how untenable is the doctor's position, let me call his attention to the fact that the Review has allowed Mr. Taylor to oppose the use of the word *boil* as a noun, and it has also allowed the doctor to defend such use. Now, which view is the one upheld by the Review? If I have never said so before, I will say now, that I consider myself responsible simply for

what I write myself. When a correspondent's views are given, they are given as *his* views. They *may* be mine and they may *not*. The absence of editorial comment is not to imply approval, nor condemnation. I certainly would not allow what I regarded as a glaring error to pass unnoticed; but it sometimes seems best to allow matter to stand upon its own merits and the authority of the man who wrote it—that is, with neither editorial opposition nor editorial bolstering up. When two correspondents are having a heated controversy, I think it wisdom on the part of the editor to avoid taking sides in the matter.

Although Bro. Taylor is improving in this respect, I think I better caution him once more against hypercriticism. Don't work with a microscope in your hand, hunting for the infinitesimal errors. Get upon the house-top, figuratively speaking, and take a broad view of things; and, as I said in the December Review, point out the errors that, if believed in and put in practice, will lead to undesirable results—let the others go.

EXTRACTED.

DISCUSSIONS.

Justice of More Importance than even Kindness or Courtesy.

Poetice Justice, with her lifted scale,
Where, in nice balance, truth with gold she weighs,
And solid pudding against empty praise.—ROPE.

When a subject is up for discussion I believe in discussing it most thoroughly; in allowing it to be continued so long as there remains anything of importance that has not been said. The size of hives has had a most thorough discussion. I believe that every one has said all that he cares to say on the subject, and that there is really little more to say that *can* be said. Of late quite a little has appeared in the journals in regard to discussions and how they ought to be conducted. It

may be asked, what bearing has this subject upon bee-keeping? So long as localities, conditions, seasons and people vary as they do, there will be strong differences of opinion, and the truth can be arrived at only from a most thorough exchange and comparison of views and experiences—in short, from discussion. A large share of the contents of our bee-journals is made up of argument. It can not well be otherwise. Under these conditions it is not time wasted to give some thought to the manner in which these discussions or arguments are conducted. Of late we have had a short lecture or two upon "journalistic courtesy," and have been admonished to be kind and courteous, but Mr. F. L. Thompson thinks that there is something of still greater importance than kindness and courtesy, and gives his opinion on the matter in the following, that I copy from the Progressive.

Kindness and courtesy are excellent watchwords, but experience proves them incomplete. One may be both kind and courteous, yet unjust; but if just, he is not unkind. A journal which takes justice for a motto, and lives up to it, can not go wrong. Justice includes everything.

Good resolutions are being taken by some of the journals. This is commendable,—and would be still more edifying if they could refrain from concluding with, "and I intend to be holier than thou."

Discussion seems to be regarded with much disfavor, to judge by the barrenness of suggestive comment on points in previous issues. It is a pity, for to the interchange and interdependence of thoughts, rather than to their succession in time, is due what vivifying influence they may possess—"it makes red blood," as the advertisements say. I suspect the present situation is as much owing to fashion as anything; and as usual the fashion is set by a few, whom the unthinking crowd follow. I am reminded of a very tiresome young one, who used to be the bane of my earlier days when he came with his folks on a visit. At the slightest provocation, or when anything occurred which could possibly be construed as the exercise of an external independent judgment, he would set up a woful howl—watching out of the corner

of one eye, however, to observe the effect. In like manner, it is impossible to resist the conclusion that some are fully aware of the telling effects of sulkiness as a weapon—such cries of "Abuse! Vituperation!" and "Unkind! Unwarranted!" rend the air. What an example this is! Of course disputants now enter the arena with nerves in a state of tension, and that very condition tends to bring about attacks and parryings, thrusts and counter-thrusts, which have no connection with the main trial of strength, to which we may liken the investigation of truth; and, worse yet, like *Somnambulist* on page 234 of the *Progressive*, many refuse to enter at all, and so the truth languishes for a champion.

Yet men do not usually act so. In a convention, verbal pokings of the ribs are understood, and taken at their true values, as stimulants to the pursuit of truth; and when at rare intervals anything serious does occur, everyone understands it is abnormal, due to causes outside of ordinary discussion, and the latter is resumed without apprehension.

Fashion is to blame, and they who set it have much to answer for. It is a bad sign, even, when one stops to carefully explain that he is thrusting at ideas, not flesh and blood, for that creates the suspicion that the latter may be something to expect. Example is wanted, not precept. Let us continue to be free and frank in comment and criticism, but not talk about it too much, and keep on thrusting at false ideas, until this bad fashion dies out for want of imitation, which is its food.

But, of course, there are things said, once in a great while, that ought not to have been said; for example, such language as this: "After doing this, they have dared to lift up in holy horror their black, foul hands, hands covered with the blasted hopes of bee-keepers, the groans of the oppressed, the cries of the orphans, and the tears of the widow," etc., referring to an honest difference of opinion, and an exaggeration (but nothing worse) on the part of only one writer, not several, for the others did not hint at what they are charged with; and this: "So-and-so had the gall to hint" etc., referring to another honest difference of opinion. These are discourtesies, to be sure, but, like the rare scenes in conventions, it would not be common sense to take these evidently exceptional and extraordinary expressions as indicating what must be, and is, the ordinary flow of discussion among rational beings.

Perhaps the chief consideration should be not so much "Is it kind?" as "Is it true?" provided, of course, it is worth mentioning. After all, truth is our main aim. If we faithfully try to subordinate everything to truth, we can not but rate it higher than discourtesy or retaliation; but if we esteem anything higher than the truth, even though it be kindness and courtesy, there is danger that having committed the sin of untruthfulness, we may find it easier to commit the sin of injustice. Truths worth mentioning can not but be just in the end.

I recently received a letter complaining that I had "assailed" a position of the writer. The mere utterance of the word "assail" seemed to be enough in his judgment, to condemn the action—a fine illustration of the illogical sulkiness, sometimes paraded as offended dignity. If I had "assailed" by evading arguments, by hunting up irrelevant counter charges, by making untruthful innuendoes and assertions without proof, and by one-sidedness generally, then, indeed, the "assault" would be very wrong. But having done none of these things, as my antagonists admit by not furnishing the proofs, but having "assailed" with experience, facts, and arguments, I propose to calmly keep on doing the same thing, and shall thank others to do the same by me; for

"Truth only is living,
Truth only is whole,
And the love of his giving
Man's polestar and pole."—Swinburne

I agree with my friend Thompson that justice ought to be placed above all things. I also admit that one can be kind in manner, tone and language, and yet be unjust. I recall one or two instances in bee journalism where injustice was clad in robes most soft and creamy—the language was irreproachable; almost adulatory. On the other hand, brusqueness, unkindness and discourtesy are wholly unnecessary accompaniments of justice. One can be just, yet kind. Let us not forget that the stating of facts, the giving of reasons, the putting forth of arguments never arouse the resentment of an opponent, nor cause him any pain. Personality, sarcasm and insinuation are the despicable weapons used only when the last arrow of truth has been drawn from the quiver.

LARGE COLONIES.

Do They Store More Honey, in Proportion to Their Size, Than Small Colonies ?

The advocates of large colonies are now laying special stress upon the theory that large colonies store more honey, in proportion to their numbers, than is the case with small colonies. Gleanings for March 15 has the following on the subject:—

In the Bee-Keepers' Review for February appears a symposium on this question, the subject-matter being made of extracts from various bee-journals, followed up by an extended footnote by the editor. He sets forth fairly the views of the different writers, but still clings to the opinion himself that the smaller hive is *the* thing. He finally summarizes the matter in this way:

Bro. Dadant's trouble comes from expecting and getting too much out of each queen. Instead of "horsewhipping" the queens, I would get more queens to help them. Five your swarms in smaller hives, give fewer combs to each queen, and another year you will have more queens in proportion to your number of combs than you have now. Bro. Dadant says to himself, "Here I have 1000 combs and only 80 queens. I must give these queens all the room possible, so as to get just as many bees as I possibly can." My way of looking at it would be like this: "Here I have 1000 combs, and I want to get just as many bees out of them as possible, so I will have plenty of queens, and thus get the combs just as full of eggs as I can." You see that Bro. Dadant and myself are both after bees, but we go at it in a different way.

It does not seem to me that Bro. Hutchinson quite hits the nail on the head. It is not a question of whether one queen or a plurality of them raises a certain number of bees; but it is a question whether the colony shall be a large or a small one. As there can be only one queen in the hive, then (if the colony is a large one) one queen must be the mother of all the bees. But Mr. Hutchinson seems to take the ground that, as it is difficult to get a queen that will breed up to such a point, better have two queens in two colonies. But I raise the question right here: Suppose there are 5000 bees to the pound, and that there are five pounds of bees, or 25,000 to the average eight-frame colony. With two eight-framers we should have 50,000 bees. My theory and practice are that the 50,000 in *one* colony will bring in more dollars to the bee-keeper than the *same number* equally divided in *two* colonies.

It is well known that one large factory, for example, can manufacture more

cheaply and make more money than two smaller factories of half the size. The same executive force of the smaller concern, the same foreman, can manage a producing force of twice the size as economically, or very nearly so. Perhaps the illustration is not quite parallel, but it serves to illustrate my idea. During the working season it is conceded, I think, that a large colony will have more working bees in *proportion to its size* than a small one.* But Mr. Hutchinson may bring up this question: Granted that there are more working bees in a large hive in proportion to its size, would such a colony make more *money*? Mr. Dadant has handled more bees—that is, operated more colonies—than any of the parties in the discussion. Others may have handled as many for a short time; but the Dadants as well as the Frances have each operated some 400 or 500 colonies for a period of 15 or 20 years, and have made *money* as well as honey.

Bro. Root's illustration about the same book-keeper, foreman, and other executive force, managing a large factory with no more expense for the *managing* than would be the case with a small factory, is not, as he says, a parallel case; although it illustrates his idea that a large colony of bees can do business, so to speak, at a less proportionate expense than a small colony; but, according to my experience, such is not the case. The only thing about a colony of bees that can be reasonably compared to a foreman, or boss, or book-keeper, or anything of that sort, is the queen. If a queen cost a lot of money, as I have frequently explained, then there would be some sense in trying to get all possible out of her (even this might not be advisable, that is, to overwork her, if her life is thereby shortened), but a queen costs but little more than an ordinary worker bee. Perhaps

* After I had prepared the matter it occurred to me at this point that there might be a question raised here. This I referred to A. I. R., and he replied something after this fashion: It takes fewer rods of fence per acre in a large field than in one of less size. In the same way there are fewer bees required to keep up the necessary animal heat per square foot of brood in a large colony than in a small one; that is, to say, the bees that might ordinarily be required to act as nurse-bees, and to help sustain animal heat in a SMALL COLONY, in a large one can go to the field. A. I. R. thinks it is almost an axiom that there are more working bees in a large colony in proportion to its size than in a small one.

that is putting it a little too strong. Let us say that she costs even as much as 50 worker bees, that is a mere trifle; certainly not more than five cents. When a man goes into the business of queen rearing, and must take special pains to get cells out of season, and in large numbers, spend his time in introducing the queens when they hatch, go to the expense of a lot of nucleus hives, buy cages, pay advertising bills, postage, etc., then he must have more than five cents for a queen; but the regular honey producer, one who lets the bees rear their own queens when they need them, pays practically nothing for his queens; and, as I have already explained, he can have a plenty of them if he manages right.

So far as the work of the nurse-bee is concerned, I am at a loss to see how a nurse-bee feed any more larvae in a large than in a small colony.

With Bro. Root's line of reasoning I can see only one point he makes, and that is that a large colony can keep up the animal heat more economically; but, as the honey harvests come at a time when the heat often drives the bees from their hives, it strikes me that this is an argument on the other side of the question.

I am willing to admit that this economy of heat might be an advantage in the early spring, but if the combs of our eight-frame hive are more completely filled with brood at the season when it is most profitable that they be so filled, than is the case if we use a larger hive, where is the advantage?

I believe no experiments have been made to determine whether, other things being equal, a large colony will store more honey, proportionally, than will a small one, but it is my belief that it does not. I doubt if there is an experienced queen breeder who has not been astonished at the wonderful amounts of honey stored by nuclei. Mr. J. E. Crane called attention to this fact, not many months ago, in the Review. I do not favor abnormally strong colonies; my preference being those of moderate or medium

strength. It does sometimes seem to me that the bees are in one another's way in a colony of abnormal strength. There is room for only about so many bees to engage in comb-building, and the conditions might be such (mind, I say *might*) that more honey could be gathered than the comb-builders could make room for. Of course, empty combs would remedy this condition, and I am using this hypothesis simply as an illustration.

We ought to have some experiments something like this: When two swarms unite in the air, hive one-third of the bees in one hive and two-thirds in another hive, giving both a queen. Some of these swarms should be hived on combs, some on foundation and some on starters, and results carefully noted.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

KANSAS CITY. We quote as follows: Fancy white, 11; No. 1 white, 13; fancy amber, 12½; No. 1 amber, 12; fancy dark, 11; No. 1 dark, 10; white extracted 6½; amber, 6; dark, 5½; beeswax, 22.
C. C. CLEMONS CO.,
Mar. 17, 123 Walnut St., Kansas City, Mo.

CLEVELAND, O. White honey is in good demand, and the supply very light. Dark grades are moving slowly. We quote as follows: Fancy white, 13 to 14; No. 1 white, 12 to 13; fancy amber, 10 to 11; No. 1 amber, 9 to 10; fancy dark, 7 to 8. White, extracted, 7 to 7½.

A. B. WILLIAMS & CO.,
Mar. 25, 86 & 87 Broadway, Cleveland, Ohio

BUFFALO, N. Y. So far as we have noticed there is no strictly fancy 1 lb. comb honey in our market. It would bring about 12 cents. Other grades range from 10 to 11 cents and require more or less pushing. No extracted here to speak of. Fancy beeswax wanted at 8 to 9 cents.

BATTERSON & CO.
Mar. 17, 107 & 109 South St., Buffalo, N. Y.

CHICAGO, ILL.—The season is over when sales of large lots of comb are made; and we quote as follows: Fancy white, 13; No. 1 white, 11 to 12; fancy amber, 10; No. 1 amber, 7 to 9; fancy dark, 8; No. 1 dark, 7; white extracted, 6 to 7; amber, 6 to 7; dark, 5; beeswax, 27 to 18.

R. A. BURNETT & Co.,
193 So. Water St., Chicago, Ill.
Mar. 17.

BUFFALO, N. Y.—Honey has sold slower since the first of January than I ever knew it to sell at this time of the year. I quote as follows: fancy white, 11½ to 12; No. 1 white, 11 to 11½; fancy amber, 10 to 11; No. 1 amber, 9 to 10; fancy dark, 8 to 8½; white, extracted, 7 to 7½; amber, 6 to 7; dark, 5 to 6; beeswax, 28 to 30.

W. C. TOWNSEND,
86 West Market St., Buffalo, N. Y.
Jan. 25.

CHICAGO, ILL.—The stock of honey is small. Fancy white comb honey is selling at 14 cents per pound; buckwheat, comb, 10 cents per pound; and other grades 11-12-13, depending upon package and quality. Extracted is very scarce; some trade prefers dark color, price from 6 to 8c per lb., depending upon color, flavor and package. Beeswax 27 to 30.

S. T. FISH & CO.,
189 So. Water St., Chicago, Ills.
Mar. 17.

NEW YORK.—Our market is quiet on comb honey; especially so on the lower grades which have accumulated during the past four weeks; and prices have to be shaded in order to effect sales for quantity lots. Extracted is selling well and the stocks are light. Beeswax quiet. We quote as follows: Fancy white, 12; No. 1 white, 10 to 11; fancy amber, 9; No. 1 amber, 8; fancy dark, 6; white, extracted, 7 to 7½; amber, 7; dark, 5½ to 6; beeswax, 27 to 28.

HILDRETH BROS. & SEGELKEN,
120 West Broadway, New York.
Jan. 25.

NEW YORK, N. Y.—The market is well stocked with comb honey; especially with buckwheat and mixed grades. Fancy white finds a ready sale as does extracted of all kinds. We quote as follows: Fancy white, 12 to 13; fair white, 10 to 11; amber, 9 to 10; buckwheat, 6½ to 7½; white, extracted, 5½ to 7; amber, 6 to 6½; dark, 5½ to 6; Florida, white, 6½ to 7½; Florida, light amber, 6 to 6½. Other grades of Southern honey from 55 to 65 cents per gallon according to quality. Beeswax in good demand at 26 to 27. Write us.

FRANCIS H. LEGGETT & CO.
Jan. 21. W. Broadway, Franklin & Varick Sts.

THE
A. I. ROOT CO.,
10 VINE ST., PHILADELPHIA, PA
BEE-SUPPLIES.

Direct steamboat and railroad lines to all points. We want to save you freight.

Queens: Untested, Italian, \$1.00 each. After July 1, 70 cts.; 3 for \$2.00. Tested, \$1.25 each. Catalog free. Thee Bender Canton Ohio

3-99-11

Please mention the Review.

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costellow, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.

A. D. D. Wood, who has had twenty years of experience in the manufacture of comb foundation and the rearing of queens is again manufacturing

Bee-Keepers' Supplies,

at Lansing, Mich. You can have his circular for the asking. Write now. 3-99-11

Please mention the Review.

Over 500 PREMIUMS won last year on my Barred, and white P. Rocks, L'1 Brahmas, Bl'k Minorcas, White, Buff, and Brown Leghorns. Stock for sale. Eggs, \$1.00 for 13; \$2.00 for 30; \$5.00 for 100. Send for circular.

3-99-51

CHAS. RUE, Minerva, Ohio.

Please mention the Review.

Free A beautiful present with every order. The cheapest place in Mich. to buy supplies. Send for explanatory price-list. W. D. SOPER, Box 565 Jackson, Mich.

1-99-11

Please mention the Review

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking. 3-99-11

THE JENNIE ATCHLEY CO.,

Beville, Bee Co. Texas.

If You Wish Neat, Artistic

PRINTING,

Have it Done at the Review.

Superior Stock.



Every bee-keeper who has had experience with several strains of bees knows that some are far superior to others—that there is scrub stock among bees, just as there are scrub horses, cattle, sheep and poultry. Let me give my own experience. Years ago, while living at Rogersville, I made a specialty of rearing queens for sale. Before engaging in this work I bought Italian queens and Italianized, not only my own bees, but all within three miles of my apiary. In buying those queens I think that I patronized nearly every breeder in the United States; and even in those years of inexperience I was not long in noting the great difference in the different strains of bees. The queens from one particular breeder produced bees that delighted me greatly. They were just plain, dark, three banded Italians, but as workers I have never seen them equaled. They seemed possessed of a steady, quiet determination that enabled them to lay up surplus ahead of the others. Easier to handle I have never seen. It sometimes seemed as though they were too busy attending to their own business to bother with anything else. Their honey was capped with a snowy whiteness rivaling that of the blacks. In addition to these desirable traits must be added that of wintering well. If any bees came through the winter it was the colonies of this strain. They came as near being ideal bees as any I have ever possessed. All this was twenty years ago; and several times since then I have bought queens of this same breeder, and I have always found this strain of bees possessed of those same good qualities—industry, gentleness, and hardiness. In addition to this they cap their honey as the blacks do theirs. I have frequently corresponded with this breeder, and with those who have bought queens of him, and I am thoroughly convinced that he has a strain of bees that are far superior to the general run of stock. If I were starting an apiary, for the production of honey, I should unhesitatingly stock it with this strain of bees.

This breeder has always advertised in a modest, quiet, unassuming sort of way, nothing in proportion to what the quality of his stock would have warranted, and at last I have decided that I can help him, and benefit my readers, at a prof-

it to myself, by advertising these bees in a manner belittlingly energetic.

The price of these queens will be \$1.50 each. This may seem like a high price, but the man who pays it will make dollars where this breeder and myself make cents; and when you come to read the conditions under which they are sold, it will not seem so high. The queens sent out will all be young queens, just beginning to lay, but, as there are no black bees in the vicinity, it is not likely that any will prove impurely mated. If any queen should prove to be impurely mated, another will be sent free of charge. Safe arrival in first-class condition will be guaranteed. Instructions for introducing will be sent to each purchaser, and if these instructions are followed, and the queen is lost, another will be sent free of charge. This is not all; if, at any time within two years, a purchaser, for any reason **WHATSOEVER**, is not satisfied with his bargain, he can return the queen, and his money will be refunded, and 50 cents extra sent to pay him for his trouble. It will be seen that the purchaser runs **NO RISK WHATSOEVER**. If a queen does not arrive in good condition, another is sent. If he loses her in introducing, another is sent. If she should prove impurely mated, another is sent. If the queen proves a poor layer, or the stock does not come up to the expectations, or there is **ANY** reason why the bargain is not satisfactory, the queen can be returned and the money will be refunded, and the customer fairly well paid for his trouble. I could not make this last promise if I did not know that the stock is **REALLY SUPERIOR**.

I said that the price would be \$1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the Review. Any one who has already paid me or who will pay me, \$1.00 for the Review for 1899, can have a queen for \$1.00. Of course, all arrearages, previous to 1899, must be paid up before this offer will hold good. This special offer is made with a view to the getting of new subscribers, and as an inducement to old subscribers to pay up all arrearages and to pay in advance to the end of the year.

Orders for these queens will be filled strictly in rotation—first come, first served.

...

W. Z. H. THINSON, FLINT, MICHIGAN.

J. W. BAILEY, Pub

F. L. THOMPSON, Ed.

The Western Bee-keeper

is exclusively devoted to apiculture in the

ALFALFA REGIONS AND TO ASSOCIATION WORK

of all kinds among bee-keepers; also gives the main points of what the other bee-papers are saying. Monthly, 50 cents a year

Keeps No Supply house connections.

Seeks to present BOTH SIDES of issues.
2341 Fifteenth St., Denver, Colorado.

Some Odds and Ends That Will be Sold Cheap.

For a dozen or more years Mr. M. S. West of this place dealt in bee-keeper's supplies. Since his death, two years ago, his daughter has endeavored to close out his stock of goods, and has succeeded to large extent. There are still a few odds and ends, and she has brought them to me and left them for me to sell. Here is a list of the articles with prices at which they will be sold.

One ten inch foundation mill, (second-hand) Root's make, complete with dipping tank, etc. in excellent condition... \$10.00

One ten-inch foundation mill, (second-hand) Root's, (one of recent make) dipping tank, etc. in good order 15.00

Three Woodcock foundation fasteners, each,75

Eighty seven entrance guards, each,05

Thirteen Porter Bee-Escapes 2.25

Thirty-three Simplicity hives, in the flat, sides, ends, covers and tin rabbetts but no frames nor bottom boards, each,40

Send all orders to W. Z. HUTCHINSON,
Flint, Mich

Bee - Supplies.

Root's goods at Root's prices. Ponder's honey jars. Prompt service. Low freight. Catalog free. Walter S. Ponder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Please mention the Review.

THE MONITOR PAPER FILE

Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music &c., by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome.

PRICE.—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper.

Bee-keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.

J. H. M. COOK, 62 Cortland St., N. Y. City

Please mention the Review.

QUEENS. Untested, 75 c; 6 for \$4.00; tested, \$1.00; 6 for \$5.00; breeders \$2.00. The best stock, imported or golden. W. H. LAWS, Lavaca, Ark.

We are headquarters for the

Albino Bees,

the best in the world. If you are looking for the bees that gather the most honey, and are the gentlest of all bees to handle, buy the Albino. I can furnish the Italian, but orders stand 50 to 1 in favor of the Albino. I manufacture and furnish supplies generally. Send for circular.

S. VALENTINE,

3099 St

Hagerstown, Md.

Holy Land : YOUR CHOICE : Golden Italian
: QUEENS. :

My 1899 circular is free; and "Jones he pays the freight" on it. I'll tell you more next time.

E. R. JONES.

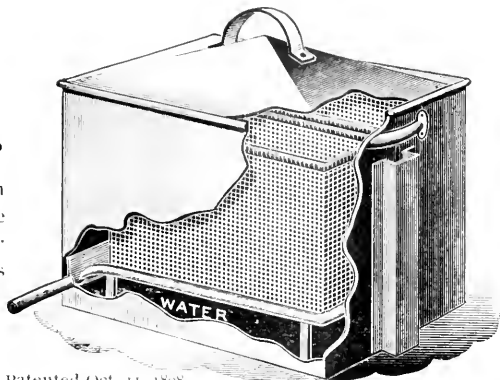
3-98-121

Milano, Texas.

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1898

90 Varieties of Choice Poultry and Eggs for Hatching. All varieties Pigeons and German Hares. All described in a natural colored, descriptive, 90 page book—10 cents. Prices free. **J. A. BERGEY, Telford, Pa.**

— If you are going to —

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Our Prices are worth looking at. We are making the new

Champion Chaff Hive

with dovetailed body and supers and a full line other Supplies, and we are selling them CHEAP. A postal sent for a price list may save you \$ \$ \$ \$.

R. H. SCHMIDT & CO.,
Box 187 Sheboygan, Wis.

1-98-1f

— If you wish the best, low priced —

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

1899 Queens 1899

For Business Queens for Strong Colonies. Queens for large surplus. Competition in Quality, but not in price.

If you want queens nuclei or supplies at bottom prices, send for my illustrated price list. 12-97-1f

J. P. H. BROWN, Augusta, Ga.

Please mention the Review

Muth's HONEY EXTRACTOR PERFECTION Cold-Blast Smokers

Square Glass Honey Jars, Etc.

For Circulars, apply to CHAS. F. MUTH & SON Cor. Freeman & Central Aves., Cincinnati, O. Send **10c.** for Practical Hints to Bee Keepers.

1-97-1f

Please mention the Review

To stick things, use **MAJOR'S CEMENT.** Beware!!! Take no substitute. 2-98-12f

Please mention the Review

Best on Earth. 19 Years Without a Complaint.



Smoke Engine	largest smoker made	4 inch stove	Dozen \$13.00	Each mail \$1.50
Doctor	3 1/2	"	9.00	" 1.10
Conqueror	3	"	6.50	" 1.00
Large	2 1/2	"	5.00	" .90
Plain	2	"	1.75	" .70
Little Wonder (wt. 10 lbs)	2	"	4.50	" .60
Honey Knife			6.00	" .80

For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

BEEES!

If you keep bees, subscribe for THE PROGRESSIVE BEE-KEEPER, a journal devoted to bees and honey. Fifty cents a year. Sample copy free. Also illustrated catalogue of bee-keepers' supplies.

Address LEAHY MFG. CO.,
Higginsville, Mo.; or at 1730
South 13th St., Omaha, Neb.;
or at 404 Broadway, East St.
Louis, Illinois.



Bee-Supplies.

We have the best equipped factory in the West. Capacity, one carload a day. We carry the largest stock and greatest variety of everything needed in the apiary, assuring *Best Goods* at the *Lowest Prices*, and prompt shipment. Illustrated catalogue, 72 pages, free.

We also manufacture tanks of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free. Address

E. Kretschmer, Red Oak, Ioa.

Page & Lyon,

Mfg. Co.

New London, Wis.

— — —

Nearness to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

ORDER

EARLY.

There are indications that the demand for supplies will be very large this season, and everyone should order as early as possible. We have large facilities for manufacturing all kinds of *Bee-Keepers' Supplies*, and will serve our customers as quickly as possible.

Falcon sections are the finest made. 1899 catalogue ready Feb. 1st. Copy of the *American Bee-Keeper*—20 pages—sent free. Address

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wired*.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y.

Hyde's specialties are the

GOLDEN

Italians from the best breeders, and the Holy Lands from best imported stock—the best that knowledge and years of experience can possibly produce. Un-tested queens of either race, 75 cts; tested, \$1.50. Discounts on quantities.

Root's goods at bed rock prices, to reduce stock. The Hyde-Scholl separators are the best out—try them. Our motto: "prompt service."

Address, and make orders payable to

O. P. HYDE & SON,

6-99-3t

Hutto, Texas.

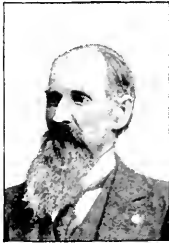
Listen! Take my advice and buy your bee supplies of August Weiss; he has tons and tons of the very finest



FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

18



99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.50; 1,000 for \$2.50; 3,000 for \$6.75; 5,000 for \$10.00; 10,000 for \$17.50.

No. 2 sections are not made to order, but when in stock are sold at \$1.50 per M.

J. FORNCROOK,

Watertown,

Wisconsin.

WM. BAMBER.

Of Mt. Pleasant, Mich., has his own saw-mill, and a factory fully equipped with the latest machinery, located right in a pine and basswood region, and can furnish hives, sections, frames, separators, shipping cases, etc., at the lowest possible prices. Making his own foundation enables him to sell very close. Send for samples and prices before buying, and see how you may save money, time and freight. Bee-keepers' supplies of all kinds kept in stock.

5-99-3t

Violin for Sale.

I am advertising for the well-known manufacturer of musical instruments, Jno. E. Stratton & Son, of New York, and taking my part in musical merchandise. I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Stradivarius," Red, French finish, high polish, and real ebony trimmings, price \$14.00. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver shield, ebony screw-head, German silver ferules, and pearl dot in the end, price \$2.50. The case is wood with curved top, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this on fit, and would accept one-half nice, white-extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apiarian Supplies. Send for circular. 1-96-6

Please mention the Review

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1.25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEANES & MINER; Ronda, N. C.

Make Your Own Hives.

Bee-Keepers
Will save money by
using our Foot Power
Saw in making
their hives, sections
and boxes.

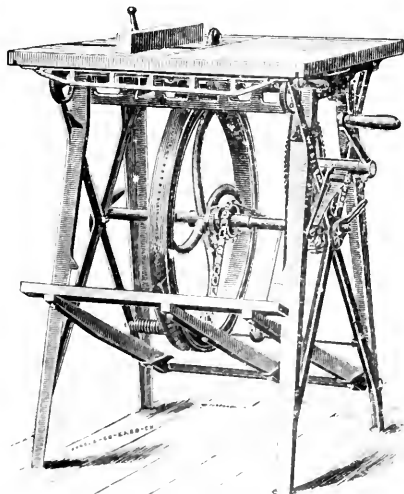
Machines on trial.
Send for Catalogue.

W. F. & JRO. BARNES CO.,

381 Ruby St.,

Rockford, Ills.

11-9-121



COMB

FOUNDATION

WHOLESALE AND RETAIL.

Working wax into foundation, for cash, a specialty. Hives, Sections, and a full line of Supplies. The best of everything. Write for Catalog, with prices, and samples of Foundation and Sections. Beeswax always wanted for cash or trade.

GUS. DITTMER,

10-97-121

Augusta, Wis.

The A. I. Root Co.'s Goods, WHOLESALE AND RETAIL.

Early Queens,

Ready now, at \$1.60 each; after April 15, 75 cents each.

six for \$4.25; in May, six for \$3.75. For particulars, send for circulars. Two yards and the earliest location in the United States.

4-99-1f

J. B. CASE, Port Orange, Fla.

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costello and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich

A. D. D. Wood, who has had twenty years of experience in the manufacture of comb foundation and the rearing of queens is again manufacturing

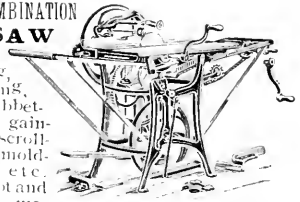
Bee-Keepers' Supplies,

at Lansing, Mich. You can have his circular for the asking. Write now. 3-99-1f

Over 500 PREMIUMS won last year on my Barred, and white P. Rocks, Lt Brähmas, Elk Minors, White, Bull, and Brown Leghorns. Stock for sale. Eggs, \$1.00 for 15; \$2.00 for 30; \$5.00 for 100. Send for circular. 3-99-1f

CHAS. RUE, Minerva, Ohio.

UNION COMBINATION SAW

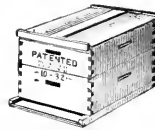


For ripping, cross-cutting, mitering, rabbeting, grooving, gaining, boring, scroll-sawing, edge molding, Leading etc. Full line of foot and hand power machinery. Send for catalogue A. 1-99-121

Seneca Falls Mfg. Co.

48 Water St., Seneca Falls, N. Y.

Please mention the Review



5-99-2f

FACTS About Bees.

REVISED EDITION.

How to get

GILT EDGED HONEY seal stamp to

THE A. I. ROOT CO., Medina, Ohio.

Or F. Danzenbaker, Box 66, Washington, D. C.

Please mention the Review

Silver Gray

Carniolan Queens.

—ALSO THE—

Golden and 3-banded Italian.

Untested, 50 cts. each; tested, 75 cts. Purity of stock and safe arrival guaranteed.

5-99-1f

C. B. BANKSTON, Rockdale, Tex.

Please mention the Review

JOHN F. STRATTON'S CELEBRATED GUITARS,



Importer of and Wholesale Dealer in all kinds of

MUSICAL MERCHANDISE, 811, 813, 815, 817 East 9th St., New York.

Please mention the Review.

There is a Difference in Bees.



Every owner of a large apiary knows this. Knows that some colonies store more honey than others, that some are more easy than others to handle, that some are more hardy and winter better than others. For years we have been breeding up a strain of Italian bees possessing these desirable qualities in a high degree. Reports from customers prove our success. A trial order will convince. Tested queens, by return mail at \$1.00 each.

J. W. K. SHAW & CO., Loreauville, La.

3-99-3f





A WELL - SHADED HIVE.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL. XII. FLINT, MICHIGAN, JUNE 10 1899 NO 6

Original Contributions.

SHADE IN THE APIARY.

Why and When and How it Should be Given.

W. Z. HUTCHINSON.



SHALL we shade our bees? If so, why, when, how? Some bee-keepers do not shade their hives; others do. Why do they do it? Is it really necessary? Do they thereby secure more honey? These are

pertinent questions to which it is difficult to give definite answers, but about which it is advisable to know all there is known.

The temperature of a colony of bees in the summer, when brood is being reared, is nearly 100°. Until the temperature, in the sun, reaches this point, shade is no benefit; rather it is an injury, as it deprives the bees of the warmth of the sun

at a time when it would be of some benefit. When the temperature in the sun goes above 100°, and begins to climb up to 110°, 120°, 130°, 140°, then the effort upon the part of the bees is to lower instead of raise the temperature in the hive.

Crowds of bees stand at the entrance of the hive, and with their wings create strong ventilating currents of air. It has been asserted that the bees leave the combs of honey well-nigh forsaken when the temperature is very high; the reason given being that the combs can be kept cooler when not covered with bees. I have also read and been told, that bees would "hang out," that is, cluster upon the outside of the hives, instead of working, if their hives were left unshaded during a hot day; that they were compelled to thus desert their hives to save their combs from destruction. I have always kept my hives shaded during the hot weather, hence cannot speak from experience upon this point; but, if it is true, then it would seem that shade, in very hot weather, is both desirable and profitable. This much I have noticed, that weak colonies, nuclei, for instance, seldom make any demonstrations of discomfort from heat, even when left unshaded, while strong colonies are puffing and blowing like the runner of a foot-race. Why is

this? Isn't it because the strong colony is suffering from the accumulation of its own heat—that generated by itself—that cannot escape fast enough? If this be true, why isn't a chaff hive the most insufferably hot place imaginable for a colony of bees in hot weather? Possibly the point is just here; the bees in the chaff hive have to contend with their own heat only, while those in the single-wall hive have that from the sun in addition to their own. The thick walls act as a sort of an absorbent of heat; taking it up and retaining it during the day and gradually giving it up during the cool of night. Let this be as it may, a colony can be kept the coolest in a thin-wall hive in the shade. How do we keep cool in hot weather? We wear thin clothing and lie in the hammock in the shade. A colony of bees is a living, heat producing body, and can be kept cool in the same manner that we keep our bodies cool, viz., let its clothing (hive) be thin, with a free circulation of air upon all sides, above and below, and protect it from the sun's rays.

The color of the hive has a great bearing upon the necessity for shade. Black, or a dark color, absorbs heat, while it is reflected or repelled by white. I have seen the combs melt down in an old weather-beaten hive that stood in the sun, but I never saw them melt in hives painted white, even if standing in the sun.

There is still another point that has a bearing upon the question under discussion, and that is the circulation of air about the hive. I have read of combs melting down in hives standing in shade so dense that the sun never shone upon them. The trouble was that growing corn on one side, and dense brush upon the other, made it so close that no air circulated.

Shade is not needed in the spring, fall, morning or evening. The only time that it is needed, if it is needed, is in the middle of our hottest days; and some temporary, quickly adjustable, easily removable shade is preferable to an attempt to fur-

nish a permanent shade by growing evergreens, grape vines and the like. In fact, a permanent shade like that furnished by an evergreen, is an injury in spring, robbing the bees of the benefit to be derived from the heat of the sun. In fact, I know of nothing better than a light board, 2 x 3 feet in size, laid upon the top of the hive. One of the longest edges of the board is placed parallel and even with the North edge of the top of the hive, the opposite edge of the board projecting beyond the South edge of the hive. This shades the hive when shade is needed, and only when it is needed—in the middle of the day. In a windy situation it may be necessary to lay a brick or stone upon this board to keep it in place. Don't imagine that hooks or something of the kind will be preferable for holding the shade boards in place. A weight is the simplest, cheapest and most convenient. I make these shade boards by nailing the thick ends of shingles to a piece of inch board four inches wide and two feet long. They cost only five cents each, and in the fall I tuck them together and make packing boxes for packing the bees.

For the comfort of the apiarist, it is well to have a few scattering trees in the apiary, but let their branches be trimmed to such a height that they will not be knocking off his hat or gouging his eyes.

Perhaps this whole matter of shade might be summed up something as follows: If the apiary is located where the cool breezes can fan the heating sides of the hives, wafting away the heat ere it accumulates, and a broad generous entrance is furnished each tidy, white hive, I am persuaded that shade is not so very essential. If the hives are dark in color, or the apiary is located where there is not a free circulation of air, I feel sure that shade is an absolute necessity to prevent the combs from melting, if for nothing else.

PREVENTION OF SWARMING.

How Nearly all of the Bees may be Kept at
Work in one Hive, and Swarming be
Avoided.

ARTHUR C. MILLER.

THE perusal of Mr. R. L. Taylor's remarks on page 115 of the April Review suggests to me that perhaps both he and other readers of the Review may be interested in an account of the methods I have practiced for many years for avoiding the trouble and loss incident to swarming.

At the approach of the swarming period the colonies are watched for any sign of such tendencies, and as soon as any colony shows the least sign of a change it is moved back from its stand and treated as follows: A hive containing four or more Langstroth frames, one with a dry comb and the rest with starters, is put upon the old stand. Then the surplus chamber and honey-board (I use an excluder, wood-zinc, honey-board) are taken, bees and all, from the old hive, and placed on the new. Then the queen is found, and, together with the bees on the comb on which she is found, made to run into the entrance of the new hive. Next, the old colony is placed on top of the surplus chamber, but, separated therefrom by an escape-board, the escape being so protected by excluder zinc as to prevent drones from getting down into the surplus chamber. In the course of two to three weeks, more or less, as may be convenient, or expedient, these upper chambers are removed and tiered up, three or more high, on a stand, until the remaining brood has all hatched. The comparatively few bees in these pseudo-colonies are, later, either shaken into such places as need reinforcements, or are distributed with the combs when they are used about the apiary.

The watching for indications of swarming is superficial; consisting of entrance examinations and a glance now and then

at the surplus chamber. I always take the benefit of any doubt and make a change early rather than too late. The only real "bother" is in finding the queen; and when I cannot do this readily I unceremoniously shake all the bees in front of the new hive and proceed as if I had actually seen the queen. The only other objection I have found has been the necessity of a few extra hive-bodies and escape-boards, but they are "regulation" implements—and then, we must remember that "he who works without tools is twice tired."

Once in a great while a colony will not go according to rule, and I then try to force the bees to yield, or else let them go their own way, for I am too busy to waste any time over these rare exceptions.

Sometimes I vary the foregoing by putting a frame of selected brood below, and leaving the queen above, thus requeening my colonies; but it is not so successful, and is open to several objections.

PROVIDENCE, R. I., April 21, 1899.



SIZE OF HIVES.

Its Relation to the Wintering of Bees and
the Securing Surplus.

ADRIAN GETAZ.



FRIEND Hutchinson: Your comments on my article on large versus small hives, or, rather, brood-nests, have brought to me a new light on the subject.

I had occasionally read something on the failure of wintering strong colonies in cold climates, but I never dreamed that to be a general rule, or important factor in the question.

I see now why yourself, Doolittle, Heddon, Taylor, and others say that eight frames of brood is all that a good queen can fill before the main flow of honey. No matter how prolific a queen is, or how many eggs she may lay, no more brood can be raised than the bees can take care of; so, when you begin in the spring with a small colony, but little brood can be raised. During the first three, or even four, weeks the population of the colony will decrease all of the time. After that, the brood begins to emerge, and the increase takes place; slowly at first, then faster and faster.

With the increase of population comes, also, an increase of brood; but, of course, this is a very gradual process; and the honey-flow arrives when only eight frames are full of brood. Then you put on the supers and limit your brood-nest to those eight frames, or whatever number may happen to be full, and gather the flow as surplus.

I have to take back what I said about "useless consumers," and apologize. If the extra bees raised at the expense of that much surplus, are to die during the following winter without giving any return, they are, undoubtedly, useless consumers. Of course, where the flow is of long duration, or where there is a heavy fall-flow the case would be different.

If you could begin in the spring with colonies 50 per cent. larger, 50 per cent. more brood could be taken care of, and would be raised. Then, when the honey flow comes you will have 12 frames of brood instead of eight, and a population 50 per cent. larger. A 50 per cent. larger population means 50 per cent. more surplus, and 50 per cent. more honey in the brood-nest. This last, used to support the stronger population.

Right here you say that it is the *bees* that you want, no matter if it takes 80 or 100 queens to get them. If I understand you right, it means that the number of bees being the same in both cases, it would make no difference whether these bees are in 100 hives of 8 frames each, or

in 80 hives of 10 frames each. I am satisfied that where the honey flow is short, and the weather warm enough, the difference between the two lots of surplus, would be very little if any.

If you choose the 100 eight frame hives rather than the others, it is because you can winter them successfully every time, while you are not sure that you could get the same result with the stronger ones.

I am satisfied, therefore, that if you could winter the 10 or 12-frame hives better than the 8-frames, you would have taken them in preference. I use these terms in reference to strength of colonies, and might have said: If the strong colonies would winter better than the small ones you would adopt them instead.

My "locality" is so different from yours that my own experience and my management can not enter into consideration; but others, situated in localities similar to yours, use large hives and winter large colonies. I might name the Dadants, Axtells, Hambaugh and many others. Whether they winter *their* large colonies as successfully as you, Doolittle, Heddon, and others winter small colonies, I don't know. I would like to hear from them. I would like to hear also about their methods of wintering and have a full comparison made.

I am under the impression that the large colonies require a different winter management. I have no doubt that really strong colonies, sufficiently packed, could be wintered successfully out of doors, anywhere this side of the Klondike; but I am equally satisfied that small colonies would die out, no matter how protected, if the cold weather is of long duration. I think the cellar is necessary for the small colonies.

In reference to cellar wintering, the right temperature is the point to ascertain. The universal verdict is that 40° is the right temperature to keep the bees quiet; high enough to avoid useless consumption of honey in order to maintain

heat, and low enough to prevent restlessness and undue brood rearing.

Right here I want to raise a question: If 40° is all right for small colonies, is it not *too high* for large ones? Supposing the outside temperature of the hives is at 40°, there is a certain amount of heat inside of the hives, and that amount in a large colony is much greater than in a small one. Then it follows that if 40° in the cellar is just right for small colonies, it may be entirely too high for large ones; and to bring down the temperature of the large colonies (inside the hives) to the proper point for quietness and other conditions for good wintering, it might be necessary to bring the cellar temperature down to 30°, or 20°, or even less.

You speak of the main trouble being too much brood reared in the winter. Brood cannot be raised without pollen, and, perhaps, the difficulty might be avoided by removing the excess of pollen when going into winter quarters.

KNOXVILLE, Tenn., April 27, 1899.

[Friend G. Lutz, I like you. Perhaps it isn't in good taste to say so, right to your face, but it is my style. If I like a man, I like to tell him so right out and out. What harm is there, so long as I am sincere? One reason why I like you is because you try to get at the truth regardless of whether it upsets your preconceived notions or not. That's my idea to a dot.

Aside from the wintering problem, I do not object to populous colonies unless they are abnormally populous. As I have said so many times, I want my hive of such a size that a queen possessed of ordinary laying powers can fill the combs with eggs at that season of the year when it is to our advantage that they be so filled. A great many queens are sufficiently prolific so that they will fill a ten-frame Langstroth hive in this manner. Perhaps the majority of them will do this. Some of them will not. It is to get rid of the results that come about from those that do *not*, that I prefer the eight-frame hive.

There is quite a little difference in the severity of the winters of central Illinois and those of Michigan and New York.

The matter of the inside temperature of the hives while in the cellar is of some importance. By leaving the bottom-boards off the hives of the most populous colonies, and placing such colonies near the cellar floor, and leaving the bottoms on the hives containing the weak colonies and placing them near the top of the cellar, where it is warmer than near the floor, this matter of inside temperature is quite easily arranged.

The removal of all pollen from the combs would prevent winter-breeding; but it is a difficult thing to do—well-nigh impossible from a practical standpoint. —ED.]



A VARIETY OF ITEMS.

Probably the end of the Taylor-Miller Controversy.

C. C. MILLER.

ADEL BEES CARNIOLANS. A CORRECTION.



MR. Taylor says, page 148, that I said Adels were Italians, and asks, "Doesn't Mr. Alley claim that they are a strain of Carniolan bees? Yes, he does, and I hereby make the correction. I also made the correction in American Bee Journal for April 20. I am sorry I was mistaken, and hope that the error, being corrected in these two journals, may do no great harm.

AS TO TRAVEL-STAIN.

As statements on page 148 might lead to the belief that I hold opinions very far

from my real ones, let me say just what I believe is the truth with regard to so-called travel-stain. I think the feet of the bees never discolor sections, the cappings of sections being darkened by bits of old comb and debris brought up from below (by the mouths and not by the feet) and to a limited extent by propolis. The primary discoloration, in the main, comes only in the cells where young bees are reared, caused, as Cheshire says, by "the residua of the bowels, plastered outside the exuvium, within the cell wall."

IS 60° DANGEROUS IN CELLAR?

Mr. Taylor thinks my advice might prove dangerous when I say I think it might do good in the case of dysentery to run up the temperature for a few hours to 60 or 80 degrees. He has never tried it. I have, several times, and with no bad results. The bees make a loud roaring, but settle down quietly afterward, apparently the better for their "circus."

IS THE REVIEW RESPONSIBLE FOR MR. TAYLOR'S UTTERANCES.

Friend Hutchinson, I wouldn't like to be too positive about the matter, but I supposed that the Review was responsible for the views of any editor of the Review, and I supposed you considered Mr. Taylor not merely a "correspondent," but editor of "Department of Criticism." You say that the Review has allowed Mr. Taylor and me to express opposite opinions, and ask, "Now, which view is the one upheld by the Review?" I should say clearly the one given by one of its editors. I think you will hardly say that what is in the "Department of Criticism" is exactly on the same level as all correspondence.

For years I have conducted a department in National Stockman. Sometimes a correspondent and I express opposite views. "Now, which view is the one upheld by the Stockman? According to your way of looking at it, the Stockman has no view, for its editor-in-

chief doesn't know anything about the matter. That will hardly do. After all, it's largely a matter of name, and I never for a moment supposed that the editor-in-chief of Review agreed in all things with the editor of "Department of Criticism." And possibly I don't look at the matter just as I should.

A WASTE OF GOOD SPACE.

You say, Mr. Editor, that Mr. Taylor and I "are using a great many words in discussing a subject that is of little moment to bee-keepers." Now see here, if a man treats me unfairly, I don't propose any editor like you is going to browbeat me out of my rights, and I expect to defend myself if it occupies every column of your old paper. But hold on, hold on. Has no one else any rights in the matter? Wouldn't it be better to suffer a little wrong myself than to have a whole lot of people wronged by having a whole lot of stuff in their paper that will not help them a particle about bee-keeping? Just between you and me, Bro. Hutchinson, a good deal of good space has been wasted, and if I were in your place I'd shut down on it.

You caution Bro. Taylor against hyper-criticism, which is well enough, and while you're at it I wish you'd caution him to be correct and to be fair.

As a matter of curiosity, would you be willing to explain why Mr. Taylor pays so little attention to the errors in Review compared with that of other bee journals? Surely an error in Review will do more harm to its readers than one in a paper they never see. So it's more important it be corrected. And he can find errors in Review if he wants to see them.

MARENGO, Ill., May 15, 1899.

[As I think the matter over, it does not seem *unreasonable* that some might have looked upon Messrs. Taylor, Mason, and Thompson as being associate editors of the Review; and that the publication of their views under their respective department headings might be looked upon as a sort of endorsement from the Review.

It had never occurred to me than any one would take this view of the matter. Be this as it may, it is not the view that I wish taken. I regard these men as *special* correspondents; but I do not for this reason endorse their views any more than I do those of other correspondents.

I have more than once asked Mr. Taylor to criticise the Review as freely as he does any of the journals. If he doesn't do this, the reason must be looked for outside of any desire or instruction on my part; as I have always courted criticism for myself and the Review.

I think that Mr. Taylor tries, to the best of his ability, to be both correct and fair.—ED.]



SWARMING - TIME.

Natural and Artificial Swarming Prevention
of Increase; Etc.

C. DAVENPORT.

ALTHOUGH for many years I allowed ^{the} natural swarming, even with a large number of colonies, of late years I have largely practiced artificial swarming; and perhaps I can say a few things in regard to it that will be of interest to some who have not had much experience. I think that beginners will, as a rule, meet with better success by allowing natural swarming; taking measures to prevent it only in the way of shade, ventilation and plenty of surplus room. Although much study and thought have been given the matter, and many and various have been the devices made to prevent swarming, nothing really practical in this line has yet been devised; and, in my own opinion, never will be by the use of zinc in any form at the entrance. In the production of comb honey the only sure method of preventing swarming, that I know of, aside from dividing and artificial swarming, is that of caging the

queen; but, unfortunately, this method involves a good deal of work in the way of cutting out queen cells, and in finding queens at a time when the colonies are very strong and the weather hot. The queens can be found without so very much work by running the bees through zinc at the entrance. This method of finding queens works well during the fore part of the season, or at any time when the weather is not too warm. In very warm weather bees will not in many cases readily pass through zinc at the entrance. If the bees, including the queen, are all shaken from the combs, in front of the hive, large masses of them will sometimes cluster in front of, or under, the hive; and in some instances they will remain there for days. Aside from this, it is yet an open question whether as much honey can be secured in thus preventing swarming by the caged queen plan.

There are, however, undoubtedly, a great many who have but a small number of colonies, and whose occupations are such that they cannot be on hand to watch for and hive natural swarms, and a small number of colonies does not admit, for financial reasons, of the hiring of any one for this work, and, although there are many methods that may be employed in such cases to prevent the loss of swarms, artificial swarming, or else dividing, will, as a rule, give as good or better results than any other, even in the hands of a novice.

Whether allowing natural swarming, or practicing artificial swarming, the best method to pursue depends, of course, upon the locality; that is, upon the time and length of its honey flow, or flows. Here, with our short season, and only one flow that is usually worthy of being considered as regular surplus, one of the main things necessary for the best success, in either case, is to keep, as near as possible, the whole force of the colony together. If this is done, it means, here, at least a third more surplus than when the working force is allowed to divide up. One of the most practical methods of keeping the

working force together, with natural swarming, is the well known one of hiving the swarm upon the old stand, setting the parent hive beside it and then, in a week or so, moving the old hive to a new location. While this plan will usually stop after-swarming, it did not in all cases with me; but one that I have largely practiced, and which surely will prevent after-swarming, and also secure better results here, in the way of surplus honey, is to hive the swarm on the old stand, with the parent hive close beside, with entrances both facing the same way; then, on the third, fourth or fifth day, whenever it is most convenient, or, in some cases, depending upon the flow, take the frames out of the old hive, and look them over until a comb is found upon which there is one or more queen cells. This frame with its adhering bees, if there are not too many of them, is put back in the hive, the old hive moved a few feet to one side, and all the bees from the rest of the combs are then shaken off in front of the hive that contains the swarm. The frames are then put back into the old hive and it is set on a new stand some distance away. When practicing this plan, if the weather is cool at night, it is better to destroy most of the queen cells except those on the frame that has not been shaken. There will be plenty of bees to keep warm what cells there are on one frame; while, if the bees were scattered through the hive trying to protect all of the cells it may have contained, it might be that none of them would be properly cared for. Of course, if the nights were cold, some brood would suffer; but here, and probably in most all other localities, the swarming season comes when the weather is so warm that it is not necessary to cut out the extra queen cells; and the frames contain so much sealed brood that as soon as the young queen begins to lay there are plenty of bees to take care of the young brood, and for field work, so they build up strong for the fall flow, and make the best possible kind of colonies to put into winter quarters.

I may say however, that I find it profitable to go farther than all this; to hive two first or prime swarms in one hive; and I have hived as many as six swarms in one hive, or, rather, a number of hives and supers tiered up. It is, however, a difficult matter to get such a great mass of bees to stay and work freely in one hive; and when they do, the results are far from being as favorable as one might expect. In some cases, if they are not very large it may pay to put three swarms together; but to go beyond this has not paid with me. It is surprising, however, to see the amount of surplus that two large swarms in one hive will store in a short time in a good flow; but their strength rapidly decreases; and, in a locality where the flow is long continued, or where a flow occurs sometime after swarming, more surplus might, and probably would be, secured if they were hived in separate hives. When hiving two swarms in one hive I practice about the same method I have just described for preventing after-swarming. The hive containing both swarms is set upon the stand that one of the parent colonies occupied, and one old hive set close beside it upon one side and the other hive upon the other side. The field bees that return loaded to the unoccupied old stand are accepted by other colonies near by, so there is no loss. Later, the bees from both hives are shaken off the combs and allowed to go in with the double swarm.

If no increase is desired, these two old colonies may be united at this time.

I am aware that some will not consider this method of preventing after-swarming even worthy of being considered, for it involves handling the frames; and it seems to be becoming the fashion of late not to handle the frames themselves; but, the fact is, this method requires but very little more time or work than the Heddon method. With hives and frames of the right kind, accurately made, I can, without any undue haste, take the frames out, shade off the bees, cut most of the queen cells, replace the frames and set the hive

on a new stand, in three minutes. It is the searching for queens, and the looking over of the combs to make sure that not a single cell is left, that makes slow, tedious work of handling frames. In practicing any method the success of which depended upon no cell being overlooked, I found it saved much time and work to first set the hive up on end upon the bottom-board, and drive the bees back with a little smoke. All the cells on or near the bottom can then be easily seen and cut out, with the hive in this position. Especially is this plan a good one with frames that have narrow bottom bars. So far as they go, I use the divisional brood-chamber box-hive, such as were described in a previous number of the Review, for brood-chamber for these double swarms, and also for double artificial swarms; for it has been my opinion, until lately, that, as a rule, more surplus honey could be obtained here by using empty brood-chambers to hive swarms in, instead of having drawn comb or foundation in them. One of the problems with me is to keep down increase; so, after running these colonies in the box-hives for all they are worth, for section honey, I, in the fall, unite what bees are left in them with some colonies in frame-hives that may be weak in bees; or else I unite a number of them together in one or more sections. If some colonies in frame hives are short of stores, some of the combs of honey in these shallow box-hives are taken out and placed in supers having tight bottoms, except for a few small holes, so that the bees can come up into them and carry down the honey when such a super is placed over a hive. These tenantless sectional hives are then tiered up in the yard and left until the next season, when the combs are all removed, and those that contain honey used for spring feeding in the manner described.

Those who read the description of how these hives were made will understand that when this method is practiced they would answer as well as frame hives would; and the reason I prefer them for this pur-

pose is that it is not much more work to clean a whole hive so it is ready for a swarm than it would be to clean one frame if it were badly stuck up; which reduces this part of the work to 1-8 of what it is when using 8-frame hives. It really though does more than this, for there are no frames at any time to handle, and it is easier to take the combs out of these shallow box-hives than it would be out of frame hives.

Some experiments I have made the past two seasons leaves me in doubt as to whether as much surplus can be obtained here by hiving on empty frames, when hiving two swarms in one hive. In order to have them contented, so that they will work freely and not attempt to desert, they should be given plenty of room at the time they are hived; and, until they get well started to work, I hive them in two full-depth brood-chambers, or three shallow ones tiered up; then, after they get well started to work I remove one or two of the lower chambers and put on supers.

Empty hives should be kept in a cool place at swarming time, but not in a cellar unless it is a very dry well ventilated one, then, after a swarm is hived, the hive should be kept well shaded for a few days. Summed up, clean, cool, well shaded and ventilated hives, with plenty of brood-chamber room at first, will largely, if not wholly, prevent swarms deserting.

SOUTHERN MINN., April 17, 1899.



VENTILATING HIVES IN SUMMER.

The Faults of some Plans—How it may be done with a Queen-Excluding Honey-Board.

C. H. DIEBERN.

THE question of ventilating hives in summer is an old one; and, in my opinion, is of great importance in secur-

ing a full crop of honey. I recall some of my experience of 30 years ago, when I still used box hives; how the bees would cluster outside, even if the fields were white with clover. By raising the fronts of the hives the bees would soon all be at work again. This taught me that, in warm weather, more air is necessary than that afforded by the ordinary hive entrance.

I notice that in some of the late bee papers, that it is advocated to put inch blocks under the corners of the hive, and thus give the bees a large entrance all around the hive. Another plan advocated is that of placing wedge shaped strips under the sides; thus making a large entrance in front only. Either plan will afford the necessary ventilation; but both are more or less objectionable. In the first place, I do not like to have the bees coming out on all sides of the hive; and, as I use the drone and queen trap, this plan would not answer at all. With the side-strips the trap could be used all right, but in late autumn we do not need so much entrance space, and, to remove the now-glued-down strips, and let the hives down, is quite a job; and disturbs the bees a good deal. Besides, I find, as the space between the bottom-board and the frames is increased by raising the hives on blocks, the bees will build up bumps of propolis to serve as a sort of ladder; and when the hive is let down again the whole weight will often rest on these bumps, on the middle of the frames. This is liable to either break, or misplace the frames and make bad work.

The plan that I have followed with satisfaction is as follows: Upon the approach of hot weather, I place a queen-excluding honey-board, having a $\frac{3}{8}$ inch strip nailed on the sides and back, on the bottom board; thus making a double entrance, one over the other. I also nail a piece of tin on the front side of the honey-board, letting it project in front of the hive to form a narrow alighting board. This also answers for

a rest for my queen-trap when in use. The plan gives all the needed ventilation; and in case of swarming, the queen is compelled to enter the queen-trap, as she cannot get through the excluder-zinc in the honey-board. Such bees as desire can dive through the queen-excluding honey-board, without going through the trap.

This gives all the ventilation needed, and, in my experience, very largely prevents swarming, even with small, shallow hives. Out of six very strong colonies prepared before hot weather came, not a single one swarmed; and, what is still better, I secured about double the amount of honey, that I did from other colonies that swarmed quite generally.

As the bee-spaces are not increased, there is no building of propolis bumps to vex and annoy.

MILAN, Ills., Jan. 3, 1898.



Good things From Other Journals.

SELECTED BY DR. A. B. MASON.

GOOD QUEENS MAY BE REARED BY
SIMPLY REMOVING A
LIVING QUEEN.

Mr. Willie Atchley, in writing about queen rearing, in *The Southland Queen*, says:

The journals are full of such stuff about queens being no good that are reared by colonies when the queens are taken away, but if I can get to take away the queens, or select the cells after queens are taken away, I would just as soon have queens reared by taking away the queens from good colonies as any others if there is a honey flow on. One season we had an order about the first of May for about 100 tested queens, and at that time there was a good honey flow and the apiary was in a flourishing condition. Each colony dequened reared its own cells; and, by selection, we procured several hundred

fine cells for our nuclei and left one in each hive, and those queens were as fine a lot as ever we had; lived long and were very prolific; and we could have *given* those tested queens to our customers and made money, as dequeening right at the beginning of a honey flow stopped swarming.

Mr. Atchley says that the main reason why most queens reared under the swarming impulse are good, is because the bees are in good shape and doing well at such times, or they would not swarm, and queens reared by removing the queens from good colonies while honey is being gathered are just as good and as profitable as those raised by natural swarming. At least, that has been his experience.

I have raised more queens by dequeening the colonies I wished to breed queens from than I have under the swarming impulse, and have found that the existing conditions, of which Mr. Atchley speaks, produce as good queens as those raised under the swarming impulse; and I have found that poor queens are frequently raised by either of the methods unless the right kind of queen cells are selected from which the queens are to be raised.

I have paid big prices for queens from noted queen breeders, but never bought one that was as good as one of my own rearing by the dequeening method; but, for good queens, easily reared, I much prefer Mr. Doolittle's method of artificial cells furnished with royal jelly having a newly hatched larva placed in it. It's just fun to raise nice queens in this way, and have just as many as one wants, and know just when they will hatch and just where to find them.

PREVENTION OF SWARMING. CONTRACTION OF THE BROOD-NEST.

Mr. R. C. Aikin has been writing a series of articles for *The Progressive Bee-Keeper* on "Experience and its Lessons," in fact he is still at it, and in his seventeenth article in the March *Progressive* he makes this statement.

I am a firm believer in some practice, whatever the method employed, that will prevent swarming.

That sentence just "took my eye," and I thought Mr. Aikin had got the start of those bee-keepers who had been working with that end in view for years; so I read and found him saying:

If swarming be prevented, then some provision must be made for increase.

Then he goes on to tell us what his present practice is, taking nearly a column to tell about it, and ends by saying, "I have never tried it."

Now, Mr. Editor, don't you laugh, for I thought that was one of the "good things" that ought not be missed. Perhaps you can imagine how good I felt when I read those words, "I have never tried it." Well, I was disappointed, but there are two sides to most things in this world, and my disappointment was somewhat relieved by the fact that we "little fry" sometimes know as much as the big fishes, and *that's just nothing*. In the same number of the *Progressive Bro.* Doolittle gives Mr. Aikin some good advice; and tells how best to increase the number of colonies, *without* swarming; and says, "I much prefer the funnel and nucleus box plan of forming any colony, from the weakest one-frame nucleus up to a full-fledged colony, at once, to any other plan I know of, and I have used scores of plans." If any reader of this has any occasion to make many nuclei, yes, or a few of them, either, and doesn't know what the nucleus box plan is, it will pay him to get Mr. Doolittle's book on "Scientific Queen Rearing," that tells just how to make and use the nucleus box, and how to make the nucleus with the least work and annoyance, and how to do many other things. In fact, every one keeping bees for either pleasure or profit, or for both, will not regret having made the investment.

In reply to Mr. Aikin's question, "Is not the main object with those who practice contraction, to make the hive fit the size of the colony, thereby getting them to work in the super?" Bro. Doolittle replies:

No sir; not when non-swarming is practiced, and rarely in any event. The ob-

ject is to have *only* combs filled with brood in the brood chamber when the *honey flow* commences, so that the *first honey* shall go into the *sections*, and after the bees are *once started* in the sections they will continue to work there, no matter how much the brood-chamber may be enlarged afterwards, when working consistently for section honey. But once allow the bees not to work in the sections, by allowing much *empty* comb in the brood-chamber, and all the contraction that may be practiced afterwards will not secure to the "practicer" *success along* the line of section honey.

Not being a comb honey producer, I have read with but small interest what has been said in the bee journals about contraction for comb honey production, and when I saw what Bro. D. says as above, I wondered that not one of all the contractor advocates had advocated this method of contraction; contracting by filling the brood chamber with brood, thus *obliging* the bees to put any surplus in the sections and also keeping up the supply of workers. Last season I thought I would try and produce a few sections of honey, just for fun, then I thought of what had been said by so many about contraction, and I came pretty near giving up the experiment after I had secured the necessary supplies; but, in thinking the matter over, it occurred to me why not have the brood chamber so filled with brood that there would be no room for surplus below, or in the brood chamber, and the bees would be *obliged* to put all surplus above. I thought the matter over until I felt sure I was right, and when *I'm sure I'm right* I like very much to have my own way, but I had read so much about contraction, and how difficult it often was to get work commenced in the sections, that I thought I'd try and fool the little stubborn rascals and beat them at their little game; so I selected three strong colonies, and removed all the brood combs that were not well filled with brood, and, with some sealed honey in the upper corners, and supplied their places with combs of brood from other colonies, either all, or nearly all, sealed over. I was really

surprised to see how quickly the stubborn little misses went to work in the sections. I thought they acted as though they were glad that I had given them a place to put the nectar they were bringing in, without cutting off the supply for the queen to use. Mr. Aikin further says:

The quicker you can get the colony into the super after the flow begins, the less the swarming and the more the surplus. An early start in the super lessens the crowding of the brood combs with honey, and as naturally follows, the more room for the queen to lay. And the larger the force at work in the super the less pressure in the brood chamber. So true is this in reducing the swarming tendency, that if we could just get every colony at work at once, in the supers *with the very beginning of the flow*, I verily believe it would reduce swarming at least one-half. No idlers and plenty of elbow room. The center of activity is transferred from the brood chamber to the super and the center of activity being in the supers, the brood combs are not filled so plump, and honey will even be moved out of the brood combs to the super to make room for a vigorous queen. Why, friends, I have seen in just such a condition, a colony pile their honey into the super until the brood combs were left too light for winter.

To one who hasn't given the subject of section honey production much thought there seems to be a good deal in a little in what Mr. Aikin says. It looks like good, sound common sense. The "center of activity" being taken from the brood-nest it seems the most natural thing that the impulse to swarm would be reduced if not entirely prevented. It is conceded that, under normal conditions, all that is required to prevent swarming is that the bees have "plenty of elbow room," and that is just what pushing them into the supers gives them; and they seem to want more help to fill them; so they want more room in which to raise that help, and they give the queen all the room they can, and when the bee-keeper takes away the surplus they are left without a supply of winter stores.

I see this condition every year in producing extracted honey, if I give surplus

room enough. I used to let the queen go where she pleased and frequently got but little, if any, surplus, *but lots of bees*. Years ago I began using a wood-zinc honey-board, or queen excluder, confining the queen to the lower section of the hive, and, since adopting that plan I always get the surplus in the supers; there generally being but little honey in the brood-nest at the close of the harvest.

TOLEDO, Ohio, April 12, 1899.

Notes From Foreign Bee Journals.

BY F. L. THOMPSON.

CHARACTERISTICS OF A GOOD COLONY.

Die Deutsche Bienenzucht in Theorie und Praxis. — Editor Goeldi, of the Schweizerische Bienenzeitung is quoted as saying that a good colony should have these points: 1. It should attain its highest development at the right time, with the proper proportion of old and young bees. 2. It should have a correctly formed brood-nest, quality rather than quantity is to be considered in this regard, Brood of the same age, faultlessly capped, should be together. 3. The proper proportion between bees and brood should exist. A great quantity of brood with but a few bees to take care of it threatens danger. 4. It should have faultless combs, with sufficient stores, rightly placed. 5. It should breed neither too early nor too late; and be neither too little nor too much inclined to swarm. 6. Its bees should be large, strong, and long lived, and hasten quickly in and out. 7. It should be distinguished by large yields and by gentleness.

I. Klein doubts whether it is correct to say that moderate colonies do better than large ones under my circumstances. (Compare Review, for 1898, 236.) When they do, he thinks the proper proportion

of different ages of bees does not exist in the large colonies, owing to something hampering their spring development, and that nine out of ten such colonies have only been strong a short time. "A colony not well supplied with brood on May 1 is not well supplied with bees on May 20, and will scarcely be well supplied with honey on June 15."

A COMMON SENSE VIEW OF THE GERSTUNG THEORY.

In expressing approval of Gerstung's central idea, the physiological basis of so-called instincts in the colony as a whole viewed as an organism, I by no means imply that his peculiar practical applications ought to be swallowed whole. I think most will agree that he carries them much too far, and slights the fact that the colony, like any other organism, has a reserve power of adaptation which carries it over minor obstacles without any injury whatever. We have all barked our shins, and stubbed our toes, and pounded our fingers, and bit out tongues, during our period of development, without retarding the same, or stunting our height and weight. Thus, he lays stress on inserting empty combs in that position in the brood-nest where the queen is busied in laying eggs. I do not wonder that great opposition to his system has been aroused by his tenacious retention of such features. What proof has he that *warmth* is not the pre-eminent factor in determining the movements of both queen and nurse-bees within the limits of the brood-nest? He even claims, in speaking of the disturbance of the normal form of the brood-nest resulting from small hives, that degeneration results from the consequent irregularity with which the brood is fed by the nurse-bees. Surely, throughout the ages past, swarms of bees have as often as not taken Hobson's choice of small cavities, so that this influence, if there is any such, has always been at work. In short, I think the peculiar service of Gerstung to apiculture is in theoretical or scientific

rather than practical lines. His practical advice, of which his articles contain a fair proportion, is good (when not carried too far), but is not extraordinary, and is already familiar in substance to experienced bee-keepers in America as well as in Europe. I would not, however, undervalue the correlation of practical work with scientific knowledge; it makes all the difference between drudgery; yes, sordidness, and mental growth, which cannot be divorced from humanity proper without irreparable injury. The attempt to disjoin work, and legitimate and pre-eminently desirable result of work, made from time to time by writers of the fiercely practical order, I cannot but regard as ridiculous from any point of view.

Spring development, says Gerstung, is like a ladder with rungs. These rungs in their order are worker brood impulse, building impulse, drone impulse, queen-cell impulse; all accompanied by the gathering impulse, which increases in proportion to the stage reached in the ladder or scale of development. The higher steps of the ascending scale (drone, queen and swarming impulses) are unfavorable to our aim, which is to get the main flow with the main strength of our colonies; the lower steps are favorable, hence these should be helped and the others hindered. He spreads brood in the early stages, then gives full sheets of foundation to work out when masses of young bees bring on the danger of swarming. This often suffices for weeks at a time to keep the colony on the lower steps of the scale. But the bees may suddenly refuse to draw out any more. Then the "swarming devil" is again loose, and there is but one means left—that of exchanging the emerging brood of the strong colonies for the unsealed brood of the weak ones.

He leaves but 1-5 of an inch between the end-bars of the frames and the sides of the hive, in order that the bees may leave passage-ways in the combs, on the ground that just as the queen loses her

head when she gets her feet off the comb, so the bees may, and so, we are to suppose, lose valuable time in aimless wandering around. This serious trifling is characteristic of the Gerstung system. Granted that this point is true, it cannot reach such proportions as to outweigh the difference in ease of handling frames, in any recently populated colony.

MONTROSE, Colo., Dec. 10, 1898.



Department of criticism

CONDUCTED BY R. L. TAYLOR.

Blame where you must, be candid where you can,
And be each critic the Good-natured Man.
GOLDSMITH.

THE PREVENTION OF INCREASE.

In the April Review I made some comments upon Mr. Getaz's plan for preventing increase; a plan which, as I there explained it, I recommended some years ago; and, consequently, one in which he took considerable interest. His article in *Gleanings* explaining his method of procedure not having been satisfactorily received by the editor and Dr. Miller, Mr. Getaz returns to the matter (*Gleanings*, 304), attempting to enable the others to "grasp all the circumstances of the case." The result of his effort must prove rather discouraging to Mr. Getaz. Dr. Miller seems, indeed, to understand Mr. Getaz's position, but by implication, at least, he prefers to put on "excluders" before any swarming takes place, "and let the bees do the rest" until the young queen must be released. Such a method would, as a matter of course, be unendurable; but the doctor says if he had 25 colonies, or less, he'd like to try it again. The editor, on the other hand, is farther astray than ever. Mr. Getaz says "When a *swarm issues* return it and kill or remove the queen." The editor says "If I under-

stand the method it is simply this: At the approach of the "honey season, or, perhaps, rather about the time swarming would naturally commence the laying queens are removed." (I was about to add "sic," but for the doctor's benefit I shall say, instead, that I have quoted correctly.) What an enticing prospect that presents! First the hunting of the laying queens, then the rearing of a lot of inferior queens from grubs of all ages, and then the swarming of the entire apiary for several days from morning till night; impelled by virgin queens. Pardon the slang, but pandemonium wouldn't be "in it." Yet the editor says "As Mr. Getaz now explains the method in detail, it does not seem to be so objectionable as it did at first. In fact, I feel strongly inclined to give it a trial this coming season." Brother Getaz, from sad experience, I know what it is; and you have my profoundest sympathy.

HAP-HAZARD QUEENS.

If one is to rear queens at all—I mean in any way except the natural one—the utmost effort should be made to produce good ones; for good queens are the very first requirement of success. Mr. Somerford (Gleanings, 260) has a scheme for the multiplication of colonies by which the queens required are produced in precisely the same way as they would be by the plan outlined by the editor of Gleanings referred to in the preceding paragraph. The queen is removed, and the bees are allowed to have their own way in the selection of larvae. It cannot be made too emphatic that by this method a considerable proportion of poor queens is sure to be reared. All the more is this the necessity of emphasis—true because so well known an apiarist as Dr. Miller teaches that this method is not objectionable. I have understood that the editor of Gleanings was opposed to the doctor in this, but, as he says Mr. Somerford's plan "commends itself as practical," his position seems to become ambiguous. While I *believe* boiling the spores of foul brood fifteen minutes in

honey will destroy their vitality, I would not go so far as to say that I *know* it will; but I *know* that Mr. Somerford's method will produce many miserably inferior queens. If at any time one is compelled to make use of queens thus produced he should prevent the maturing of the poorest ones by examining the cells about the fourth day and removing the larger and the more poorly fed larvae from the queen cells, leaving the royal jelly to be used in better supplying those that remain.

THE DICTIONARIES.

Stenog. (Gleanings, 255), referring to my criticism of "bring to a boil" says "The doctor defends his usage by referring to the Standard Dictionary, the latest and by far the best of its kind ever printed." Shades of Johnson! In an item a little above the one from which this is taken, Stenog. asks "Why can't hives and machinery be discussed as calmly as the weather?" Well, mainly, I suppose, because such reckless statements as this one, for instance, about dictionaries are not made about the weather.

TAKING BEES OUT FOR A FLIGHT.

Dr. Miller, writing shortly before March 20th, says, (Gleanings, 253), "I'm getting ready to report a case of bad wintering. I'd give \$50 for a bright day at 50° on or before March 20th." I venture to guess that, if he intended to take his bees out for a flight and then return them to the cellar, he is now well satisfied that such a day did not come. If he intended to leave them out, I still think he would have gained nothing, considering the character of the weather up to nearly the middle of April.

GLEANINGS AND GRAMMAR.

Some time since Gleanings eschewed grammar and "such like things" for the pursuit of apiculture, but the little foxes continue to spoil the vines. In the May 15 No., about 25 per cent. of the space occupied by the doctor's Stray Straws is taken up with grammar, spelling, etc.,

and Stenog, dabbles largely in the same wares. Then on page 212 and 213 there are three solid columns of grammar pure and simple; and it abounds elsewhere. So great is the effect of an evil example.

PERSISTING IN ERROR.

The editor of *Gleanings* (p. 348) joins Dr. Miller in thinking I am too much inclined to hold on to errors against light. What are my errors, brethren? I want you, the doctor and the editor, to be my judges. I hold that hand-holes are better than cleats clear across the hive. Am I holding to an error in that, or not? I believe that a queenless colony, having eggs and larvæ of all ages, left to itself, will produce queen cells from which, if permitted, a considerable proportion of poor queens would emerge. I am stubbornly holding on to this. Is it an error? I believe that spores of foul brood boiled fifteen minutes in honey will lose their vitality. Am I holding on to this with undue persistence? If you will kindly let me know your opinion on these points, when you arrive at an agreement, I shall try to conform to the judgement of the court; and, perhaps, by that time, I shall desire other matters, that press heavily upon me, adjudicated.

THE FOUL BROOD QUESTION.

There is an article in *Gleanings*, 356, by Mr. Cowan, on the destruction of foul-brood germs by boiling, making it doubtful whether boiling for ten or 15 minutes at a temperature of 212° is in every case effective. But Mr. Cowan treats the matter from the point of view of 212 only, and I do not know that any one who has considered the matter has ever questioned anything that he says in the article to which I refer. The editor, however, says "These statements coming as they do from I believe our best authority on the subject in hand ought to settle the matter that it is not safe to feed diseased honey back to bees that has been boiled only 15 minutes." The editor surely cannot mean that. He must see that Mr. Cowan does not touch the essential

matter at a single point. 212° mean nothing when one is dealing with a matter that involves the boiling point of honey. In investing things scientific, a difference of 20° is a momentous consideration. It is surely not wise to be in such dreadful haste to settle this question, for it is one that will not stay settled until it is settled *right*. The more certainly is this so because the means of a complete solution are in sight. When scientific men tell us, as they soon will, the full effect of boiling honey on the germs, the whole matter can then be calmly laid to rest.

SHOULD AN EDITOR EDIT?

Hereinbefore I have lamented that so much attention is given to grammatical questions in *Gleanings*, but that is all a pure delight compared with such nonsense as this: "Another common error is that the pupils of cats, owls, etc., expand as dark approaches to allow more of the rays of light to enter the eye. On the contrary the pupils are naturally expanded to admit the rays of dark so necessary to vision, and contracted to exclude the rays of light," a whole page of which may be found in *Gleanings*, 354, 355. I have been wondering how it could all elude the editor.

INJUDICIOUS USE OF SMOKE.

C. Davenport (*Gleanings*, 351) takes up the cudgel against "hot-blast smokers." He thinks smoke from them is injurious to the bees. In one place he puts it in this way "I firmly believe that the injudicious use of a hot-blast smoker causes the premature death of many thousands of bees in the season when smokers are most used." But why use it injudiciously? I keep hybrids exclusively, and it is extremely seldom that more than a hint of smoke is necessary. The injudicious use of any sort of smoker may do damage, and should not be allowed. Hardly ever should smoke be sent directly against the bees, except in driving them, and then too much force delays rather than hastens them.

LAPER, Mich., May 23, 1899.



EDITORIAL offerings.

THICK COMBS are more easily uncapped, and furnish more honey, per comb, than thin ones.

SPARKS from a passing locomotive was the cause of 80 colonies of T. F. Bingham's bees going up in smoke on the 11th of May. The help of volunteer firemen, aided by the high-pressure water-works to be found in the little village of Farwell, saved other property from destruction.

LOSSES of bees from wintering have been quite general and severe throughout the Northwest. The States of Michigan, Wisconsin and Minnesota appear to have been the greatest sufferers. I arrive at this conclusion from the reports that come to me in my correspondence.

A FOWL BROOD LAW has recently been enacted by the legislature of New York. The bee keepers of Illinois and Michigan failed in their attempts to secure the passage of such a law. Let us be thankful that New York and Wisconsin have succeeded, as it will now be easier to secure the passage of similar laws in other States.

SALT sprinkled around a hive will kill the grass that is near it. It is better to thus kill the grass for two or three inches around the hive than to attempt to keep it cut. The lawn mower can not get near enough to cut all of the grass that grows close to the hive; and, to keep it pulled, or sheared off, is quite a little trouble. The front-piece for this month shows a hive around which the salt has just been sprinkled for the purpose of killing the grass.

JACOB ALPAUGH, of Canada, cuts out all of the cells when a queen has been lost, or removed, then puts several cells in the *entrance* of the hive. The bees will cluster over the cells, and the queens hatch out, but the bees will *not swarm* as they will when the cells are put *into* the hive.

THE REFORMED SPELLING.

So far, I have said nothing in regard to the reformed spelling. What I have several times thought of saying, has now been said by Stenog, in *Gleanings*. Here is what what he says: "If you will rip up the whole alphabet from A to Z, and have a precise character for every sound; as we have in shorthand, I shall be much pleased." So long as a system is radically wrong, we gain very little by tinkering with minor results. So long as we attempt to represent forty-odd sounds by using only twenty-six characters just so long will there be confusion. Bro. York gives a sample of 16th century spelling. Of course, it looks odd to us, but I doubt if our present spelling, or even the reformed spelling, would not look as odd to the 16th century folks, if they could see it, as their spelling does to us.

FASHIONS seem to change in bee keeping in something the way they do in clothing. Last year the girls' shirt-waists were plaid. It makes no difference now whether the plaid waists are worn out or not, they must be laid aside for striped ones. Years ago the plain Langstroth frames were good enough. Then they must have metal corners. The corners proved a nuisance and were laid aside. Next came the Hoffman style of frame. Now some of the folks are talking of making frames and hives two inches deeper. Then there are the changes in supers, separators, sections, smokers etc. So it goes on, until, sometimes, it seems as though changes were made in these things simply to have something new to

sell, and so that we bee journal fellows can have something to talk about. Perhaps I am too severe—but then, I am taking my share of it.

In all seriousness, I suppose new things must be tried; but don't throw away the old for the new just because the new is *new*.

EXTRACTING HONEY.

Over at the Canadian convention last winter there was much discussion regarding honey that had been left without bees over night. By putting on a Porter escape at night, the combs are free of bees in the morning; but, with many, the honey was then too thick to extract well; as it was cooler than when taken right from the bees in the day time. Some had no trouble from this source in July and August. Probably much depends upon the thickness or ripeness of the honey, and upon the coolness of the nights. Even if the combs are not completely emptied, the honey is not lost if they are returned to the bees.

ADVERTISING.

This is the time of year when apicultural advertising is at its height. As in other businesses, other things being equal, the one who does the best advertising secures the largest trade. There is little use in advertising an inferior article. On the other hand there is not much use of making even a superior article unless you let people know about it. Too many advertisers word their announcements in a general sort of way. All of this talk about "best goods," "lowest prices," "largest stock," etc, such general expressions that anybody can use, and a great many do use, are not very effective. They let people know that you are in business, and that is about all. If you *can* sell goods cheaper than anybody else, don't simply say so, but go on and explain why and how you can do this. If your goods are really superior, tell *what* and *how*. People will listen to and believe

reasons that they can understand, when simple assertions pass for naught.

There must be some point in favor of your goods. It may be quality; it may be price; you may have an advantage by reason of your location. Find the strong point; then make the most of it.

The most important thing about an advertisement is the way that it is worded—*what* it tells and *how* it tells it. Next comes the display; the bringing out of the strong point of the ad.; making it so prominent that it will be noticed and read. The compositors of some of our bee journals are doing some good work in getting up effective displays of advertisements.

One more point: Don't let your ad. remain unchanged week after week, month after month and *year* after *year*. As a rule, people do not take much interest in a story that they have read before. I know that seeing the same thing over and over has some effect, it is far better than telling the story once and then leaving it out *entirely*, but better still is the giving of a fresh illustration of the same point in each succeeding issue of the paper. There is a dealer in bicycles in this town who uses about half a column of double column space in our local dailies. He writes a fresh advertisement *each day*. I do not expect to buy a bicycle of him, but I read his advertisements just the same as I do the rest of the paper, because they are so spicy and so well written, and I wonder what he is going to say next. His bicycle is probably no better than those handled by the other dealers, but he is selling more machines than all of the other dealers combined.

MRS. HUTCHINSON, HER WORK AND CONDITION.

So many letters end with a friendly inquiry in regard to Mrs. Hutchinson, that I trust I may be excused for saying a few words in this public manner. For several months she has been gradually improving. Although she can not endure

a great deal of hard labor, her physical health is quite good, and her mind becoming stronger and clearer. She is no longer at the main building, but at one of the cottages built to accommodate the better class of patients. She also has what is called "ground permission;" that is, the privilege of going where she pleases upon the grounds. For the last six months she has had charge of the asylum library, giving out the books, keeping the records, etc. In one corner of the library, with the consent of the superintendent, I have put a small cabinet containing two type-cases, and she has learned to set type. I visit her once in two weeks, usually going Saturday afternoon, taking her down town, and keeping her over Sunday. When I go I take with me two single "galleys" of type; enough to make three pages of the Review. By the time that I make my next visit, she has "thrown in" this type and set it up again ready for me to take home with me. In this way she sets enough type each month to print six pages of the Review. There were several little details that were rather difficult to overcome at first, but all is now working quite smoothly. She also addresses the wrappers for the Review, sends out any circulars that I may wish to send out, etc. In this way she is kept constantly busy. In her actions or conversation, no one, not even the doctor, can detect anything abnormal, and there is every encouragement that sometime it will be thought best for her to come home. Of course, we both realize that home will never again be exactly what it was once, but, nevertheless, we shall both strive, to the utmost, to make the best of our lives.

.....

A CERTAIN AND PRACTICAL METHOD OF INTRODUCING A QUEEN.

To introduce a queen to a colony of bees, two things must be well considered—the condition of the bees and the condition of the queen. The condition and behavior of the queen are very important.

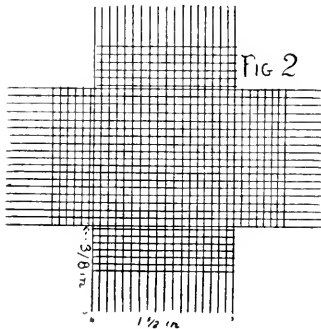
If the queen will only walk about upon the combs in a quiet and *queenly* manner, and go on with her egg laying, she is almost certain to be accepted if the other conditions are favorable. Let her run and "squeal," and utter that peculiar "zeep, zeep, zeep," and the bees immediately start in pursuit.

To introduce a queen from one colony to another in the same apiary does not call for the skill needed when a queen has been absent several days from a colony, and is jaded by a long journey. I have frequently taken a queen from a colony, and caged her to send away, and then immediately taken a laying queen from a nucleus and placed her upon the spot upon the comb from whence I had removed the other queen, and had the satisfaction of soon seeing her surrounded by a circle of admiring retainers. I believe that there are times, particularly when honey is coming in freely, when a colony with a laying queen would accept *another* fresh laying queen, simply by having her placed upon the combs; and all would go well until the queens came in contact.

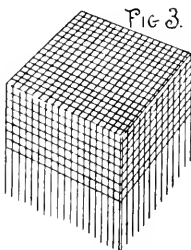
So far as the queen is concerned, it is important that she be brought before the bees in a natural manner; in such a place and way as they would expect to find her. When queens have come from a distance they are more difficult to introduce. For the purpose of introducing such queens, the old Peet cage was excellent. It was a poor shipping cage, but, as an introducing cage, that could also be used as a mailing cage, it has had no superior. As an introducing cage it did have *one* objection, and that was that the bees might liberate the queen too soon; that is, before they would accept her. It is possible, however, to use such a cage that this objection may be overcome, but the cage cannot be used for a mailing cage. This is another illustration of the fact that these combination tools are seldom so satisfactory as special tools. The style of cage, and the method of using it, that I am about to describe, are not new. I

think that Mr. Doolittle has used and described this cage. Mr. F. Greiner, of Naples, N. Y. also described it in *Gleanings* for October 1, 1898; and I have to thank *Gleanings* for the use of the cuts that appear in this article. A circular that I got out this spring for Mr. E. R. Jones, of Milano, Texas, also described this cage and method.

The cage is made as follows: From a piece of ordinary wire cloth, 6 x 8 inches square, a piece $1\frac{1}{4}$ inches square is cut from each corner. Each side and end is then ravelled out to the depth of $\frac{5}{8}$ of an inch. The result will be a piece of wire cloth looking something like figure 2.



The sides and ends are bent up at right angles making a tray-like cage $1\frac{1}{4}$ inches deep, $3\frac{1}{2}$ inches wide and $5\frac{1}{2}$ long, looking something like figure 3.



To use this cage in introducing a queen proceed as follows: First remove the old queen from the colony to which the new comer is to be introduced, then look over the combs until one is found upon which the bees are gnawing out in considerable

numbers. Shake and brush the bees from this comb. If the circumstances are such that the comb can now be carried into some room, so much the better, as it prevents any possible loss of the queen by taking wing. If she is clipped, of course, this precaution is unnecessary. Place the open side of the cage against the face of the comb, choosing such a spot that the cage will cover a place where young bees are emerging. It might also be well to include beneath the cage a little unsealed honey, although Mr. Greiner says that this is not necessary, as the bees will feed the hatching young as well as the queen. There certainly can be no harm in allowing a little unsealed honey under the cage. Remove from the shipping cage all of the escort bees that came with the queen. With the queen alone in the shipping cage, open one end and place the open end under the wire cloth cage, raising one end of the latter for this purpose. Watch carefully, and, as soon as the queen leaves the shipping cage, draw it out and press down the wire cloth cage, thus caging the queen against the surface of the comb. Press the cage into the comb until the ends of the wires at the sides and ends are firmly embedded in the septum or midrib of the comb. This must be done carefully, yet thoroughly, or the bees may undermine the cage and kill the queen before the time comes when they would accept her.

In replacing the comb be sure that sufficient room is left so that the bees can pass between the cage and the adjoining comb. The queen will soon have a retinue from the newly hatched bees that are ready to accept her, as they have never known any other queen. She will soon begin laying in the few cells that are at her command, and when she is released will be in nearly a normal condition and surrounded by quite a little band of loyal followers. In three or four days, if a fine escort is found hatched out under the cage, and the outside bees are seen to be feeding the queen

through the wire cloth, the cage can be gently removed and the comb put carefully back in the hive, and there is no question but what the queen will be accepted; in fact, she has been accepted before she is thus given her larger liberty.

If the bees are seen to be angry towards the queen, clinging to the cage like so many burdocks, look through the hive for queen cells, destroying every one. Keep the queen caged until all of the brood is sealed, then destroy every cell before releasing her. Now that all possible hopes of rearing a queen of their own are gone, they will accept the inevitable. Not one colony in one hundred will drive you to this last resort; but you are master of the situation if you follow these instructions.

APIS DORSATA.

There has been a whole lot published in the bee-journals about the bringing here of *Apis dorsata*. If any one has opposed it, he has been accused of having some personal feeling in the matter. To speak real plain, some folks may not like Frank Benton, and they might not like it if he got the job of going after these bees. If anybody opposes the bringing here of *Apis dorsata*, somebody else is almost sure to hint that enmity to Mr. Benton is the real cause of their opposition. Mind you, they *hint*; they do not say it right out so that it can be disputed and combated. Some folks may not like Mr. Benton; at the same time he is probably the most competent man to send after *Apis dorsata*. It is possible that a few, and a *very* few, would oppose the choice of Mr. Benton as the man to send after these bees; but I very much doubt if any man has opposed their introduction on those grounds—even in his own mind. I have always opposed their introduction until we know more about them. I am not opposed to progress, nor the introduction of new things of the desirability of which we are assured, or that can be kept under control until the desirability is no

longer an unknown quantity. Dr. Miller, in the American Bee Journal, expresses my views exactly when he says "I am anxious that they be brought here if it is first known that they can be domesticated and kept under control. With my present light I am anxious that they should be kept away. If they can not be kept under control I can see no other result from bringing them here but to have them run wild and use up the nectar that our hive bees should get. I have little fear as to that in the North, for I hardly believe they could stand our Northern winter, [We are not so sure of that—ED.] but the result might be anything but desirous in the South.

It seems to me that it ought to be easier to domesticate them in their native region than to bring them here and domesticate them. Let the effort first be made where they are, and, if successful, *Apis dorsata* can be brought here; if the effort should be unsuccessful, *Apis dorsata* can remain in foreign lands, and this country be saved from another English-sparrow scourge."

EXTRACTED.

HOT OR COLD SMOKE.

Which Shall we Use?—III Effect that may Arise from the use of the Former.

Now that the working days with the bees are upon us, here is an idea that is worth our while to think about, and give heed. It is from the pen of C. Davenport, and published in *Gleanings*. It seems that Mr. Davenport and the editor of *Gleanings* had been having a little discussion in a previous issue in regard to the merits of hot- and cold-blast smokers. Mr. Davenport says:—

You say it takes longer to light and get a cold-blast smoker going. Why,

with a cold-blast smoker properly made, and the right kind of fuel, all that is necessary to get it to going is to put in the fuel, touch a match to it, and *she* is off at once, creating a dense volume of smoke almost at once. I do not say this applies to the Clark smoker—far from it; and I feel as sure as I do about any thing I think I know about bees, that smoke from a cold-blast smoker is better for general use in a yard than that from a hot-blast—that is, with Italian and German bees and their crosses. Cyprians I know nothing about.

You say hot air alone will subdue bees. I know it will; but when it is employed it crazes and injures many bees, and, if hot enough, kills many. I firmly believe that the injudicious use of a hot-blast smoker causes the premature death of many thousands of bees in the season when a smoker is most used, and in some cases hundreds from single hives, where, for instance, a colony is handled after the fuel is well burned down so that the bees get direct blasts of very hot air right off the coals—not that they die at once, but they probably might as well, so far as being of any use afterward is concerned.

I have noticed the very thing to which Mr. Davenport calls attention; viz., that if the air is *very* hot it will kill the bees. This happens when the fuel has all become ignited, and the nozzle of the smoker is held too close the bees. In such instances I have seen bees fairly sizzle, curl up and die. The moral is to re-fill the smoker before all of the fuel has become ignited. I think that there is also much difference in fuel in this respect; some giving out much more heat than other kinds.

THE MATING OF QUEENS.

A Simple Manner in Which it may be Controlled.

I believe that all attempts at controlling the mating of queens by confining them and the drones in some kind of an enclosure have proven failures. Mr. Aspinwall has done something in this line by clipping a little from each wing

of a queen, thus controlling or restricting the queen's flight; keeping her in the vicinity of the apiary. Of course, there is nothing absolute about this method; and Mr. John M. Rankin of the Michigan Agricultural College reports a very large number of failures to mate at all with clipped queens. The plan that looks the most promising of anything to which my attention has been called in a long time is that described in the Canadian Bee Journal by a Mr. W. A. Whitney. He says:—

I have just visited the apiary of Mr. J. A. Helmberg in this city, and as he gave me what I consider a new idea in the fertilization of queens, I will give you, and perhaps your readers, a brief account of his plans.

How to prevent Italian virgin queens from becoming fertilized by black or inferior drones has always been a difficult problem for bee-keepers. Mr. Holmberg thinks he has succeeded in solving it and he says that he has so far been entirely successful.

He practices Doolittle's plan in raising queens. His nuclei are supported, not only with nursing bees but with a good supply of drones. He removes the nucleus to his cellar where he leaves it well supplied with honey for about three days. He then, at 5:30 p. m., after all outside drones have returned to the hives, brings out his nucleus, when the virgin queen and drones will at once rush out for a flight after their long confinement. After their return the queen is examined and if she does not show evidence of having met the drones, the operation is repeated and she is given another chance at the same hour on the following day.

All bee-keepers know that, as a rule, drones do not fly in the forenoon. Usually they commence to fly about one o'clock, and very seldom fly after three o'clock. I think it is perfectly safe to assume that no drones are in flight after 5:30, P. M. If drones and queens can be induced to fly after that hour, and the latter will become fertile from such flights, it looks as though we might have queens mated with any strain of drones that we desire, if we will only follow the plan described by Mr. Whitney.

Somewhere, long ago, but just when and where I cannot remember, I read of some man who followed a plan similar to that described above. The bees were not carried into the cellar, but kept shut in the hive until late in the afternoon, then induced to fly by feeding the nuclei warm honey. To me, the cellar plan looks more feasible; as the long confinement in the cool cellar, so suddenly ended by carrying the bees into light and warmth, would, I should think, lead to an immediate flight of workers, drones and virgin queens.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," "No. 1, dark," etc.

KANSAS CITY.—We quote as follows: No. 1 white, 15; fancy amber 14; No. 1 amber, 13½; fancy dark, 13; No. 1 dark 12½ white, extracted, 6; amber 5½; dark, 4 to 4½. Beeswax, 25.

C. C. CLEMONS CO.,
May 15. 423 Walnut St., Kansas City, Mo.

CLEVELAND, O. We quote as follows: Fancy white, 13 to 14; No. 1 white, 12 to 13; fancy amber, 10 to 11; No. 1 amber, 9 to 10; white, extracted 7 to 7½.

A. B. WILLIAMS & CO.,
May 13. 8 & 52 Broadway, Cleveland, Ohio.

CHICAGO, ILL.—Fancy 1, No. 1 white, 11 to 12; fancy amber, 10 to 11; No. 1 amber, 8 to 9; fancy dark, 7; No. 1 dark, 7 to 7½; white, extracted, 7 to 8; amber, 5 to 7; dark, 4 to 5. Beeswax, 27.

R. A. BURNETT & Co.,
May 13. 163 So. Water St., Chicago, Ill.

BUFFALO, N. Y. The honey season may be considered closed for the present. A few stray lots of old honey are selling at from 6 to 8 cents. There is no strictly fancy here. A little would probably bring 11 or 12 cents. Some fancy pure beeswax is wanted at about 30 cents per pound in small cakes.

BATTERSON & CO.
May 13. 157 & 159 Scott St., Buffalo, N. Y.

CHICAGO, ILL.—We have a customer who will buy fancy white comb honey, and pay 14¢/lb; a pound, but it must be fancy in every particular. No. 1 white is selling at 12 to 13; No. 1 amber, 10 to 11. Extracted is scarce, and sells at from 6 to 8, according to package and quality.

S. T. FISH & CO.,
May 12. 189 So. Water St., Chicago, Ills.

BUFFALO, N. Y.—Honey has sold slower since the first of January than I ever knew it to sell at this time of the year. I quote as follows: fancy white, 11½ to 12; No. 1 white, 11 to 11½; fancy amber, 10 to 11; No. 1 amber, 9 to 10; fancy dark, 8 to 8½; white, extracted, 7 to 7½; amber, 6 to 7; dark, 5 to 6; beeswax, 28 to 30.

W. C. TOWNSEND,
Jan. 25. 86 West Market St., Buffalo, N. Y.

NEW YORK.—Extracted honey is in good demand; and we would advise our friends in the South to let the new crop come along. Beeswax quiet, and likely to drop. We quote as follows: fancy white 12; No. 1 white, 11; fancy amber, 9 to 10; No. 1 amber, 8; white, extracted, 7 to 7½; amber, 6½ to 7; dark, 5 to 5½; beeswax, 26 to 27.

HILDRETH & SEGELKEN,
May 15. 120 West Broadway, New York

NEW YORK, N. Y.—Our market has never been in better condition, for handling both honey and wax, so far as stock in hand is concerned. We would suggest to Southern shippers of extracted honey the advisability of letting it come forward. At this writing we have on route several shipments of new Southern extracted.

Our market has dropped off slightly on wax, although there is a steady demand.

We do not expect much more trade in comb honey until the new crop begins to arrive in early fall. We quote as follows: Fancy white, 12½ to 13½; No. 1 white, 11½ to 12; fair white, 9½ to 10½; fancy buckwheat, 8 to 9; No. 1 buckwheat, 7 to 8; fair buckwheat, 6½ to 7.

Extracted honey, Florida white, 7¼ to 7½; light, amber, 6½ to 7; amber, 6 to 6½. Other Southern, fancy, per gallon, 65 to 70; fair, 60 to 65; good, 52½ to 58. Beeswax, 27 to 28.

Write us before shipping.

FRANCIS H. LEGGETT & CO.
April 25. W. Broadway, Franklin & Varick Sts.

THE
A. I. ROOT CO.,
10 VINE ST., PHILADELPHIA, PA
BEE-SUPPLIES.

Direct steamboat and railroad lines to all points. We want to save you freight.

If You Wish Neat, Artistic

PRINTING,

Have it Done at the Review

\$100 = Queen.



Several times in my life have I seriously considered the idea of attempting the development of a superior strain of bees. I knew that it would require years of careful, patient, persistent work in the way of selection, crossing, testing, etc., and there have always seemed to be too many other irons in the fire for me to make room for this one. Sometime I may make the attempt; at present, however, I am glad to know that one man, by giving twenty years of his life to the work, has met with a fair measure of success. I have reference to the breeder mentioned in my last advertisement of superior stock. Being a little curious to know along what lines he had worked, I asked him to tell me, and from his letter I make the following extract:—

In regard to the origin of my strain of Italians, I would say that they were developed by selection and crossing. The first Italian queen that I ever possessed was of the Thos. G. Newman stock. The next was of A. I. Root's red-clover stock; purchased in 1881. In 1882, I purchased one of friend Root's best imported queens, for which I paid \$6.00. She was a valuable queen, indeed; producing workers which were hardy and regular hustlers for gathering honey. I stocked my apiary with her daughters, saving only a few queens of the other stock to furnish drones. This gave me a direct cross, which, I think, is the secret of my success.

In 1883 I found one of the daughters of the Root imported queen far out-stripping everything in the yard in the way of honey-gathering and comb-building; and her bees capped their honey so white that it made it appear the most beautiful comb honey I ever saw. In this queen I had an acquisition. I used her as a breeding queen. Her bees were not as handsome as the Newman stock; but beautiful money attracted my eye and pocket-book more than fancy bees.

Permit me to say right here that I fear that about nine out of every ten queen breeders make the mistake of breeding for color; sacrificing business qualities.

I love to look at the beautiful, golden, five-banded Italians; and I wish that they were as good for business as the regular three-banded Italians; but I have tried them and found them sadly wanting.

The queen from which I am now breeding is a wonderful queen, to say the least. Her bees are excellent honey-gatherers; and came through the past severe winter in fine shape; and are now just **BOMBING**. I would not part with this queen for **One Hundred Dollars!**

This breeder has always advertised in a modest, quiet, unassuming sort of way, nothing in proportion to what the quality of his stock would

have warranted, and at last I have decided that I can help him, and benefit my readers, at a profit to myself, by advertising these bees in a manner befittingly energetic.

The price of these queens will be \$1.50 each. This may seem like a high price, but the man who pays it will make dollars where this breeder and myself make cents; and when you come to read the conditions under which they are sold, it will not seem so high. The queens sent out will all be young queens, just beginning to lay, but, as there are no black bees in the vicinity, it is not likely that any will prove impurely mated. If any queen should prove to be impurely mated, another will be sent free of charge. Safe arrival in first-class condition will be guaranteed. Instructions for introducing will be sent to each purchaser, and if these instructions are followed, and the queen is lost, another will be sent free of charge. This is not all; if, at any time within two years, a purchaser, for any reason **WHATSOEVER**, is not satisfied with his bargain, he can return the queen, and his money will be refunded, and 50 cents extra sent to pay him for his trouble. It will be seen that the purchaser runs **NO RISK WHATSOEVER**. If a queen does not arrive in good condition, another is sent. If he loses her in introducing, another is sent. If she should prove impurely mated, another is sent. If the queen proves a poor layer, or the stock does not come up to the expectations, or there is **ANY** reason why the bargain is not satisfactory, the queen can be returned and the money will be refunded, and the customer fairly well paid for his trouble. I could not make this last promise if I did not know that the stock is **REALLY SUPERIOR**.

I said that the price would be \$1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the Review. Any one who has already paid me, or who will pay me, \$1.00 for the Review for 1899, can have a queen for \$1.00. Of course, all arrearages previous to 1899 must be paid up before this offer will hold good. This special offer is made with a view to the getting of new subscribers, and as an inducement to old subscribers to pay up all arrearages and to pay in advance to the end of the year.

Gomb HONEY

And its production interest the practical bee keeper more than anything else connected with his business. To have the best bees, hives, supers, foundation and implements, and a knowledge of how to use them in securing the most comb honey with the least labor, is that for which he strives; and it was to aid him in this attainment that **ADVANCED BEE CULTURE** was written—it is the one, grand, central idea kept in view from the first to the last of its thirty-two chapters.

Price of the book, 50 cts.; the Review one year and the book for \$1.25.

W. Z. HUTCHINSON,
Flint, Michigan.

GOLDEN

Italian Queens, warranted purely mated, sent by return mail, and safe arrival and satisfaction guaranteed, at 75 cts. each; or six for \$4.00. Selected queens, \$1.00 each; or six for \$5.00. After July 1, single warranted queen, 50 cts.; six for \$2.75; selected, single queen, 75 cts.; six for \$4.00. Specially low price on large orders.

I have had eleven years of experience, and know what good queens are. My queens are prolific, and their workers industrious, as well as beautiful to look upon; as hundreds of testimonials abundantly prove. I shall run 1,200 nuclei; and employ the most scientific methods.

H. G. QUIRIN,
Parkertown, Ohio.

6-99-6t M. O. Office, Belleune.

M. H. HUNT & SON,

Have a Full Line of Root's
Hives and Other Supplies.

Unless you Order Your Goods

Now, why, it will be too Late

To Secure the Best Results;

& That Means a loss of Honey.

So be Ready for Your Bees, and

Order all of Your Supplies

Now. Send for Our Catalog.

M. H. HUNT & SON, Bell Branch, Mich.

Free

A beautiful present with every order. The cheapest place in Mich. to buy supplies. Send for explanatory price-list. W. D. SOPER, Box 565 Jackson, Mich.

1-99-1f

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking. 3-99-1f

THE JENNIE ATCHLEY CO.,

Beeville, Bee Co. Texas.

Some Odds and Ends That Will be Sold Cheap.

For a dozen or more years Mr. M. S. West of this place dealt in bee-keeper's supplies. Since his death, two years ago, his daughter has endeavored to close out his stock of goods, and has succeeded to large extent. There are still a few odds and ends, and she has brought them to me and left them for me to sell. Here is a list of the articles with prices at which they will be sold.

One ten-inch foundation mill, (second-hand) Root's, (one of recent make) dipping tank, etc. in good order 15.00

Three Woodcock foundation fasteners, each,75

Eighty seven entrance guards, each,05

Thirteen Porter Bee Escapes 2.25

Thirty three Simplicity hives, in the flat, sides, ends, covers and tin rabbits, but no frames nor bottom boards, each,40

Send all orders to W. Z. HURCHISSON, Flint, Mich.

Golden Queens,

50 cts. each, six for \$2.75; or \$3.00 a doz. Tested queens double these prices



GEO. W. COOK, Spring Hill, Kansas.

6-99 2t

Please mention the Review.

THE MONITOR PAPER FILE

Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music &c., by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome. **PRICE.**—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper.

Bee keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive. **J. H. M. COOK, 62 Cortland St., N. Y. City**

Please mention the Review.

QUEENS, Untested, 75 c; 6 for \$1.00; tested, \$1.00; 6 for \$5.00; breeders \$2.00. The best stock, imported or golden. **W. H. LAWS, Lavaca, Ark.**

Please mention the Review.

We are headquarters for the

Albino Bees,

the best in the world. If you are looking for the bees that gather the most honey, and are the gentlest of all bees to handle, buy the Albino. I can furnish the Italian, but orders stand so to in favor of the Albino. I manufacture and furnish supplies generally. Send for circular.

S. VALENTINE,

3-99-3f

Hagerstown, Md.

Holy Land **YOUR CHOICE** Golden Land **QUEENS.** Italian

My 1899 circular is free; and "Jones he pays the freight" on it, I'll tell you more next time.

E. R. JONES.

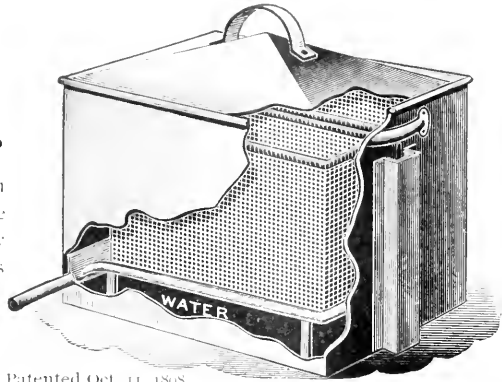
3-98-12t

Milano, Texas

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1898

Queens:

Untested, Italian, \$1.00 each. After July 1, 70 cts.; before \$1.00. Tested, \$1.25 each. Catalog free. Theo. Bender, Canton, Ohio.

3-89-tr Please mention the Review.

If you are going to—

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Our Prices are worth looking at. We are making the new

Champion Chaff Hive

with dovetailed body and supers and a full line other Supplies, and we are selling them CHEAP. A postal sent for a price list may save you \$ \$ \$ \$.
R. H. SCHMIDT & CO.,
Box 157, Sheboygan, Wis.

1-88-1f

If you wish the best, low priced—

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Ode-ll, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

1899 Queens 1899

For Business—Queens for Strong Colonies—Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list. 12-97-tr

J. P. H. BROWN, Augusta, Ga.

Please mention the Review.

Bee - Supplies.

Root's goods at Root's prices. Powdered honey jars. Prompt service. Low freight. Catalog free. Walter S. Ponder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Please mention the Review.

To stick things, use **MAJOR'S CEMENT.** Beware!!! Take no substitute. 2 98-121

Best on Earth. 19 Years Without a Complaint.



	Dozen	Each
Smoke Engine (largest smoker made)	\$13.00	mail \$1.50
Doctor	9.00	1.10
Compressor	6.50	1.00
2nd size	5.00	.80
Plum	4.75	.70
Little Wonder (wt. 10 oz)	4.50	.60
Honey Knife	6.00	.80

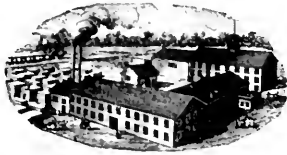
For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

BEEES!

If you keep bees, subscribe for THE PROGRESSIVE BEE-KEEPER, a journal devoted to bees and honey. Fifty cents a year. Sample copy free. Also illustrated catalogue of bee-keepers' supplies.

Address LEAHY MFG. Co.,
Higginsville, Mo.; or at 1730
South 13th St., Omaha, Neb.;
or at 404 Broadway, East St.
Louis, Illinois.



Bee-Supplies.

We have the best equipped factory in the West. Capacity, one carload a day. We carry the largest stock and greatest variety of everything needed in the apiary, assuring *Best Goods* at the *Lowest Prices*, and prompt shipment. Illustrated catalogue, 72 pages, free.

We also manufacture tanks of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free. Address

E. Kretzmer, Red Oak, Ia.

Page & Lyon,

Mfg. Co.

New London, Wis.

— ••• —

Nearness to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

ORDER EARLY.

There are indications that the demand for supplies will be very large this season, and everyone should order as early as possible. We have large facilities for manufacturing all kinds of *Bee-Keepers' Supplies*, and will serve our customers as quickly as possible.

Falcon sections are the finest made. 1899 catalogue ready Feb. 1st. Copy of the *American Bee-Keeper* (20 pages) sent free. Address

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wired*.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPIROTT BROOK, N. Y.

Hyde's specialties are the

GOLDEN

Italians from the best breeders, and the Holy Lands from best imported stock—the best that knowledge and years of experience can possibly produce. Untested queens of either race, 75 cts.; tested, \$1.50. Discounts on quantities.

Root's goods at bed rock prices, to reduce stock. The Hyde-Scholl separators are the best out—try them. Our motto: "prompt service."

Address, and make orders payable to

O. P. HYDE & SON,

6-99-3t

Hutto, Texas.

Listen! Take my advice and buy your bee supplies of August Weiss; he has tons and tons of the very finest



FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

18



99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.50; 1,000 for \$2.50; 3,000 for \$6.75; 5,000 for \$10.00; 10,000 for \$17.50.

No. 2 sections are not made to order, but when in stock are sold at \$1.50 per M.

J. FORNCROOK,

Watertown,

Wisconsin.

WM. BAMBER.

Of Mt. Pleasant, Mich., has his own saw-mill, and a factory fully equipped with the latest machinery, located right in a pine and basswood region, and can furnish hives, sections, frames, separators, shipping cases, etc., at the lowest possible prices. Making his own foundation enables him to sell very close. Send for samples and prices before buying, and see how you may save money, time and freight. Bee-keepers' supplies of all kinds kept in stock. 5-99-3t

Violin for Sale.

I am advertising for the well known manufacturers of musical instruments, Jno. F. Stratton & Son, of New York, and taking my pay in musical merchandise. I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Stradivarius," Red, French finish, high polish, and real ebony trimmings, price \$14.00. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver shield, ebony screw-head, German silver ferules, and pearl dot in the end, price \$2.50. The case is wood with curved top, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this on fit, and would accept one-half nice, white extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apiarian Supplies. Send for circular. 1-96-6

Please mention the Review.

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1.25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEAXES & MINER; Ronda, N. C.

Make Your Own Hives.

Bee - Keepers

Will save money by using our Foot Power Saw in making their hives, sections and boxes.

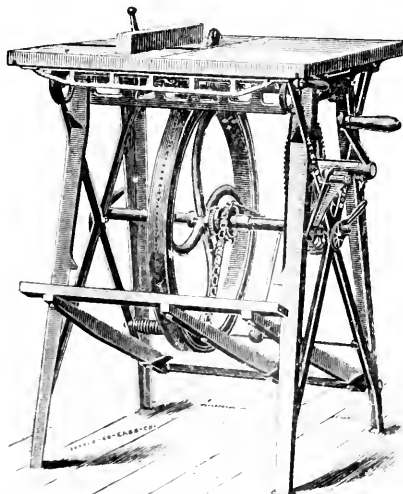
Machines on trial.
Send for Catalogue.

W. F. & JNO. BARNES CO.,

381 Ruby St.,

Rockford, Ills.

11-98 121



COMB

FOUNDATION

WHOLESALE AND RETAIL.

Working wax into foundation, for cash, a specialty. Hives, Sections, and a full line of Supplies. The best of everything. Write for Catalog, with prices, and samples of Foundation and Sections. Beeswax always wanted for cash or trade.

GUS. DITTMER,

10-97-121 Augusta, Wis.

The A. I. Root Co.'s Goods, WHOLESALE AND RETAIL

Please mention the Review

Early Queens, Ready now, at \$1.00 each; after April 15 75 cents each.

six for \$4.25; in May, six for \$3.75. For particulars, send for circulars. Two yards and the nearest location in the United States.

4-99-4f **J. B. CASE, Port Orange, Fla.**

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costellow, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HITCHCOX, Flint, Mich.

A. D. D. Wood, who has had twenty years of experience in the manufacture of comb foundation and the rearing of queens is again manufacturing

Bee-Keepers' Supplies,

at Lansing, Mich. You can have his circular for the asking. Write now. 3-99-4f

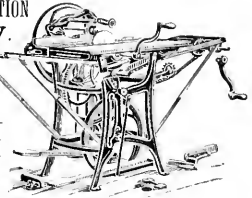
Over 500 PREMIUMS won last year on my Barred, and

white P. Rocks, L.A. Brahmas, Bk. Minors, White, Buff, and Brown Leghorns. Stock for sale. Eggs, \$1.00 for 13; \$2.00 for 30; \$5.00 for 100. Send for circular.

10-51 **CHAS. RUE, Minerva, Ohio.**

UNION COMBINATION SAW.

For ripping, cross-cutting, mitering, libbetting, grooving, gaining, boring, scroll-sawing, edge molding, beading etc. Full line of foot and hand power machinery. Send for catalogue A. 1-99-121



Seneca Falls Mfg. Co.

48 Water St., Seneca Falls N. Y.

Please mention the Review

Free

Bee Books and subscriptions to Bee Journals given with orders for Supplies. Sections, Foundation Shipping Cases and Hives.

Send for list; free.

W. D. SOPER, Box 565, Jackson, Mich.

1-99-11 *Please mention the Review.*

Silver Gray

Carniolan Queens.

—ALSO THE—

Golden and 3-banded Italian.

Untested, 50 cts. each; tested, 75 cts. Purity of stock and safe arrival guaranteed.

5-99-4f **C. B. BANKSTON, Rockdale, Tex.**

Please mention the Review.

JOHN F. STRATTON'S CELEBRATED GUITARS,



Importer of and Wholesale Dealer in all kinds of **MUSICAL MERCHANDISE,** 811, 813, 815, 817 East 9th St., New York

Please mention the Review.

There is a Difference in Bees.



Every owner of a large apiary knows this - knows that some colonies store more honey than others, that some are more easy than others to handle, that some are more hardy and winter better than others. For years we have been breeding up a strain of Italian bees possessing these desirable qualities in a high degree. Reports from customers prove our success. A trial order will convince. Tested queens, by return mail at \$1.00 each.

J. W. K. SHAW & CO., Loreauville, La.

3-99-3f





A SPRIG OF BASSWOOD IN FULL BLOOM.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers

\$1.00 A YEAR

W. Z. HUTCHINSON, Editor and Proprietor.

VOL. XI. FLINT MICHIGAN, JULY 10 1899. NO 7

General Correspondence.

BASSWOOD.

The Grandest of Honey Plants is Passing
Away. Planting it for Honey
Not Profitable. One Little
Suggestion.

W. Z. HUTCHINSON.



day, when the nectar all but drips from your waxy, fragrant petals, and watch the bees as they leave their hives with quick, upward sweeps, and return so heavily laden that many fall short of the entrance, rest a moment, and then crawl wearily in; to find each breath actually redolent with

the aroma of newly gathered nectar; to look up and see, clearly outlined against the blue sky, an intricate, mazy network of dark, circling lines drawn by the busy workers as they eagerly go and come; to listen to the myriads of tiny wings; to thus stand, and gaze, and listen, is to have come stealing over one a feeling of enthusiastic admiration. To open the hives, and find super after super full of dainty, white combs glistening with their wealth of rich honey that awaits only the snowy capping before being added to the rapidly growing pile in the honey-house—all this is the acme of bee-keeping bliss.

Pictures must have their shadows as well as their "high lights;" and the one that I have drawn is no exception. When I began bee-keeping, some twenty or more years ago, my bees enjoyed an unlimited basswood-range; some of the trees being so near that the orange-like odor from the blossoms was often wafted over the apiary. Now it is doubtful if more than half a dozen basswoods could be found within a mile of that spot. The first few years that I kept bees, basswood furnished more honey than all other sources combined; during the last few years it has furnished practically nothing. It can all be told in three words "The woodman's ax."

From first to last there has been considerable talk about the planting of basswood for honey, but, aside from the planting of a few trees for shade or ornamental purposes, I know of only one, real, practical experiment in that line, and that was begun nearly thirty years ago by our Medina friend, Mr. A. I. Root. Wishing to know all of the particulars regarding this experiment, and how it was looked upon after all these years had passed, I wrote to Mr. E. R. Root. He turned the letter over to his father, who replied as follows:—

Our ten acres of basswood orchard were planted in the spring of 1873. There were about 4000 trees, and they were taken up from the forest. They were put about a rod apart, each way, and there was very little trouble in getting them to live. The ground was cultivated for two years after they were put out. No other crops have been grown since the trees were planted on the ground; and, in fact, it would not be possible to grow a crop there, for many of them are a foot through down near the ground. We can not tell exactly how many pounds of honey this bit of forest yields; but our apiary located among the basswoods has given a much larger yield of honey than our home apiary, about two miles away. The trees have never blossomed as fully as I was led to suppose they would at the present age. Almost every season there will be a tree here and there loaded with blossoms; but there will be others that do not seem to blossom at all, or to only a limited extent. The piece of land was called very poor at the time I bought it. In fact, it had been rented and crowded to such an extent, without any effort to improve the soil, that it was considered almost worthless for farming purposes. Another thing, it was low and wet, and some of the trees were injured, and some killed by water standing on the ground, until I took the trouble to make ditches to let off the surplus water during a rainy time. While the basswood thrives best near running streams, or in springy places, it will not stand having its roots, for any length of time, in standing water. I figured on having the ground underdrained before the trees were planted; but on consulting experts in regard to the cost of doing the work, I decided it was a more expensive job than I could afford; but I am very sorry now that I did not have enough large open ditches made to take

off the surplus water. This was done after several years, when I discovered the trees were not making much headway.

On a few favored spots where the water could get away, these large trees I spoke of are to be found; and I think it is these that furnish the greater part of the blossoms.

A. I. ROOT.

Accompanying the foregoing was a letter from E. R. Root, from which I make the following extract:—

I referred your letter of several days ago about the basswood orchard to A. I. R., and he has drawn off the enclosed, and from this you can get such information as you desire; but there is one point that I think perhaps he has not sufficiently covered, and that is that the orchard cannot be regarded as a real success; doubtless owing to the fact that it is on poor ground and not underdrained, as stated in the type written matter. Another thing, the trees were allowed to let the shoots grow around them. This, I think, was a mistake, for the main body tree is little if any larger than some of the shoots that seem to have taken the life and strength of the original tree. In late years I do not remember that there has been more than one tree in a dozen that would have any bloom on it. If the orchard had been planted on good ground well drained, the result I presume would have been different.

The only really feasible plan whereby a bee-keeper can secure basswood pasture for his bees, and be assured that it will not be cut away in a few years, is to own the land upon which the basswood grows. I have seen portions of the country where basswoods were very numerous. I have seen acres, and acres, and acres, in Isabella Co., Michigan, where it seemed as though one-half the trees were basswoods. Even eighty acres of *such* forest would furnish an abundant basswood harvest for a large apiary. Let no one think of going to Isabella Co. with the expectations of finding those basswoods, as they have long since passed away; but there are still some localities in Northern Michigan where lands well covered with basswoods can be bought at low prices. To me there would be an indescribable charm in going into one of these northern counties, buying a tract of basswood, and es-

tablishing an apiary. Of course, I should look out for other sources of pasturage aside from that of basswood; and if the basswoods should happen to be interspersed with sugar maples, the location would be doubly sweet.

FLINT, Mich., May 20, 1899.



SELLING HONEY.

How Printer's Ink can be made to help in the Matter. Securing the Custom of Wealthy People.

C. DAVENPORT.

THE editor has suggested an article from me upon the marketing of honey; but so much has already been written upon this subject by others more able than myself, that I doubt if I can say anything new in regard to the matter that will be of much interest or benefit to others. My own crop is disposed of in various ways; and I have never found much trouble in finding a market for first-class honey, without the help of commission men. What dealings I have had with commission men, however, have been very satisfactory.

One great difficulty that most of us have to contend with, in regard to marketing our product, is the great difference in the amount and quality of the honey we get in different seasons. If I could get 10,000 pounds each season, of almost any kind of honey, by once finding customers for that kind of honey, I could hold most of these customers right along; but if I get that amount one season, and the next only half the amount, and that, perhaps, of a different kind, only half of the trade previously worked up can be held. So far as buying of other beekeepers, to hold the trade, is concerned, I have not been able to make it pay; that is, in a large way, when selling again at the general market price. Two

years ago, through the dishonesty of a bee-keeper, I lost nearly fifty dollars in one transaction of this kind.

For the last few years I have not peddled, nor personally asked any private individual or family to buy honey. I have quite a home-trade, however, selling annually at the house, about three hundred dollars worth. Besides this, I carry to families who have for years bought of me a case or two of comb honey, or anywhere from 20 to 100 pounds of extracted.

By far the most effective method of working up or developing the home market that I have found is that of advertising in the local papers; and my own success in this line, if success it can be called, is largely due to this means. Of course, it is easier to sell, and to hold customers, if one has a first-class article of white honey, but I find little difficulty in holding my home-trade with either white, amber or dark. Whatever the kind, it is always thick, and thoroughly ripened or cured. Honey dew I never sell; for such as is gathered in this locality would ruin any kind of market if sold for table use. When I get any of this stuff, I save it for spring and summer feeding, and by this means I am able, some years, to convert it, as it were, into many times its weight of white honey. While it usually causes great mortality among bees when used as winter food, it appears to answer as well for brood rearing as the best white honey.

To show what can be done in selling honey, by means of local newspaper advertising, I will relate how I disposed of over 4,000 pounds a few years ago by this means. That year I ran quite a number of colonies for extracted honey. After the white flow there was considerable amber and dark surplus gathered; and I put extracting supers on a large number of colonies that had been run for comb honey during the white flow. After supplying my regular customers I still had between four and five thousand pounds of this mixed, amber and dark,

extracted honey. It was nice and thick and of good flavor but the best offer I could get on it in a wholesale way was 4½ cents delivered in 60-pound tins at Chicago. At that time, after paying for the cans and the freight, it would have netted me only a little over three cents a pound. My home-market appeared to be glutted with honey; and numerous bee-keepers were scouring the country; cutting prices and trying to out-sell and under-sell one another. Some of them thought nothing of driving 25 or 30 miles. I thought it doubtful if the amount that I had could be sold in the home-market, even by the most liberal advertising; but resolved to try the matter in a larger way than I ever had before. I had never used any local papers before, except those in my nearest town; but I now had notices inserted in a number of papers in nearby towns; and took care to have them put in a prominent place so they would not be over-looked. As I remember it, the wording was about as follows:

Honey.

In order to meet all competition, I am going to sell, while it lasts, 18 pounds of extracted honey for one dollar. The honey is a rich amber color, being gathered from fall flowers, but it is very thick and has a nice flavor. Remember, extracted honey is the clear honey thrown from the combs by a machine; so there is no wood or wax to pay for.

Right below this was the following, signed by the leading banking firm of the town.

\$100 Reward!

We will pay the above amount any time within one month if any honey sold by C. Davenport is adulterated in any way or manner; or, in other words, if it is not pure nectar gathered by bees from flowers.

This gave people perfect confidence in the purity of the honey and cost me nothing, aside from the advertisement, as I had a few hundred dollars lying idle at the time; and, by depositing the money in their bank, the bankers allowed the notice to be inserted. I gave them to

understand that if any one asserted that the honey was adulterated, I wanted ample opportunity to prove that it was *not*.

I not only sold what I had, but also about 500 pounds more that I bought. Many came twenty miles, or more; and, in many instances, when people came from a distance their friends and neighbors would send by them. I remember one lady who took nearly 400 pounds. There is something about newspaper advertising that is more effective than personal soliciting; for, besides covering the ground more thoroughly, it gives people a better chance to decide whether to buy or not, as it allows all members of the family to have their say in regard to the matter; and, if they have not the money just at the time, they may have it a short time later; and many may come for, or order, honey that one would not have been able to sell to if one was peddling from house to house. If a bee-keeper's time is worth anything at all, newspaper advertising is cheaper than peddling; as the rate charged by local papers is very low; and, in almost all cases I have been able to pay these advertising bills in honey.

In the instance mentioned, what I secured over five cents a pound, more than paid for all the advertising and interest on what money I had lying in the banks as a guarantee that the honey was pure; which left me about eighty dollars more than I could have got for the honey at wholesale. Of course, the same results could not be secured in all localities. My part of the State is well settled with a class of people who are mostly in such circumstances that they can afford to eat honey if they want it. I believe in charging all the "traffic will bear;" or, in other words, getting all we can for our product; but the lower the price the more can be sold in any home-market; and, before setting a retail price, and then shipping what is not readily sold at this price, to some city market, one should figure the cost of cases, or cans, freight,

commission and risk of damage or leakage in transit.

I have a class of customers who pay me 17 cents apiece for sections that average less than a pound. This trade was secured without any effort on my part; and is among a wealthy class of people who are able and willing to pay more than the general market price for the best. Some years ago a wealthy, city friend of the people where I was boarding, was making them a short visit. There was some extra nice, white clover, comb honey, that I had produced, on the table, and he thought it was the best honey he had ever tasted. He was very fond of honey, and, before leaving, he came over to the home-yard and seemed to take a great interest in all matters relating to the pursuit. I lost about three hours, at a very busy time, explaining things to him. Just as he was leaving he said that, later, he should send for about fifty pounds of the best I had. About three weeks afterwards I was surprised to receive an order from him for over 300 pounds. He had been explaining to his friends what fine honey I produced, and had got a number of them to send with him. Since then, relatives and friends of these people, some of them in other cities, have become regular customers. At that time honey was higher, and 17 cents a section was the regular price, and none of these people have since said anything about paying less. Their only concern seems to be to get the best honey direct from the apiary. Some of them even do not want any foundation to be used in the sections. I gratify them in this so far as possible, by using only starters with a number of colonies. Some of these people take part dark honey, and pay the same price for it; and I am acquainted with some farmers who get three or four cents a dozen above the market price for eggs, and a like amount per pound for butter, from wealthy residents in cities, and I believe that there are many wealthy families in all large cities who would not

mind paying a few cents more per pound for honey, than what it could be bought for in the city market, if they could be sure of getting the very best. I have no doubt that a most profitable trade could be worked up among such a class in most any large city; but their attention would have to be called to the matter in the right way. I have for a number years had a desire to try and work up such a trade, but I have had so much other work to do that it has not been possible for me to try it.

SOUTHERN MINN., May 29, 1899.



CUBA.

It is a Good Honey Country, but it has Decided Drawbacks.

AARON SNYDER.



EDITOR Review: I wish to say a little about Cuba; not only about her honey resources, but about some of the difficulties and unpleasant things with which a stranger will have to contend.

Almost every one who writes is too much inclined to give only the bright side. I think that this is unwise, unfair, and misleading; and may cause disappointments and misfortune. If I should simply say that Cuba is the best honey-country in the world (which is true) and then say nothing about the dark side, it might induce some fellow here to break up his business, take his money and go to Cuba, and there he would find everything, except the honey, so much different from what he expected that he would become homesick and discouraged.

Messrs. Osborn, Poppleton, King, Somerford, Kenyon and myself have all produced honey in Cuba, and all tell about the same story in regard to the quality of the honey, but differ somewhat in regard to the quantity secured from certain plants. Poppleton says, (see Gleanings for December 15, 1898, page 908) that two-thirds or more of the entire crop is from bellflower, which blooms a little more than two months, that the bellflower is followed by the royal palm which yields no surplus, yet it is the only thing that yields honey from May to September, and that many bees will starve if not fed. According to his story it is a mystery to me where they get any surplus except from bellflower. Somerford says (see Gleanings for Feb. 1, page 82) that royal palm yields a steady stream of honey the year around, but it is the color of sorghum and has a twang to it. (Pretty broad, Somerford.)

I was in charge of the Casanova apiary, some twenty miles east of Havana, before Mr. Somerford was there; but it is not necessary for me to say much about the honey, because it is a settled fact that Cuba is a great honey producing country—it's the other things there that I wish to write about.

Of all the American bee-keepers who have tried their luck in Cuba, only one, and that is Osborn, has remained in Cuba; and Kenyon told me that Osborn could not get back. Kenyon ought to know, as he helped Osborn a long time. We came back home because we found things so different from what we had expected to find them. In the first place, all of the people there speak the Spanish language. Just consider how miserable one would feel in such a place. Then there is no end to the insects, such as fleas and jiggers, etc.

Scorpions are often found under any old piece of board, or cloth, among fruit, or even in your shoes. Tarantulas are also too plentiful for comfort. Snakes are not so very plentiful, but there are some good sized ones. I saw one over

twelve feet long. Oxen are used instead of horses; and, instead of the yoke lying across the necks of the oxen, it is tied to their horns right on top of their heads. All the team that we had was a one-eared jack. I wonder if Somerford remembers seeing him. He was a dandy. In dry weather the roads are very bad on account of the dust which is very loose and deep. Then when it rains the mud is also "loose and deep." When I was there the weather was splendid. It rained just enough to make vegetation boom; and when that booms the bees boom. The bellflower was in its glory, and it seemed as though there was actually no end to the honey. The weather was pretty hot, but the hives (500 of them) were under great long sheds where the sun never struck them, and we worked between the two rows which faced out from in under the sheds. In the afternoon there was a nice sea breeze which made it cool. There was plenty of fruit, such as bananas, oranges, pineapples, lemons, yams, etc., and we had good water by going after it about a mile and a half to a spring away up in the woods.

I do not notice as Mr. Poppleton mentions foul brood, but King told me all about it before I went. Somerford speaks about it as being very bad, and lots of it; and that is correct. I did not battle with it very much, as I was not there long enough.

If there is any man who is thinking of throwing up his business in the United States, and going to Cuba to produce honey, I would advise him to leave his family at home under the protection of Uncle Samuel. Let him stay in Cuba at least six months. A year would be better. Then if he thinks it wise to bring the good wife and children down there, where it is hot, hot, hot, every day in the year, with no let-up, all right. It is my opinion, however, that there will not be one man in ten who will not wish, at the end of six months, that he had left *himself* at home. During my bee-keeping life I have been hunting

about quite a little to find a good honey location combined with a good market. I have spent two summers in Virginia, one in Louisiana and one in Cuba, and, taking everything into consideration, New York State suits me about the best of any place I have seen.

KINGSTON, N. Y. Feb. 11, 1899.



Good things From Other Journals.

CONTROLLED FERTILIZATION OF QUEENS.

INTRODUCTION OF QUEENS.

In looking over the last number of the Canadian Bee Journal I noticed, on page 531, the heading to an article written by W. A. Whitney, which reads, "Control of the Fertilization of Queens;" and, as I had often wished there was some surer way of accomplishing this very desirable result, I read the brief article with interest; and presuming all who have trouble in getting their queens fertilized as they want them will be interested in this subject, I lay it before your readers. Here is what he says:

I have just visited the apiary of Mr. J. A. Holmberg of this city, and as he gave me what I consider a new idea in the fertilization of queens, I will give you and, perhaps your readers, a brief account of his plans. How to prevent Italian, virgin queens from becoming fertilized by black or inferior drones has always been a difficult problem for bee-keepers. Mr. Holmberg thinks he has succeeded in solving it, and he says he has so far been entirely successful. He practices Doolittle's plan in raising queens. His nuclei are supported, not only with nursing bees but with a good supply of drones. He removes the nucleus to his cellar where he leaves it well supplied with honey for about three days. He then, at 5:30 P. M., after all outside drones have returned to the hives, brings out his nucleus, when the virgin queen and drones will at once rush out for a flight after their long confinement. After their return the queen is

examined and if she does not show evidence of having met the drones, the operation is repeated and she is given another chance at the same hour on the following day. Now I do not know whether you have heard of this plan or whether you have faith in its efficacy, but I thought I would write you about it, and if you have any use for it in the C. B. J., use it. Mr. Holmberg has a way of introducing queens that is, as he says, very successful. The old queen is caged and placed on the top of the frames for two or three hours. Then she is destroyed and the new queen is put in the same cage which is placed in the same place on the frames. After an hour she is released, when she is accepted readily. The bees think she is their old queen, now having the odor of the old one gathered from the cage and her position over the bees. He says the plan is a good one in his practice.

In his comments on the above, editor Holterman of the C. B. J., says:

"The above idea is new to me and I have never heard it mentioned at any of the bee-keepers' conventions I have attended. The method given of controlling fertilization appears to me very reasonable, and I believe your article and Mr. Holmberg's experience valuable."

I have several times tried the plan that has been so often recommended of keeping virgin queens and the drones I wished to have meet them shut in their hives from 9 A. M. till drones had ceased flying for the day, but for some reason I didn't make much of a success of it. The young queens and drones were uneasy, fretting and stewing to get out for a flight, and now I wonder that I didn't have gumption enough to do as Mr. Holmberg does.

If I sold a colony of bees to be called for the next day, or some other future time, I knew enough when the bees were fastened in to set the hive in as cool a place in the shade as was possible, or, if convenient, and I was uncertain at what time during the day the colony would be taken away, I set it in the darkened cellar, but I didn't have sense enough to serve drones and virgin queens the same way, but have allowed a "blasted" Canadian to get the start of me; but I don't owe him enough of a grudge to wish that his plan may prove a failure. No sir, ee: I hope it

will prove a "howling" success, so that us "small fry" with more than a plenty of black drones all about us, may be able to get our queens fertilized more to our notion of what we want. It seems to me that Mr. Holmberg's method of introducing queens is an improvement on other methods, and if the old queen, or the one to be removed, should for any reason be left caged for a day or more, I presume there would be no harm done; and if when the new queen, or the one to be introduced, is caged, the cage is so fixed with Good food or something that the bees would remove in a few hours it would save the trouble of again opening the hive to release the queen, when perhaps the bee-keeper is very busy and every moment of time worth "its weight in gold," or more, or he obliged to be away from the region of the apiary for days.

I notice Mr. Whitney says, "I have just visited the apiary of Mr. J. A. Holmberg of this city," and when I looked to see what city he meant I couldn't find any thing to give me an inkling of its location, and it occurs to me that I may after all have "put my foot in it" by even *assuming* that it is a Canadian city, and that Mr. Holmberg is a Canadian, and I *almost* wish that all the Canadians, especially those in what was known as "Upper Canada" when I studied geography in my younger days, were your uncle Sam's boys, because I like his boys a little the best, although there are some grand and noble ones in the Queen's Dominion.

FAC SIMILE SIGNATURE—GIVING THE ADDRESSES OF CORRESPONDENTS.

In this connection I'm glad to see our versatile Doolittle express his views on page 81 of the May number of "The American Bee-Keeper." In speaking of how much like letters from personal friends it makes the article in the Bee-Keeper seem when the *fac simile* signature of the writer is given instead of the signature in "cold type," he goes on to say:

When you give the full post office address, it tells me just where they are, just

the same as they do when writing to me personally and expecting a reply. And if I wish to know something further of the matter which they write about I have it in my power to write them without first writing you, Mr. Editor, to find out their post office address, thus taking your time, my time and two extra stamps to get the chance to ask them something further regarding the matter they have written about, of which I am longing to know. But I hear someone reply that this course will bring a host of questions to the writers for your paper, many of the questions not even enclosing a stamp for the reply they expect to get, which is such a bore to those who write for publication that multitudes of our best bee-keepers will not write at all just on this account. Yes, nearly thirty years of answering questions in this way causes me to know that lots of questions will be asked, and many's the man who asks questions to the amount of from one to eight or ten pages of foolscap without even enclosing a stamp, which verifies the correctness of the above. But there is one point these objectors to questions forget, which is, that if the one answering improves upon every opportunity for bee-knowledge coming to him, as they should, then will enough new ideas come to him through these questions, or some comment by the one asking them, or to himself in studying for an answer, to more than pay for the time and stamps used in answering them. Quite a good deal of the knowledge of bees possessed by the writer of this has come to him through the multitude of questions that has been asked of him during over a quarter of a century. Sometimes when sitting up tired and weary, till nearly the small, wee hours of the night, answering questions, I am almost led to exclaim with one of old, "I pray thee have me excused," but when I open that little box having some fifteen or twenty letters from Elisha Gallup filled with answers to questions of mine, sent him during the early 70's, when my "tender feet" were feeling for the practical road of apiculture, and fully realize that it was just those answers, "without money and without price," save the few stamps I sent him, which, more largely than any thing else, shaped my bee-keeping course, I am ashamed of myself for ever being the least bit weary in answering questions. The Master said, "Freely ye have received, freely give."

I am glad that our friend Doolittle is pleased with the *fac simile* signatures

that appear in the Bee-Keeper; but I'm quite sure if some of them had been written as the letters and signatures of some I have received, he'd wish the *whole thing* was down in "cold type." Now, mind you, I don't say that applies to any of those that have appeared in the Bee-Keeper for I don't want to tempt any of those writers to have bad thoughts, but I sincerely hope none of our other bee journals will follow the Bee-Keeper in this "*fac simile*" business.

What a blessing the type writer is to us poor readers. I once complained to a correspondent (but I'll not tell you he was the editor of one of our best bee-journals) because of his very poor penmanship, and would you believe he intimated that "people living in glass houses shouldn't throw stones," and then added that if I knew how much he had to suffer because of his wife's fault finding with his writing he was sure I wouldn't complain.

Well, he uses a type writer now; but I recently received a business letter from him, written in a beautiful feminine hand, and I supposed his *old* type writer had given out and he had pressed a *new* style into service, dreading to send me another of his own "scrawls." I have since learned that his wife was the new type writer, and I don't wonder that she made him suffer for his poor writing in former times.

If Bro. Doolittle had referred to "cold type" in pictures, having in mind one that appeared in a leading bee-journal less than six months ago, I wouldn't have said a word. I hadn't seen the original of the picture since Aug. '97, and I thought it could hardly be possible that he had become so much of a "bummer" in appearance in so short a time, while his writings bore the same distinctive marks, in most respects, of a clean physical and mental make up as formerly.

Either he or others are *now* showing a sort of mental aberration regarding trusts, monopolies, etc.) I believe if I'd been editor of that journal, and knew as

well as he did how Bro. Doolittle looks, I'd suppressed the whole edition. But perhaps "ye editor" had a grudge against myself and one other bee-keeper and got up that picture on purpose for our benefit, and printed it only in the copies he sent us. At any rate, I hope so.

I agree with Bro. Doolittle as to the desirability of having a writer's "full post office address," and the objection that it "will bring a host of questions to the writers, many of the questioners not even enclosing a stamp for reply," has little if any weight; and "that multitudes of our best bee-keepers will not write at all just on this account" I don't believe is true. In *my* experience it has been the *exception* that a stamp has not been enclosed when the desired information is of benefit to the questioner; and if such a one omits the stamp I usually suggest in my reply that a "stamp for reply" was not enclosed and that *always* brings the stamp.

We are not all in this world to *get* good but to *do* good as we have opportunity, and for any one to say that a "multitude of our best bee-keepers" are so "tied up in themselves" is a slander on the grand men of our fraternity.

The first time I saw that one of Bro. Doolittle's articles came from Onondago Co., I wondered if he had changed his place of residence, and left his "old stamping ground" at Borodino; and when I saw that our dear Prof. Cook had changed from Claremont Calif. to Los Angeles Co., Calif., I unearthed a postal guide, and to my extreme satisfaction, found that, like Bro. Doolittle, he was holding forth from the same "home-nest" as before, and I sincerely hope that no more of our bee journals will cease to give their readers the post office addresses of contributors.

STA. B. TOLEDO, Ohio, May 11, 1899.

Notes From Foreign Bee Journals.

BY F. L. THOMPSON.

STRAINING SUGAR SYRUP.

According to the Schweizerische Bienenzzeitung, the poisonous ultramarine in sugar can be entirely removed only by straining the syrup through flannel. Scarcely half can be removed by merely skimming. When honey is lacking, cream of tartar is preferred to tartaric acid to prevent granulation.

THE INVERSION OF CANE SUGAR.

The editor says that very exact tests have shown that a good colony can, at most, satisfactorily invert $2\frac{1}{2}$ lbs. of sugar syrup ($2\frac{3}{4}$ American lbs.) in one night. Therefore he is against the counsel frequently met with to give the bees as much as they will take at once, and for that reason uses a pneumatic feeder holding just $2\frac{1}{2}$ German pounds, over the brood nest. *

He says that when bees are fed sugar, they invariably, for days after, display extraordinary diligence in flying out after pollen, showing that sugar is a deficient food.

WHY HONEY KEEPS BETTER BY BEING BOILED.

The Pfaelzer Bienenzucht is quoted as saying that the reason honey keeps better when heated to the boiling point is that, although the formic acid evaporates, the albuminous ingredients, which are what cause fermentation, are also separated in the foam.

BLOOD, CHYLE, AND BROOD-FOOD, AND THE BEES THAT PREPARE THE LATTER.

Pastor Schoenfeld, the noted microscopist, is a defender of the new school. To

* Query. How is it then that bees can dispose of so much greater quantities of floral nectar per day, which I believe is mostly cane sugar, and yet have it all grape sugar in the end?

the objection made against the theory that bees of different ages feed different ages of brood, that if so, the fact that sometimes old bees feed all ages could not be explained, he replies that the theory is that bees consume honey and pollen in varying proportions, according to their ages, so that the chyle and brood-food varies accordingly; hence, in normal circumstances, it is a very natural supposition. In the case of old bees acting as nurses, we may suppose that bees exercise choice; not, however, in determining whether the completed food shall be of this or that degree of richness—for that, according to the theory, is out of their power—but in the proportions of honey and pollen they consume, in order to prepare the food.

In a sense, he says, chyle, blood, and brood-food are identical in bees. (This is what lends force to Pastor Gerstung's comparison of the various foods of the colony, from nectar to royal jelly, to the blood circulation of an organism.) Chyle in bees is formed by but one organ, the stomach, not as in other animals by the aid of the intestines. The difference between chyle and blood is not so marked as in higher animals; so that bee-blood may be viewed as refined chyle. But this same chyle, when disgorged and mingled with the secretions of the head glands, is brood-food.

THE INFLUENCE OF FOOD IN CONTROLLING SEX.

The discussion on Prof. Scenk's theory of the influence of food in the production of sex suggests to Gerstung that a consideration of its possible influence in the case of bees may be profitable. It may be inferred, from a study of Dr. de Planta's analysis of brood-foods, that the tendency of the nutriment in bees lies in the production of females by an easily digestible mixture of certain proportions of albumen, fat, and sugar in scanty quantities, and in the production of males by greater proportions of albumen and fat, and less of sugar, in an undigested

or raw form. Should such a law be true, it may apply to other animals as well. But he considers the matter rather dubious, for the decisive power may not reside so much in the nutriment, as in its assimilation by cells and organs; and he also calls attention to the higher biological law, whereby the organism is so disposed that the sex which is most needed at a given time is then produced.

SIZE OF FRAMES AND THE WINTERING OF BEES.

Among winter days that are critical for the bees, the editor includes warm, sunny days about the end of November or December, inducing the bees to fly, thus causing subsequently a greater consumption of the strip of honey above the cluster than would otherwise be the case. The most critical day he considers that day on which the bees have eaten away all the honey above their heads; for he has no faith in the winter promenades which the old school attributes to the cluster. For this reason he has adopted a large frame, since the normal German frame, which is nearly the L. frame set on end, does not contain enough honey to suit him. Like most Germans, however, he prefers the "warm position" of the combs, *i. e.*, frames parallel to the entrance. He calls the L. frame "murderous," says the cellar wintering of the Americans, which such a frame necessitates, is "always attended with great loss," and that everywhere in America there is a movement to introduce a larger frame. The fact is, as we all know, that experienced bee-keepers are fairly successful in cellar wintering, often having little or no loss, and that anything like a deep frame movement here could be called sporadic at present.

Elsewhere he says that a series of articles has lately begun in the American Bee Journal on the organic conception of the colony, which, according to informa-

* Evidently he does not appreciate the better filling of the combs in the brood-chamber which results from the production of comb honey, and renders depth of less importance for that purpose (though still a factor no doubt). In Germany, extracted honey is the rule.

tion that has reached him, is arousing the interest of American bee-keepers in an extraordinary degree. But one short article on the subject has appeared in that periodical, which has up to date excited no comment. But don't laugh. I remember reading something like this in the Bee Keeper's Quarterly: "Expert foreign bee-keepers are laughing at the idea of some alleged inferiority in the Heddon hive."

A UNIQUE BUT USEFUL METHOD OF JUDGING AT FAIRS.

Pastor Warnstorff reports that in contending for premiums at exhibitions in Switzerland, bee-supply houses, queen-breeders, etc., will in the future be judged not only by the quality of their wares, but also by the manner in which they serve their customers at all times.

MONTROSE, Colo., Oct. 9, 1898.

Department of Criticism

CONDUCTED BY R. L. TAYLOR.

Blame where you must, be candid where you can,
And be each critic the Good-natured Man.
GOLDSMITH.

DOCTOR MILLER.

In the Review for May, 136, the doctor re-threshes much straw which I do not propose to handle again at present; but I wish to set the doctor right in a point or two. He says I give him credit for skill in the use of language. Yes, but the possession of skill does not imply that it is always exercised. On page 137 he says if a writer finds a word in a reputable dictionary he ought to be allowed to use it as there given. Certainly, and no one I hope proposes to deprive the doctor of that right. But hasn't another person a right to object to the use of the word? The doctor would strengthen his position "by a lady of good literary

reputation" and by the Daily Record. Isn't it an anti-climax to quote a daily paper to strengthen the position of a reputable dictionary? And as to writers of reputation, must they always be blindly followed? Such famous writers as Henry Cabot Lodge and Richard Harding Davis in the May No. of Harper's Magazine each uses the expression "he appears badly," or one grammatically similar; may we therefore properly use such expressions? The doctor says "I don't believe a single dictionary condemns it. They may not contain it" etc. The silence of a dictionary concerning a word in contemporary use is the weightiest possible condemnation of it. How odd I wonder is the doctor's "unabridged." On page 138 the doctor runs up against "sic" again. I would not have used the word again but I supposed the doctor would see the fault at once and not call for further explanation. Since he has not done so I shall have to say that "into" is used after verbs of motion to signify the entering a place, "in" after verbs of motion or rest within a place. Example: He went into a carriage and drove in it five miles.

The fatherly concern of the doctor about the "internal" affairs of the Review and about the course I pursue in writing my criticisms are really touching. (Review, 170.) For a year or thereabouts he has been greatly exercised because I do not devote more time to the criticism of the Review. I thought he would become reconciled after awhile and permit me to follow my own judgment in peace, but as he does not, hoping to lay his anxiety, I shall out of kindness to him devote this entire article to the Review; though I protest I do not exactly see why the doctor should assume to dictate what I shall criticise and how I shall do it. He also at the same page repeats his intimations concerning my correctness and unfairness. This too he has kept up for about a year. Assertions are cheap. Proved facts and valid arguments are much more costly. Besides, if

I were to retaliate in kind I should feel that I was wasting a good deal of valuable space.

THE PROOF READER.

Said reader must have had something else on his mind when correcting the matter for the Review for June. In the fifth line of my article he makes me say "he took" instead of "I take." In my quotation from Stenog. in the third paragraph he makes it read "the latest and best" instead of the "latest and by far the the largest." On page 180, line four, second column, should read "In investigating" instead of "In investing."

A. C. MILLER'S METHOD OF PREVENTING SWARMING.

Mr. Miller's plan is ingenious, but I am in doubt whether it is entirely successful, even with him; for he speaks of some colonies that will not go according to rule. In any case, I question the desirability of it. He speaks of the extra hives and escape-boards; but much more important, it seems to me, is the fact that there must be a large number of combs taken from the colonies that have to be cared for. Then there is the finding of the queens, not only in the colonies that are going to swarm, but what is more portentous, in the colonies that are deemed liable to swarm. My bees have got fairly started swarming, and, in my apiary, are eighty colonies any one of which may swarm tomorrow without creating any surprise. In ten days there will be nearly as many more in the same condition; but it is altogether improbable that more than one in three will swarm at all if they are left entirely to themselves. It does not seem to me desirable to disturb three colonies, as Mr. Miller's plan would require, in order to prevent one from swarming. Then when I contemplate the shutting up of hives full of brood, large amounts of which is not yet mature enough to be capped, with the supply of water and nectar entirely cut off during the hot weather of summer, I am surprised that Mr. Miller had the cour-

age to practice such a plan. It seems to me that not only must much brood perish from want of proper food, but also that much must be destroyed by the bees to obtain moisture to satisfy their thirst.

CELLAR TEMPERATURE FOR WINTERING.

In the Review, 168-9, Mr. Getaz, in discussing the above topic, says "the universal verdict is that 40° is the right temperature." I should have said that that verdict is 45° , or from 42° to 44° . Then he discusses the question whether the temperature that is right for small colonies is not too high for large colonies. It would be, undoubtedly, but not to the extent Mr. Getaz imagines, I think, when he intimates that it might be necessary to bring it down to 20° or less. So far as I can see, I practically meet the difficulty by placing the heaviest colonies near the cellar floor, without bottom-boards, and the lightest near the ceiling with bottom-boards.

SHALL WE CLIP THE QUEENS?

Dr. Mason (Review, 113) is enthusiastic in praise of queen-clipping, and cites a host who are with him. I was once with him, and would be still were it not for the queen-trap which I now prefer to clipping, for the control of the queen. If account is made of the time necessarily required for the finding of queens, the use of the trap will be found much the cheaper method. Besides that, I find several other advantages in its use. First; no queens will be lost or make trouble in neighboring hives when no one is present. Second; the presence of a queen in a trap will always reveal the fact that a swarm has issued; thereby giving the apiarist an opportunity to deal with the colony so as to prevent a recurrence of the swarming. Third; generally a swarm unattended by its queen, if the apiarist is expecting other swarms to issue, is an exasperatingly long time looking for the queen before it decides either to cluster or to return. In such a case I find it a decided convenience to have the queen unclipped;

for, by letting her loose with the swarm, the bees settle and become quiet at once; thus leaving a clear field for the next swarm. Fourth; clipping does not provide against the loss of swarms led by young queens recently reared for the purpose of supersedure, or on account of the loss of the old queen. I am unable to see that clipping has any decided advantage over traps in any particular; while the trap has several decided advantages over clipping.

SOLAR WAX-EXTRACTOR COVER.

I notice in the cut of the extractor in the Review, 107, that the cover is on hinges. I should not like that feature; and I think any one must find it inconvenient. My solar extractor has a sliding cover which is fastened on with a hook and staple at each end. It slides up or down little or much as circumstances require.

PROPOLIS AND WAX.

Mr. A. C. Miller intimates (Review 106) that propolis is apt to mix with wax in boiling. I pointed out, some months ago, that this idea is probably entirely erroneous. I think it never melts in water; else how could it be used instead of solder to stop a leak in the boiling-vessel? Besides, being heavier than water it sinks.

LAPER, Mich., June 15, 1899.



EDITORIAL offerings.

THE LOAD always seems the heaviest when you have nearly reached the top of the hill.—*Farm Journal*.

"ONE DOLLAR enclosed to pay for the Review. Bro. Hutchinson, you have taken *advantage* of your readers; you have made the Review so good that they can't do without it."—J. T. HAIRSTON.

THE POST OFFICE ADDRESS attached to an article is a source of satisfaction to the reader, and often a convenience if correspondence is desired. If a correspondent desires that his address be withheld, his wish should be regarded; otherwise there is better satisfaction all around if the address is published with the article.

A CAUTION is needed in regard to introducing queens by the method described in the last Review. Don't use newly built comb for caging the queen upon its surface, as the bees may burrow under the edge of the cage, and kill the queen. Such a case has been reported to me recently. Of course, this trouble might not happen once in fifty times, but it is just as well to use old comb and thus avoid this fiftieth time.

GLEANINGS for June 15 gives a delightful view of an apiary at Rocky Ford, Colorado. The picture goes clear across two pages of Gleanings, showing a wide sweep of country covered with bee hives, (certainly larger than any apiary I have ever seen) with a large stack of alfalfa and the owner's residence in the distance. I think I have enjoyed this picture as much as I have any that Gleanings has given. The apiary belongs to George Gould.

HORSES are sometimes stung by being hitched too near an apiary. When it is necessary to hitch them in this manner at a time when there is a disposition on the part of the bees to make trouble, all danger from this source may be avoided by making a good smudge to the windward of the team, so that the smoke will blow over and around the horses. Any convenient material may be used for this purpose—dry horse manure will make an abundance of smoke. Mr. F. L. Thompson writes of this in the Progressive; say-

ing that he learned the plan of a Mr. Dinviny of Colorado.

MOVING BEES to take advantage of the buckwheat honey harvest is considered advisable by R. F. Holterman if there are copious showers. Buckwheat does not yield much honey in dry weather. Mr. Holterman would advise holding the hives in readiness, then, if the showers come, move the bees.

THE POOR QUEENS are having a hard time. First doctor Miller tells us that the first-sealed cells in a colony from which a laying queen has been removed are the best queens. Later the bees build cells over larvæ that is too old; and the result is some poor queens. Now Willie Atchley and C. E. Woodward tell us, in the Southland Queen, that it is the poor queens that are capped *first*. They say that they are poor because the cells that are capped first contain older larvæ. Between all hands there is not much chance to get any good queens from a colony that has been deprived of its queen, and allowed to exercise its choice of larvæ for queen rearing. That's about right, too.

TREATMENT OF AFTER-SWARMS.

Mr. Doolittle says, in Gleanings, that he believes that, as a rule, it does not pay to have after-swarming. With the after-swarm goes all hopes of any surplus from the parent colony. He admits that after severe winter-losses that leave hives and combs empty, it may be desirable to re-stock them, even if after-swarms are used for this purpose. He says that the first requisite towards the successful building up of an after-swarm is a comb of brood. It may be nearly a month after the hiving of an after-swarm before any brood hatches out, and the giving of a comb of brood helps wonderfully in

keeping up the strength of the colony until its own bees begin to emerge. If we can give the swarm combs instead of empty frames, and some honey in the combs, the beginning of winter will find us in possession of a more valuable colony than results from the hiving of a prime swarm. The reason is that the queen of the after-swarm will surely be in her prime the next year, while the queen of a prime swarm often begins to weaken and fail before the honey harvest of the next year. If there are no empty combs to give them fill the frames with foundation, even if it costs 75 cents a pound. If lacking in stores when the season draws to a close, such colonies must be fed the same as any colony that is short of stores; and this should be done just as soon as it is seen that there is no possibility for the bees to add to their stores from natural sources.

SIZE OF HIVES.

Gleanings is still discussing this subject; and its editor feels as though we were only getting down to facts, now, after all this talking. Reading between the lines, it looks as though my Medina co-worker were hankering to try a great, big, large, hive; and, as the advertisements say, "he won't be happy until he gets (tries) it."

In the American Bee Journal for June 22, the Query Department takes up this matter by asking "Which will give the apiarist the better results, 80 colonies on 8 frames, or 40 colonies on 16 frames, in two stories, time, labor and expense being equally computed?" Sixteen of the Senators vote for the 8-frame hives; five for the 16-framers; and ten give qualified answers. I never thought much of these "stand up and be counted" ways of deciding such questions. A man may use and believe in a small hive, but that does not prove that it is the best hive for him to use. Give us the reasons, gentlemen, and we can think about it for ourselves,

Some of the answers to this query are very good. The Dadants and J. A. Stone say that 8 frames are too few, and 16 too many. G. M. Doolittle says that 8 frames are all right for comb honey production; 16 all right for producing extracted honey.

ANTS are sometimes a nuisance in a honey house. Prof. Cook writes to the American Bee Journal that corrosive sublimate and buhach, or insect powder, are the best substances to repel them. The corrosive sublimate may be brushed along the floor where the ants enter; or strings may be dipped into it and laid along where they will obstruct the ants' path. Dusting with the buhach also clears them out; but the treatment may have to be repeated every week or two. Years ago the ants were very troublesome in my honey-house, and I built a platform for honey, and had the supports to the platform rest in dishes of water. This answered for awhile; then a sort of scum formed over the top of the water, and the ants walked over dry-shod. Then I put kerosene oil in the dishes, and my troubles were over.

APPLE TREES FOR SHADING HIVES.

Mr. E. R. Root, in commenting upon my picture and article of last month upon shade for bees, says that he regards apple trees, or any fruit trees with low, spreading branches, as the ideal shade. They afford comfort for the bee-keeper as well as for the bees. This is all true; and I agree with my Medina friend. If we have such trees, of the right size, and quantity, and in the right position, they are all right. If we have them not, and must resort to what might be termed an artificial shade, I know of nothing better than the shade-board, two by three feet in size. Mr. Root says he should judge that the picture of the hive given in last Review was taken in the forenoon and

that the hive was facing the east. No; it faces the west, and the picture was taken about three o'clock in the afternoon. Just as he says, the board projects about one foot to the front of the hive, and four or five inches over the east end of the hive. The sun is seldom hot enough before eleven o'clock to cause the bees much inconvenience, and it remains wholly shaded until about three in the afternoon. So far as the bees are concerned, such a shade is all that is needed; but I am more than willing to admit that great comfort comes to the operator from the wide spreading boughs of an old apple tree.



THE LEAKAGE of honey from a package sealed with a rubber ring, as in the case of a Mason fruit-jar, may be prevented by dipping the rings in hot beeswax. This I learn from an article contributed to the American Bee Journal by C. Davenport. I think any one who has tried putting up honey in Mason jars has learned that if the jar is tipped up enough so that the honey gets in upon the rubber, it is only a question of time when it will soak through and make the outside of the jar sticky. This attracts flies, and catches and holds dust, and the end is one of unpleasantness. Mr. Davenport has been told that it is the action of the acid in the honey that so changes the character of the rubber that it lets the honey through. Coating the rubber with wax prevents all this.



CAN BEES STING A MAN WHILE HE HOLDS HIS BREATH?

This is an old question revived. It has frequently been asserted that a person while holding his breath can not be stung by bees. I believe that the theory is that holding the breath puts a sort of tension upon the skin, making it too hard and dense for the sting to penetrate. I know that holding the breath makes the muscles more tense. The runner of a

foot-race that is to be a short dash of a few yards, or the man who is going to run and make a long jump, draws in his breath, and away he goes. He does not breath again until the goal is reached. If compelled to breath before reaching the goal, his muscles relax at once, and the probabilities are that he will lose the prize. For ought I know, this same tension may extend to the skin; but I doubt its reaching the degree that would prevent a bee from piercing the armor. Remember, I don't *know* that I am correct. I am simply giving my opinion. There are one or two other points in this connection that it may be well to notice, viz., that a person who stands quiet and still, as he is likely to stand while holding his breath, is much less likely to be attacked than one who is dodging, and striking whenever a bee comes near; and that the breath of a person is very offensive to bees when blown directly upon them. If there is any efficacy in holding the breath, I think that it comes in under these two heads. However, this is one of those points that are interesting enough to theorize about, but have little practical value to the every-day bee-keeper. About the only occasion for him to try holding his breath is when a big crop of honey surprises him to such an extent as to almost take his breath away.



PREVENTING FOUL BROOD.

When the bee-keepers of Illinois were trying to secure the passage of a foul brood law, one of the objections urged against the usefulness of such a law, was the fact that bees in trees had probably carried home the seeds of this disease, and, while we might get rid of the disease in our apiaries, the fact that it still remained in the bee-trees might render all of our cleansing operations of no value. There is a point here, and, I fancy, a large one, too. If there is even *one* bee-tree within half a mile of an apiary, and the bees have perished as the result of

foul brood, isn't there danger that bees from our hives will grub away in these old combs during each period scarcity? I don't say that they *will*, but there is danger of it. Then, again, suppose that the bees do get these old combs so well cleaned up that there is no more temptation to grub in them, the next thing we know is that some wandering swarm finds this cavity and appropriates it. Then it is the same old story over again. Bee-trees containing combs infected with foul brood, are a perpetual menace to the apiaries in their vicinity. With such infected trees in his vicinity, can a man get rid of foul brood in his apiary, and hope to keep it out? If so, how so? Mr. F. L. Thompson, some time ago, recommended the feeding of bees, in times of scarcity, with honey or syrup that had been medicated. The idea is that the medicated honey would be mixed with any infection that was brought in and thus destroy it. There is no danger of bees bringing home the infection during the honey harvest; and the question is, can it be successfully guarded against in times of scarcity? Have there been any experiments in this line? Of course, even the exposure of ordinary food near the apiary in times of scarcity would have a tendency to keep the bees at home, but it could not be depended upon entirely. Who can tell us something definite about this medicated feeding for the purpose proposed?

.....

BOILING FOUL, BROODY HONEY.

In Gleanings for June 15, its editor defends his belief in the necessity for long boiling of foul broody honey, by quoting Mr. Cowan's view of the matter. I believe that Mr. Cowan and other scientists have experimented with the spores of foul brood by boiling them at 212°. So far as I know, there have been no *scientific* experiments made by boiling spores in honey. I believe that Mr. Taylor was the first one to call attention to the fact that honey is a heavier liquid than water,

and requires a higher degree of heat to bring it to the boiling point. Mr. Cowan says he *thinks* (italics mine) that Mr. Root is justified in recommending a long boiling of foul broody honey before feeding it to the bees. I have great respect for Mr. Cowan and his scientific abilities, but I think that *actual facts*, like those reported by Mr. Doolittle in this issue of the Review, should be given preference over the *opinions* even of scientists. For a long time there has been an apparent clash between scientists and the actual facts regarding the length of time that it was necessary to boil foul broody honey to make it safe to feed it to bees. It seems now as though one part of this muddle was going to be cleared up. Scientists have made their cultures from foul brood, and then boiled them at 212°. No one has seemed to think that honey must be made hotter than water must before it will boil. This one fact may reconcile the apparent inconsistency of the whole affair. Scientists tell us that the bees and the queen, and even the eggs laid by a queen of a foul broody colony, are infected; and I have seen with my own eye a microscopic slide upon which had been crushed an egg from a queen taken from a foul broody colony, and it showed traces of the disease. In spite of all this, the *fact* remains that by putting the bees and queen of an infected colony into a new hive and allowing them to build their comb, no traces of the disease appear. This apparent inconsistency may yet be explained as easily as the boiling point has apparently been explained.

.....

CATCH THE SPIRIT OF THE TIMES.

Perhaps I am a little peculiar. I am quite given to following observation with speculation, theorizing and moralizing—to the drawing of lessons from very small circumstances. If a man comes into this town and starts in some business that is really overdone—and actually proceeds to take business right away from men who

have been here for years, I am interested in knowing exactly *how* he did it. I want to get right down to the root and foundation, to discover the *principle* upon which he succeeded. If a man fails in business, especially one who has been apparently successful for many years, I am interested in knowing *why* he failed. In such cases there is almost always something wrong. I do not mean wicked, but not managed as it ought to have been. The causes of failures are numerous, and the one that leads to a particular failure is sometimes the least suspected by the unfortunate man who is making the mistake. Some merchants have failed from employing cheap, inefficient help, under the mistaken idea that they were practicing economy. Others have greatly assisted their success by an opposite course. Some have failed from a lack of advertising of the right kind. Others have succeeded because of their excellent advertising methods. Others have failed because they did not keep up with the times. Their methods were all right for thirty years ago, but not appropriate for this age of steam and electricity. The time was when a man could sit in his office and wait for business to come to him. That day has passed. Now he must go after the business—and hustle, too, while he is about it. A new merchant comes into a town where the merchants are of the old class; he renovates the store from top to bottom, outside and in, uses paper and paint and plate glass; makes a handsome display in his windows; changes this display quite often; puts in a telephone; has a nice delivery wagon; uses column after column, perhaps page after page in the local paper; in short, leaves no stone unturned to boom his business; if his other methods of business are correct, he gets the trade; and men who have been in business for years, but have been in a rut, so to speak, will go down—if any body goes down.

I was quite interested in the way that Mr. Davenport sold his honey at a good price by advertising it in the local papers,

as described in this issue of the Review. This is an illustration of the advantages that may be gained by catching the spirit of the times. A merchant in a small town would find it dollars well spent if he would make a visit to the stores in some large city—simply that he might catch the spirit of the times. I do not mean that he could profitably put in to practice all of the methods that he would see, but, what he would see would help him to get out of a rut and into more modern and more profitable ways of doing business. The *way of doing things* makes such a vast difference in the success or failure of any undertaking. I saw an illustration yesterday right from my office window. A man came along selling strawberries. He sat up straight on his wagon seat and bawled “s-t-r-a-w-berries.” I saw *one* woman come out and buy some berries. A short time after two women came along selling berries. One woman drove the horse, and the other took a box of berries in her hand and called at the door of each house and *showed her berries*. There was scarcely a house at which she failed to make a sale.

If the manufacturer of some line of apianian goods, whose goods are of the very best quality, would go at it in the right way, he could have the lead in the trade in that line of goods. The goods would have to be advertised in a telling, striking, unique manner. Some commission man in Chicago might receive the lion's share of the consignments of honey if he would advertise himself and his business in the right way. The same might be said of a commission man in New York; or any city, for that matter. The trouble is that so many of us are inclined to keep along in the same old way, instead of striking out and catching the spirit of the times.

Bee-keepers ought to read all of the journals, visit other bee-keepers, and attend conventions. They, as well as others, need to catch the spirit of the times.

DR. MILLER EXPLAINS; AND ADMITS
 THAT SOME OF THE QUEENS WILL
 BE POOR WHEN THE BEES
 CHOOSE THE LARVÆ.

Dr. Miller explains in Gleanings that he does not believe that *all* of the queens will be first-class when a queen is removed and the bees allowed to exercise their own choice in the matter of selecting larvæ from which to rear queens to replace their loss. He says that he has not believed *any of the time* that *all* of the queens would be good, but, for some reason, he neglected to explain and make clear his belief on this particular point. I think that even the doctor himself will admit that any one reading his writings might be excused for believing that the doctor thought that *all* of the queens would be good. It isn't worth while, however, to waste words on this point. The main point is that the doctor contends that the first queen, or queens, to hatch will be up to the standard, because they were the first to be started, and were started when there were a plenty of young larvæ from which to choose. Then, so the doctor thinks, the bees start some more cells, later, after they have got the first ones partly completed. These later, so says our good friend, will not hatch so soon as will the first ones that were started, and they will be destroyed by the queen that hatches first. *Sometimes* the first-hatched queen leads in the destruction of the remaining cells, and *sometimes* she leads off a swarm and leaves the later-hatching queens to fight it out among themselves.

Doctor, let me tell you a little of my experience. I presume that I have, during my queen-rearing days, started as many as one thousand batches of queen cells. For a year or two, until experience taught me better, I practiced largely the plan of taking a queen away from a colony and allowing the bees to build queen cells. The most of the cells were started the next day after the queen was removed. Occasionally some would

be started the second day after the removal of the queen. As a rule, all of the queens hatched the same day. Sometimes some of them would not hatch until the next day after they began hatching. I am speaking now of the regular cells. Occasionally, some two or three days after the regular batch of cells had been started, there would be two or three "fool-cells" started. I call them "fool-cells" because it seemed so foolish to start them. They were built over half-grown worker-larvæ, and were small, and smooth, and insignificant. The queen-breeder who would allow such cells to hatch and use the dwarfed queens that hatched out, would be a fool queen breeder. I have sometimes allowed them to hatch simply out of curiosity. These are the kind of cells that don't hatch until the others have hatched. With *me* the bees don't do as the doctor says they do. They don't start a few queen cells to day, (that is, the regular, normal queen cells,) then a few tomorrow, then a few more the next day, and so on. I mean they do not do it as a rule. As a rule, all of their queen cells are started within twenty-four hours. As a rule, all the queens in a batch of cells hatch within twenty-four hours. Now then, with me, the taking away of a queen, and the allowing of the bees to choose their own larvæ for the rearing of queens, even when all of the cells are started *within twenty-four hours*, and all of the queens hatch within twenty-four hours of one another, results in a large proportion of very inferior queens, as I know from trying the plan a great many times. The doctor says that when left to themselves the bees choose the best larvæ that they have for the production of queens; that is, when left to themselves after their queen is taken away. The trouble, he thinks, is that they keep on choosing when there are none except old larvæ. Doctor, I won't dispute you, but I know what the results have been when I have allowed such selection. If it isn't a poor selection of larvæ it is *something* that does not occur with

me when *just hatched* larvæ, and eggs are given, and no older larvæ.

The doctor says he does not believe in the old tradition that the bees are in such a hurry to rear a successor, that they select larvæ too old for rearing good queens. He thinks this a libel on the bees. Is it any more of a libel on them than it is for them to go and build these "fool-cells," over half-grown worker larvæ, when they have a dozen nice cells already sealed over?

The truth of the matter is that the taking away of a queen puts a colony in an unnatural condition, and that the bees should do something unnatural is but—natural.

EXTRACTED.

PRACTICE VERSUS BEAUTIFUL THEORIES.

The Latter are all Right in their Place, but of not Much Use to Beginners.

Theories are all right. I do not wish to be understood as being opposed to theory. As a rule, theory must come before practice; but most of the things that a beginner must know have already been reduced to practice; and he is in no condition, nor has he the disposition, to bother his head with theories. I came across a scrap of paper the other day containing an item that illustrated this idea so well that I copy it. It is as follows:—

Teachers often shoot their ideas far over the heads of their readers. They can not condescend to get down to the bread and butter side of the question. Indeed, it is hard work for one who has overcome the rudiments, and whose desire is to mount higher and higher in the realms of the unknown and unknowable, to get down on his hands and knees, with trowel in hand to teach the novice how to plant. How much more agreeable to teach how the roots force their way through the dark soil in search of food; how the leaves breathe, and theories about the feelings of a tree when a

careless man peels off its bark with a whiffle-tree. But the beginner does not care a fig how the leaves and roots act so long as he succeeds in making his plants and trees thrifty and profitable. He cares but little about poetic or scientific treatment. He desires to be told what the writer did when he was in circumstances similar to his own. If the writer has not had such experience he is not capable of teaching.

BOILING FOUL BROODY HONEY.

Simply Bringing it to the Boiling Point
Seems to be Sufficient.

I have no desire to encourage carelessness in regard to the treatment of foul brood, or of the preparation for use of the honey that is infected with the germs of the disease; but there seems to be a decided lack of proof that a long period of boiling is needed, and some very decided proof that a short period will answer. Mr. Doolittle tells in the *Progressive* how foul broody honey was rendered perfectly harmless by simply being boiled a short time. Here is what he says:—

There seems to be some doubt now as to the germs of foul brood being killed by simply bringing honey to the boiling point, some being sure that 3 or more hours' boiling are required to render honey from a foul broody colony safe. Well, I am no scientist along this line, but if such is the fact, I would like to know why my bees did not contract the disease again after this happening: A large quantity of such honey from foul broody combs was placed in a tin vessel over the stove to "scald," [that was thought to be all that was necessary in the early seventies] when company came and Mrs. D. was called away from the kitchen while I was out in the apiary. This was in the evening. Returning to the house I found the honey nearly one-half run out of the vessel, all over the stove, floor and carpets, from suddenly rising to the boiling point when no one was there. I took what had not run out from the stove as soon as possible, and when Mrs. D. returned, there was one discouraged woman I assure you, for nearly one-fourth of the kitchen floor and carpets was just floating in honey. What to do we did

not just know, so left it as it was till morning. The morning was very warm and the doors and windows were left open. Mrs. D. was again called away, and on her return so many bees had found the honey that she did not know what to do, so she called me from the field. When I reached the house, I told her that we were out of a kitchen for one day but I guessed we could afford to have it that way, inasmuch as this would solve the matter of cleaning the floor and carpets. As it was at a time of scarcity of honey, that room was a sight to behold a half hour later, for, it seemed to me there were as many bees as would be in ten swarms in that room, and going to to the apiary it showed that nearly every colony was partaking of the "feast." Well, the result was *not a single colony* contracted the disease from this honey. Such being the case, and thousands of colonies being cured by having "scalded" foul broody honey fed back to them without their ever having the disease again during the years between 1850 and 1890, how does it come about that honey needs boiling in the year of our Lord 1899, three hours, in order that it may be safe to feed? I should like to hear from the "three hours' boiler" advocates by way of explanation.

I think that the whole matter turns upon the point that honey must be heated to *more* than 212 degrees before it will boil; while all of the scientific experiments have been along the line of 212 degrees.

FASTENING BEES IN THE HIVE.

How to do it Easily, Quickly and Surely
Without Marring the Hive.

One of the drawbacks to the establishing of out-apiaries upon any system whereby the bees must be moved backwards and forwards from one yard to another, or from the home-yard to the out-yard, and then home again in the fall, is that of easily, quickly and surely fastening the bees in the hive in such a manner as to give them the proper ventilation. Of all the methods that I have seen described none appears so good as that used by Mr. C. Davenport of Minnesota, and described

by him in the American Bee Journal. I take pleasure in copying nearly the whole article.

For the benefit of those who haul bees to and from out-yards, I will describe the screens I use and the manner of fastening them to the hives. No nails are used, yet they are more firmly and quickly fastened over the top of a hive than can be done by the use of nails. While there are hive-hooks made and designed to be used for such purposes, they have not proved (with me) very satisfactory, and when nails are used the hives in time become damaged, for in order to be sure the nails will hold, it is necessary to drive them in a new place each time, and I much dislike to mar or damage hives in any way, for they are an important part of the means by which I earn a living, and also enable me to lay up a little each year for old age, or a rainy day, as the saying is.

Although my method of fastening screens to hives without the use of nails or marring the hive in any way is so simple and easily employed that probably many others have made use of it, I do not remember ever seeing any thing said about it. There are, without doubt, many who have not thought about it, and some time ago one of the great honey producers of California, who hauls as many as 150 colonies at one load, described the kind of screen he used; and although he had tried hooks he preferred nails instead, but seemed far from being satisfied with nails as a means of attaching screens over the top of hives.

The screen I use is large enough to cover the entire top of the hive, and I will say here that I consider it a very important matter when hauling bees to give them plenty of air, as the jarring and disturbance cause them to fill themselves with honey, and arouse themselves to such activity that they generate much more heat than when in a normal condition. While in some cases colonies can be moved without much provision being made for the ventilation of the hives, and not actually smother, I do not think they do so well for some time afterwards.

The frames for the screens should be made so that the wire cloth will be up at least an inch above the top of the brood-frames. Some of mine are made of inch-thick pieces about two inches wide, and halved together at the corners. The wire screen is tacked over the entire top, and then pieces of lath are nailed on top of it around the edges, so the edges of the wire will not be turning up and catching things, or cutting one's hands.

Though I have the frames of these screens made in various ways, they are all of such size that when placed on top of a hive the outer edge of the frame is just even or flush with the outside of the hive on both sides and at each end. In other words, the frame is just the size of the top of the hive.

After a frame is made so far, I take eight pieces of lath for each frame, that are about three inches long and nail two pieces on each side, and two on each end of the frame. They are nailed on near the corners on the outside of the strips forming the frame. The top or upper end of each of these short pieces of lath are just up even with the wire cloth, so the lower part of them hangs or projects down on the outside of the hive.

Now, if I have made myself understood, it will be seen that the screen on account of these short pieces, cannot be shoved or moved out of place, either sidewise or endwise. The only way it can get out of place or be removed, is by being raised up. To prevent its raising up, two stout strings (or perhaps very small rope more nearly expresses what I use, something like a small clothes line), are tied around the hive, bottom-board, screen and all. They are placed one near each end. If, however, the frame fits down true on the top of the hive, and there is no danger of the load being upset, one string near the center is ample. If the frame does not fit true it can easily be brought down tight, when a string is used at each end. A screen can be tied on in less time than nailed, and if tied tight enough it will hold the screen surer than nails will.

There is quite a knack about tying strings around a hive, but it is easily acquired. I have a loop on one end of each string, and pass the end without the loop under the hive, then up through the loop; the string is then placed so that the edge of the loop is even with the outside of the frame. I then draw it tight and hold it from slipping or loosening with the left hand, while tying the knot with the right hand. These strings cost but a trifle in the first place, and will last so long that they are about as cheap as nails.

I use loose bottom-boards, and have special ones for hauling, which are made just the same as an ordinary bottom-board except they have short pieces of lath nailed on at the sides and on the back end, which project up and prevent the hive-body from moving sidewise or backwards. To prevent its moving forwards, and to close the entrance, blocks are used that I will describe, for

depending upon a simple strip to close entrance, with bottom-boards that have strips around the outside to form the entrance, like the dovetailed bottom-board, with me has sometimes caused trouble. I take a strip that will just fit between the strips on the bottom-board so it will entirely close the entrance, and which is about $1\frac{3}{4}$ inches wide. Then I take another strip which is long enough to reach clear across the bottom board, but which is only $\frac{3}{4}$ inch wide. Now to make myself clear I will say, take the shorter strip and shove it in at the entrance until only about half its width is left out in front, then take the longer and narrow piece and lay it over or on top of the short piece that projects out in front, and tack the two together with small nails that can be clinched. To hold it in place when moving, two wire nails are driven in the bottom-board in front of it. With this kind of block, if the body of the hive moves nearly an inch on the bottom-board, either backward or forward, no bees can escape.

THE FIRST ANNIVERSARY.

It is just a year since the Chicago, Milwaukee & St. Paul road inaugurated its celebrated Pioneer Limited passenger train service between Chicago, Milwaukee, St. Paul and Minneapolis. This service marked a new era in the railroad world in the line of passenger accommodations. At a cost of a quarter of a million dollars that progressive company furnished the traveling public, in its Pioneer Limited train, comforts and facilities the best ever produced. This train has been described many times in newspapers and Magazines, but should be seen and examined to be appreciated. In beauty of finish, richness and elegance of furnishing nothing equal to it has ever been attempted by any other road. The car builders were nearly a year in completing the Pioneer Limited trains (there are two—one leaving Chicago for the West and the other leaving the Twin Cities for the East every evening in the year) and they stand to day a monument to the builder's art. No regular passenger train service in America is as well known as the Pioneer Limited. From the standpoint of passenger traffic the past twelve months have been the most successful in the history of the St. Paul road, made so very largely by the Pioneer Limited. The patronage of this service is a striking illustration of the fact that the public appreciates a good thing.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," "No. 1, dark," etc.

CLEVELAND, O. We quote as follows: Fancy white, 13 to 14; No. 1 white, 12 to 13; fancy amber, 10 to 11; No. 1 amber, 9 to 10; white, extracted, 7 to 7½.

A. B. WILLIAMS & CO.
May 13. 80 & 82 Broadway, Cleveland, Ohio.

BUFFALO, N. Y. The honey season may be considered closed for the present. A few stray lots of old honey are selling at from 6 to 8 cents. There is no strictly fancy here. A little would probably bring 11 or 12 cents. Some fancy pure beeswax is wanted at about 30 cents per pound in small cakes.

BATTERSON & CO.
May 13. 167 & 169 Scott St., Buffalo, N. Y.

BUFFALO, N. Y. Honey has sold slower since the first of January than I ever knew it to sell at this time of the year. I quote as follows: fancy white, 11½ to 12; No. 1 white 11 to 11½; fancy amber, 10 to 11; No. 1 amber, 10 to fancy dark, 8 to 8½; white, extracted, 7 to 7½; amber, 6 to 7; dark, 5 to 6; beeswax, 28 to 30.

W. C. TOWNSEND,
Jan. 28. 80 West Market St., Buffalo, N. Y.

CHICAGO, Ill. During the hot weather the demand for comb honey is restricted, and we do not advise consignments until August. The demand for extracted honey is good, but there is no stock on the market and good prices can be obtained. Our receipts so far are selling at 8 cts., a pound. Beeswax is 27 cts. a pound. We always follow instructions.

S. T. FISH & CO.,
June 12. 189 So. Water St., Chicago, Ills.

NEW YORK. There is a very good demand for extracted honey of all kinds, excepting buckwheat. There is some demand for comb, and enough of the new crop arriving from the South to meet demand. Beeswax is dull. We quote as follows: Fancy white, 12; No. 1 white, 10; fancy amber, 9; fancy dark, 6½; No. 1 dark, 6; white, extracted, 7½; amber, 7½ to 7; dark, 5½; beeswax, 28 to 29.

HILDRETH & SEGELKEN,
June 13. 12 West Broadway, New York

CHICAGO, Ill. Fancy 13; No. 1 white, 11 to 12; fancy amber, 10 to 11; No. 1 amber, 8 to 9; fancy dark, 9; No. 1 dark, 7 to 8; white extracted, 6 to 8; amber, 5 to 7; dark, 5 to 6. Beeswax, 27.

R. A. BURNETT & Co.,
May 13. 193 So. Water St., Chicago, Ill.

KANSAS CITY.—There is no white comb honey in the market. If there were it would bring 15 cts. We quote as follows: Fancy white, 15; No. 1 white, 14; fancy amber, 13; No. 1 amber, 12½; fancy dark, 12; white, extracted, 6; amber 5; dark, 4 to 4½; beeswax, 22.

C. C. CLEMONS CO.,
June 13. 423 Walnut St., Kansas City, Mo.

NEW YORK, N. Y.—Our market has never been in better condition, for handling both honey and wax, so far as stock in hand is concerned. We would suggest to Southern shippers of extracted honey the advisability of letting it come forward. At this writing we have en route several shipments of new, Southern extracted.

Our market has dropped off slightly on wax, although there is a steady demand.

We do not expect much more trade in comb honey until the new crop begins to arrive in early fall. We quote as follows: Fancy white, 12½ to 13½; No. 1, white, 11½ to 12; fair white, 9½ to 10½; fancy buckwheat, 8 to 9; No. 1 buckwheat, 7 to 8; fair buckwheat, 6½ to 7.

Extracted honey, Florida white, 7½ to 7¾; light, amber, 6½ to 7; amber, 6 to 6½. Other Southern, fancy, per gallon, 65 to 70; fair, 60 to 65; good, 52½ to 58. Beeswax, 27 to 28.

Write us before shipping.

FRANCIS H. LEGGETT & CO.
April 25. W. Broadway, Franklin & Varick Sts.

THE A. I. ROOT CO., 10 VINE ST., PHILADELPHIA, PA BEE-SUPPLIES.

Direct steamboat and railroad lines to all points. We want to save you freight.

Bee keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.
J. H. M. COOK, 62 Cortland St., N. Y. City

Please mention the Review.

If You Wish Neat, Artistic
PRINTING,

Have it Done at the Review.

Comb HONEY

And its production interest the practical bee-keeper more than anything else connected with his business. To have the best bees, hives, supers, foundation and implements, and a knowledge of how to use them in securing the most comb honey with the least labor, is that for which he strives; and it was to aid him in this attainment that *ADVANCED BEE CULTURE* was written—it is the one, grand, central idea kept in view from the first to the last of its thirty-two chapters.

Price of the book, 50 cts.; the Review one year and the book for \$1.25.

W. Z. HUTCHINSON,
Flint, Michigan.

GOLDEN

Italian Queens, warranted purely mated, sent by return mail, and safe arrival and satisfaction guaranteed, at 75 cts. each; or six for \$4.00. Selected queens, \$1.00 each; or six for \$5.00. After July 1, single warranted queen, 50 cts.; six for \$2.75; selected, single queen, 75 cts.; six for \$4.00. Specially low price on large orders.

I have had eleven years of experience, and know what good queens are. My queens are prolific, and their workers industrious, as well as beautiful to look upon; as hundreds of testimonials abundantly prove. I shall run 1,200 nuclei; and employ the most scientific methods.

H. G. QUIRIN,
Parkertown, Ohio.

6-99-6t M. O. Office, Belleue.

M. H. HUNT & SON,
Have a Full Line of Root's
Hives and Other Supplies.
Unless you Order Your Goods
Now, why, it will be too Late
To Secure the Best Results;
& That Means a loss of Honey.
So be Ready for Your Bees, and
Order all of Your Supplies
Now. Send for Our Catalog.

M. H. HUNT & SON, Bell Branch, Mich.

Stock Differs.



One spring, when living at Rogersville, and getting my living by the production of comb honey, I bought three lots of Italian bees. One lot of 20 colonies was from near home; another lot of 20 came from 30 miles away; another lot of 30 from 80 miles away. Each lot of bees had peculiarities that seemed to pervade every colony of the whole lot. The bees of one lot were good workers—just about like the bees I already had. My average that year was 50 lbs. a colony, and these bees came up to the average; but they were the most vicious bees that I ever attempted to handle. They were perfect devils—that's the only word that fully describes their disposition. As soon as possible their queens were replaced with others; and, towards fall, peace again reigned in the apiary. Another lot was easy enough to handle, but LAZY is the only word that fitly describes the bees. Honestly, the average of this lot was only 25 lbs. The lot of 30 was as peaceable a lot of bees as I ever had in my apiary. I doubt if I was stung by one of them unless I accidentally pinched it. The average of this lot was 60 lbs.; and quite a number of individual colonies stored over 75 lbs. of surplus—something that was not done by any colony of any other lot of bees in the yard.

Such experiences as these have thoroughly convinced me that there is a difference in bees in regard to their disposition, industry, and various other traits. What bee keeper of experience has not noticed here and there a colony far out-stripping the general average? This may not be quite so noticeable if a man keeps the same strain of bees year after year, but the one who buys queens occasionally, and thus has several strains of bees, will surely notice it.

For many years I have been buying and selling bees and queens, getting them from a great variety of sources, and I can honestly say that, of all the strains I have in my yard, none have surpassed in gentleness, industry, hardiness, and finish of capping, that of a certain breeder who, for 20 years, has been working by crossing and selection, to develop a superior strain of three-banded Italians. He has paid a great deal more attention to the development of his stock than he has to its dissemination and sale. Perhaps he has never fully realized what he has accomplished—not having other stock with which to

compare it, as I have had. Now that I have become fully convinced of its superiority, I am going to help him, myself, and my readers, by advertising this superiority, and offering queens for sale.

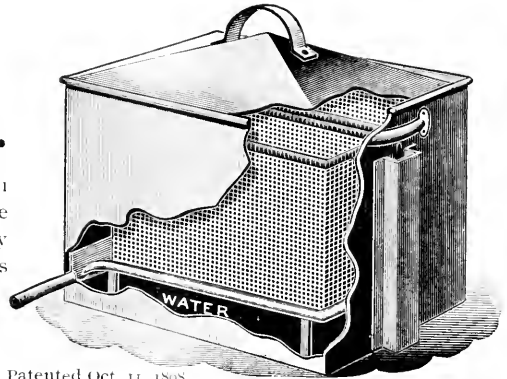
The price of these queens will be \$1.50 each. This may seem like a high price, but the man who pays it will make dollars where this breeder and myself make cents; and when you come to read the conditions under which they are sold, it will not seem so high. The queens sent out will all be young queens, just beginning to lay, but, as there are no black bees in the vicinity, it is not likely that any will prove impurely mated. If any queen SHOULD prove to be impurely mated, another will be sent free of charge. Safe arrival in first-class condition will be guaranteed. Instructions for introducing will be sent to each purchaser, and if these instructions are followed, and the queen is lost, another will be sent free of charge. This is not all; if, at any time within two years, a purchaser, for any reason **WHAT-EVER**, is not satisfied with his bargain, he can return the queen, and his money will be refunded, and 50 cents extra sent to pay him for his trouble. It will be seen that the purchaser runs **NO RISK WHATSOEVER**. If a queen does not arrive in good condition, another is sent. If he loses her in introducing, another is sent. If she should prove impurely mated, another is sent. If the queen proves a poor layer, or the stock does not come up to the expectations, or there is **ANY** reason why the bargain is not satisfactory, the queen can be returned and the money will be refunded, and the customer fairly well paid for his trouble. I could not make this last promise if I did not **KNOW** that the stock is **REALLY SUPERIOR**.

I said that the price would be \$1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the Review. Any one who has already paid me, or who will pay me, \$1.00 for the Review for 1899, can have a queen for \$1.00. Of course, all arrearages previous to 1899 must be paid up before this offer will hold good. This special offer is made with a view to the getting of new subscribers, and as an inducement to old subscribers to pay up all arrearages and to pay in advance to the end of the year.

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1895

QUEENS, Untested, 75 c; 6 for \$4.00; tested, \$1.00; 6 for \$5.00; breeders, \$2.00. The best stock, imported or golden. W. H. LAWS, Lavaca, Ark.

Please mention the Review

—If you are going to—

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



1-98-tf

Our Prices are worth looking at. We are making the new

Champion Chaff Hive

with dovetailed body and supers and a full line other Supplies, and we are selling them CHEAP. A postal sent for a price list may save you \$ \$ \$ \$.

R. H. SCHMIDT & CO.,
Box 187 Sheboygan, Wis.

— If you wish the best, low-priced —

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

1899 Queens 1899

For Business—Queens for Strong Colonies—Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list.

12-97-tt

J. P. H. BROWN, Augusta, Ga.

Please mention the Review.

Bee - Supplies.

Root's goods at Root's prices. Poulter's honey jars. Prompt service. Low freight. Catalog free. Walter S. Poulter, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Please mention the Review

To stick things, use **MAJOR'S CEMENT.** Beware !!! Take no substitute.

2-98-12f

Please mention the Review

Best on Earth. 19 Years Without a Complaint.



		Dozen	Each
Smoke Engine (largest smoker made)	4 inch stove	\$13.00	mail. \$15.00
Doctor	3 1/2	9.00	1.10
Conqueror	3	6.50	1.00
Large	2 1/2	5.00	90
Plain	2	4.75	70
Little Wonder (wt. 10 oz)	1 1/2	4.50	60
Honey Knife		6.00	80

For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking. 3-99-11

THE JENNIE ATCHULEY CO.,
Beeville, Bee Co. Texas.

Some Odds and Ends That Will be Sold Cheap.

For a dozen or more years Mr. M. S. West of this place dealt in bee-keeper's supplies. Since his death, two years ago, his daughter has endeavored to close out his stock of goods, and has succeeded to large extent. There are still a few odds and ends, and she has brought them to me and left them for me to sell. Here is a list of the articles with prices at which they will be sold.

- One ten-inch foundation mill. (second-hand) Root's, (one of recent make) dipping tank, etc. in good order15.00
 - Three Woodcock foundation fasteners, each,75
 - Thirty-three Simplicity hives, in the flat, sides, ends, covers and tin rabbetts but no frames nor bottom boards, each,40
- Send all orders to W. Z. HURRISON,
Flint, Mich.

THE MONITOR PAPER FILE

Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music &c., by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome. **PRICE.**—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper.

Holy Land QUEENS. Golden Italian

My 1899 circular is free; and "Jones he pays the freight" on it. I'll tell you more next time.

E. R. JONES,

3-98-12t

Milano, Texas




Golden Queens,

50 cts. each, six for \$2.75; or \$5.00 a doz. Tested queens double these prices

GEO. W. COOK, Spring Hill, Kansas.

6 99-2t

Please ment on th. Reviz



WEBSTER'S INTERNATIONAL DICTIONARY


WEBSTER'S

Hon. D. J. Brewer, Justice of U. S. Supreme Court, says: "I commend it to all as the one great standard authority."

It excels in the ease with which the eye finds the word sought; in accuracy of definition; in effective methods of indicating pronunciation; in terse and comprehensive statements of facts and in practical use as a working dictionary.

Specimen pages, etc., sent on application.

G. & C. Merriam Co., Publishers, Springfield, Mass., U. S. A.

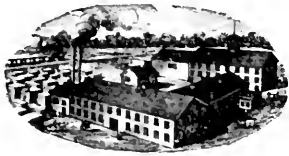


INTERNATIONAL DICTIONARY

BEEES!

If you keep bees, subscribe for THE PROGRESSIVE BEE-KEEPER, a journal devoted to bees and honey. Fifty cents a year. Sample copy free. Also illustrated catalogue of bee-keepers' supplies.

Address LEAHY MFG. Co.,
Higginsville, Mo.; or at 1730
South 13th St., Omaha, Neb.;
or at 404 Broadway, East St.
Louis, Illinois.



Bee-Supplies.

We have the best equipped factory in the West. Capacity, one carload a day. We carry the largest stock and greatest variety of everything needed in the apiary, assuring **Best Goods** at the **Lowest Prices**, and prompt shipment. Illustrated catalogue, 72 pages, free.

We also manufacture tanks of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free. Address

E. Kretschmer, Red Oak, Ioa.

Page & Lyon,

Mfg. Co.

New London, Wis.

—♦♦♦—
Nearness to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

ORDER EARLY.

There are indications that the demand for supplies will be very large this season, and everyone should order as early as possible. We have large facilities for manufacturing all kinds of **Bee-Keepers' Supplies**, and will serve our customers as quickly as possible.

Falcon sections are the finest made. 1899 catalogue ready Feb. 1st. Copy of the **American Bee-Keeper** 20 pages sent free. Address

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wire*. Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y.

Hyde's specialties are the

GOLDEN

Italians from the best breeders, and the Holy Lands from best imported stock—the best that knowledge and years of experience can possibly produce. Untested queens of either race, 75 cts.; tested, \$1.50. Discounts on quantities.

Root's goods at bed rock prices, to reduce stock. The Hyde-Scholl separators are the best out—try them. Our motto: "prompt service."

Address, and make orders payable to

O. P. HYDE & SON,

6-99-3t

Hutto, Texas.

Listen! Take my advice and buy your bee supplies of August Weiss; he has tons and tons of the very finest



FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

18



99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.50; 1,000 for \$2.50; 3,000 for \$6.75; 5,000 for \$10.00; 10,000 for \$17.50.

No. 2 sections are not made to order, but when in stock are sold at \$1.50 per M.

J. FORNCROOK,

Watertown,

Wisconsin.

WM. BAMBER.

Of Mt. Pleasant, Mich., has his own saw-mill, and a factory fully equipped with the latest machinery, located right in a pine and basswood region, and can furnish hives, sections, frames, separators, shipping cases, etc., at the lowest possible prices. Making his own foundation enables him to sell very close. Send for samples and prices before buying, and see how you may save money, time and freight. Bee-keepers' supplies of all kinds kept in stock.

5-99-3t

Violin for Sale.

I am advertising for the well-known manufacturers of musical instruments, Jno. F. Stratton & Son, of New York, and taking my pay in musical merchandise. I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Stradivarius," Red, French finish, high polish, and real ebony trimmings, price \$14.00. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver shield, ebony screw-head, German silver ferules, and pearl dot in the end, price \$2.50. The case is wood with curved top, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this on fit, and would accept one-half nice, white extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apianian Supplies. Send for circular. 1-96-6

Please mention the Review

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1.25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEAXES & MINER, Ronda, N. C.

Make Your Own Hives.

Bee-Keepers

Will save money by using our Foot Power Saw in making their hives, sections and boxes.

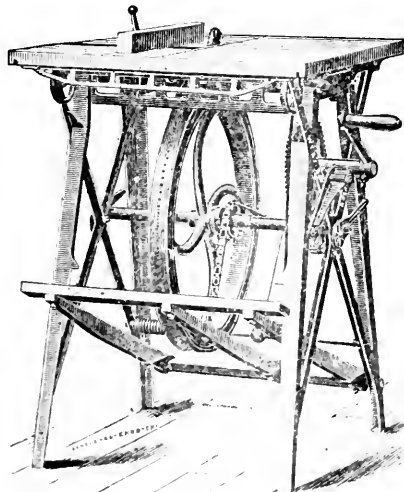
Machines on trial.
Send for Catalogue.


W. F. & JNO. BARNES CO.,

384 Ruby St.,

Rockford, Ills.


11 9S 12T





**WEBSTER'S
INTERNATIONAL
DICTIONARY**

WEBSTER'S



Hon. D. J. Brewer, Justice of U. S. Supreme Court, says: "I commend it to all as the one great standard authority."

It excels in the ease with which the eye finds the word sought; in accuracy of definition; in effective methods of indicating pronunciation; in terse and comprehensive statements of facts and in practical use as a working dictionary.

Specimen pages, etc., sent on application.

G. & C. Merriam Co., Publishers, Springfield, Mass., U. S. A.

INTERNATIONAL DICTIONARY

Some Odds and Ends That Will be Sold Cheap.

For a dozen or more years Mr. M. S. West of this place dealt in bee-keeper's supplies. Since his death, two years ago, his daughter has endeavored to close out his stock of goods, and has succeeded to large extent. There are still a few odds and ends, and she has brought them to me and left them for me to sell. Here is a list of the articles with prices at which they will be sold.

- One ten-inch foundation mill, (second-hand) Roof's, (one of recent make) dipping tank, etc. in good order\$5.00
 - Three Woodcock foundation fasteners, each,75
 - Thirty-three Simplifity hives, in the flat, sides, ends, covers and tin rabbits, but no frames nor bottom boards, each,\$0
- Send all orders to W. Z. HUTCHINSON,
Flint, Mich.

A. D. D. Wood, who has had twenty years of experience in the manufacture of comb foundation and the rearing of queens is again manufacturing

Bee-Keepers' Supplies,

at Lansing, Mich. You can have his circular for the asking. Write now. 3-9-11

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking. 3-9-11

THE JENNIE ATCHLEY CO.,
Beville, Bee Co. Texas.

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costellow, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.

JOHN F. STRATTON'S CELEBRATED GUITARS,



Importer of and
Wholesale Dealer in all kinds of
MUSICAL MERCHANDISE,
811, 813, 815, 817 East 9th St., New York.

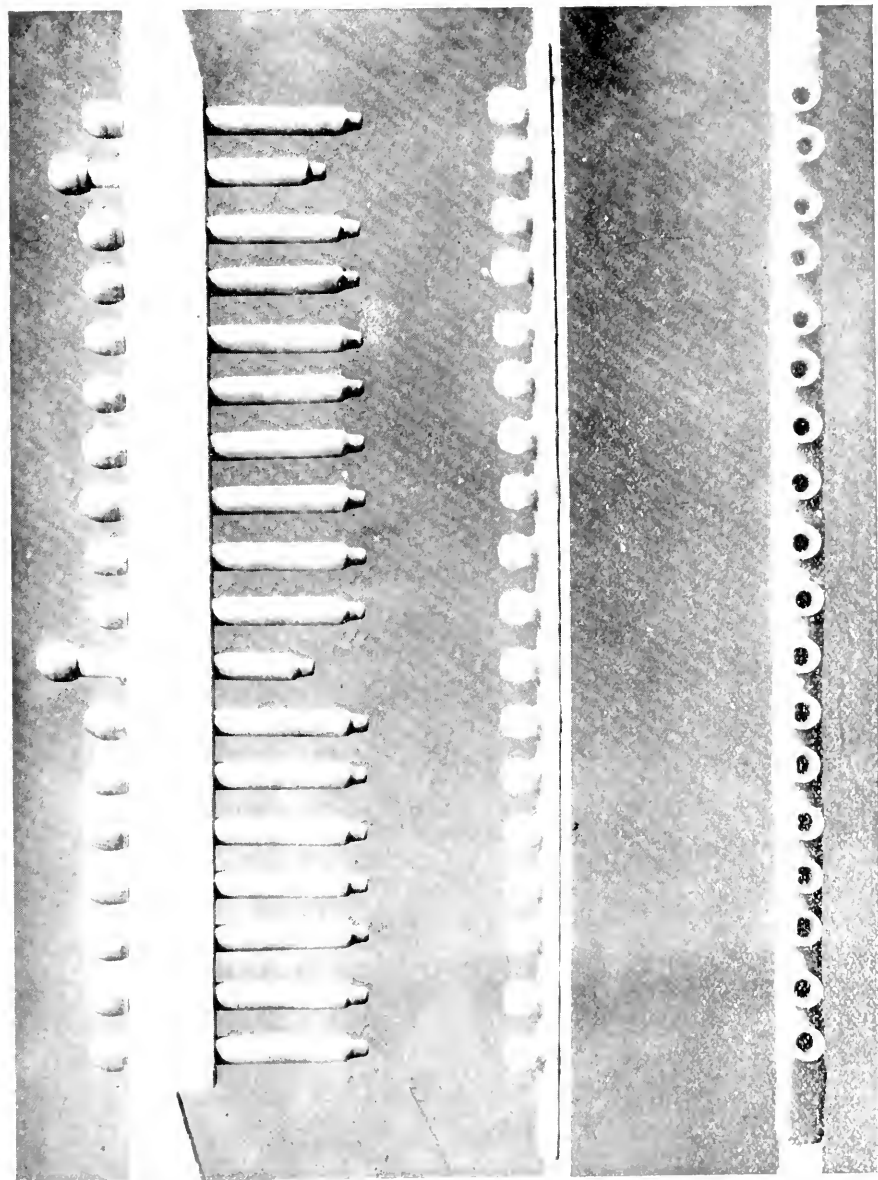
There is a Difference in Bees.



Every owner of a large apiary knows this—knows that some colonies store more honey than others, that some are more easy than others to handle, that some are more hardy and winter better than others. For years we have been breeding up a strain of Italian bees possessing these desirable qualities in a high degree. Reports from customers prove our success. A trial order will convince. Tested queens, by return mail at \$1.00 each.

J. W. K. SHAW & CO., Lorcauville, La. 3-9-11





A WHOLE BATTERY OF DIPPING - STICKS — AND THE RESULTS.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL. X.I. FLINT, MICHIGAN, AUGUST 10, 1899. NO. 8.

General Correspondence.

ARTIFICIAL QUEEN CELLS.

How to dip a Whole Stickful of them at one dip.

W. H. PRIDGEN.



THE stick holder is $\frac{1}{2}$ x 1 x 16 inches; and in it are bored eighteen, 5-16 inch holes; the holes being $\frac{5}{8}$ of an inch from center to center. Beginning at one end it is sloped for two inches to a depth of $\frac{1}{4}$

inch, while the same slope is given the other end by beginning two inches from the end and sloping it down $\frac{1}{4}$ inch by the time the end is reached. When the stick is slid back and forth endwise on the gauges both ends will rise and fall alike. This not only obviates the necessity of changing the gauges to correspond with the lowering of the

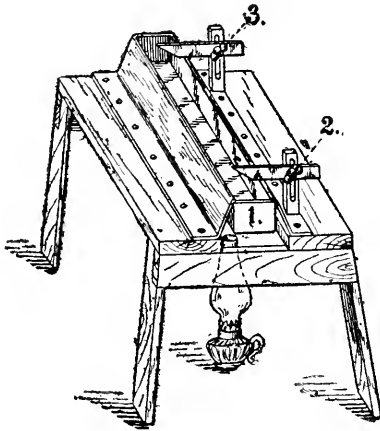
wax every time a batch of cups is completed, but it enables one to make the first dip at the desired depth, and to vary the successive ones to suit his fancy. If it be inclined to topple over when hung on the rack, the lower half, for two inches at each end, can be taken off, and then the angles or slopes cut as described, thereby throwing more weight to the points of the sticks, which would also necessitate a corresponding elevation of the gauges on the standards. The sloping part can be cut to a V-edge to prevent its turning sidewise when the gauges are tilted above or below a level.

If one should want more than eighteen cups in a batch, $\frac{5}{8}$ of an inch, for each additional stick, should be added to the length of holder, and the distance apart of the gauges.

The forming sticks just fit in the holes in holder so as to turn easily. They are $2\frac{3}{4}$ inches from shoulders to points, and pointed as described in the Review for last August. These are more difficult to make than those recommended in "Scientific Queen Rearing," but the cups are just as good for transferring larvae without cocoons.

The slats to which the cells are built should be soaked in melted wax until there is no bubbling or frying, before attempt-

ing to unite the cups to them. A thick separator cut into strips of $\frac{1}{4}$ or $\frac{1}{2}$ inch makes good slats provided they are $\frac{1}{4}$ inch longer than the inside measurement of the frames used so that they may be slipped into the notches in the end bars. They should be $\frac{1}{2}$ inch wide if a nursery as illustrated in last August Review is to be used, otherwise a very narrow strip will answer.



TANK FOR DIPPING QUEEN-CELLS*.

The dipping tank is 18 inches long, 2 inches wide, and $1\frac{1}{2}$ inches deep; having a flange 3 inches wide, extending from end to end, on each side. These flanges are curved downward to a level with the bottom of the tank, then bent out at right angles and tacked to a table-top made of two 2 x 18-inch boards placed 3 inches apart; thus suspending the tank over the opening thus formed. This arrangement of flanges, or shields, at the sides conducts the heat out at the ends, and gives a more even temperature at the sides as well as at the bottom of the tank. The table is 19 inches high, which holds the tank exactly $\frac{1}{4}$ inch above the tops of

the chimneys of the two lamps that are placed on the floor. More satisfactory results can be obtained when two lamps are used.

The temperature is regulated by turning the lamp wicks up or down. The gauges are of hoop iron; 7 inches long; 14 inches apart; $2\frac{1}{4}$ inches above the table; and attached to right side of uprights by thumb screws passing through holes $4\frac{1}{2}$ inches from the pointed ends that extend $1\frac{1}{4}$ inches over the dipping tank. The gauges can be raised or lowered at the points to adjust them to the quantity of wax in the tank, or to level them up if one end of the tank should, for any reason, be higher than the other. By having slots in the standards, the gauges can be slipped up or down and kept level; although this is not so great an advantage, as the tilting arrangement, combined with the slant on the stick holder, gives the operator quite complete control of the matter. For instance, if the points are downward, the first dip can be on the point; and each successive one further from it; thus securing the desired variation in depth of dip, as the cups are completed, without carrying the cups endwise for that purpose.

The back ends of the gauges furnish a rack to hang one set of sticks to cool while another is being dipped, if the temperature of the room be such that two sets can be used.

An additional tank or trough for water should be provided. It should be of sufficient length to admit the slats to which the cups are attached. This can be made of boards, and thoroughly waxed inside. Heat it hot enough to melt wax, and but little need be used. It can be poured in and allowed to touch all parts; being sure no water is with it.

The wax should be kept just above the melting point, with a little water beneath. The water is a good indicator of the temperature, as no bubbling should be allowed. The temperature of the wax, as well as that of the water in which the forming sticks are soaked previous to dipping, and as often as a batch of cups is removed, has much to do with the length of time the

*No. 1, end of dipping-tank; Nos. 2 and 3, thumb-screws for holding in place the gauges that support the dipping stick. These gauges ought to have been shown as slanting from their points clear back to the thumb-screws, instead of only part way. The lamp, also, ought to have been shown pushed farther back and under the center of the dipping tank.

sticks are allowed to remain in the wax. The object should be to get smooth cups inside; and this is more easily accomplished by slinging off the surplus water from the sticks, and allowing them to go to the desired depth the instant they touch the wax. If not properly done the cups will be ridged inside. The cups should not be dipped into water until finished, as it causes air bubbles, and prevents the uniting of the wax, thus leaving it in layers that will flake off. If they get too cool, between dips, (and the tendency is in this direction) it can be overcome by allowing them to remain in the wax until warmed up; being careful that it is not overdone, and the cups allowed to melt.

I believe that Mr. Doolittle, who is usually correct in his observations, has settled on a half-inch as being the right depth of cup, but I would not discard a batch if it were a little less and perfect in all other respects.

To prevent having long necks to the cups, first one side and then the other of the holder should be raised to an elevation of about 45 degrees, and the drops allowed to set on first one side and then the other of the forming stick. If the wax is not too hot the cups will be ready to place on the slats when the fourth dip is made; which should be done quickly enough for them to stick. After this is done, lower the slat into the wax until the wax covers it from end to end; then dip it into the water to harden the wax sufficiently so that the cups will not twist off when the sticks are removed. This should be done one at a time, by turning it a little back and forth, while it is being slightly withdrawn. Begin with the end ones and go to the middle.

My sticks are made of heart-cedar, as water is slow to penetrate it, and, consequently, there is but little swelling.

The surplus wax should be removed from the back of the slats, so as to give the cups the appearance of being attached to the comb; but care should be exercised to leave no wood exposed.

The forming or dipping sticks should be polished, after they have been used and have become dry, by using very fine or well-worn sand paper.

If 5-16 of an inch be considered to large the points can be dressed down to the desired size.

We cannot force the bees to build large cells, or rear large queens, by giving extra large cups; as they remodel them to suit themselves. The nearer we come to making them the natural size, the more handsome are the cells.

CREEK, N. C., May 3, 1899.



HOONEY-DEW.

It May be Produced by Aphides, yet Spread
Some Distance from its Source.

JOHN HANDEL.

EDITOR Review—As you devoted so much space in the May Review to a scientific explanation of the source of honey dew, I judge others besides myself are interested in the subject; therefore I will undertake to give some of my views and observations that were not gathered on horse-back, nor borrowed from the library, but from actual contact in the fields and forests.

When a boy, more than 40 years ago, I questioned the source of this honey dew. I noticed then that it fell only near trees. Having noticed this fact, I embraced every opportunity to find the exact source of the dew. While hunting bees, trying to get a "bee line," when the sun was low, I noticed a fine spray, or mist, sailing through the branches of the tree from which bees were gathering this juice. Close and careful investigation convinced me that this spray came from a small insect having a pair of short hose or teats. Although satisfied of this, I have continued investigating the matter

up to the present time. I have cut down trees, and climbed trees, and of late, my son climbs trees, and brings down the twigs and branches for me to examine carefully with a glass. I have thus carefully examined box-elder, hickory, oak, aspen, willow, fir, plum, etc., from which bees were gathering this dew, and I have invariably found the aphides at, or near, if not *the* source from which bees get this juice.

There is no question about the *origin* of this juice. What interests us bee-keepers, is to know whether bees gather this sap direct, that is, from trees after they (the trees) have had the nose bleed; or has the plant louse punctured the tender plant, sucked the sap, and then rejected the sweet portion which our bees gather? I have never noticed it, yet it is possible that "plants under certain atmospheric conditions exude a sweet juice from the surface of their leaves." If so, it would undoubtedly attract insects; but when Mr. McKnight says, "Plant lice delight to revel in this nectar" (see page 133) he gives himself away "like plenty of others that have seen honey-dew, where no aphides were." He apparently does not know where to look for them.

I have examined many different kinds of aphides, and have an idea that each plant has its own parasite, but I have never seen them "revel in the nectar on the surface of the leaves." I always find them feeding from punctures of the most tender stems of leaves that are yet covered with fuzz or hairs, and undeveloped; while the so-called honey-dew is noticed by casual observers, only after it has absorbed enough moisture to run and spread over the smooth leaves.

Now let me give a "scientific explanation," then it will be seen why so many, who are otherwise close observers, jump at the wrong conclusion in this case.

This spray, as ejected by the aphides, is so fine that a slight breeze will carry it quite a distance. It sticks to anything with which it comes in contact, and ab-

sorbs moisture to such an extent that a small particle will spread over a large surface, and still leave a film when it dries. A single drop may start near the top of a tree, and drip from one leaf to the other, while wet, and leave a gloss on each leaf.

SAVANNA, Ill., May 29, 1899.



A WAX-PRESS.

It is used by Mr. Ferris, and he tells With
What Results.

C. G. FERRIS.

DEAR Mr. Hutchinson: As requested by you some time ago, I have been making experiments in pressing the refuse from my extractors. You say that I ought to have a Gemmill press, yet the one used is made on the same principle as that laid down by Mr. Gemmill. In some points it is stronger, as it breaks strong new sacking. In this test no extra care was taken, and it is one that can be repeated every day. I wish to try and bring the percentage down in my next trial; which I am confident I can do by using a larger extractor. By carefully pressing the refuse that had been thrown away from last year's work with a single-basket extractor in steaming out 150 lbs. of wax from uncappings, and about 50 lbs. from old comb that was the clippings of transferring, I secured 1½ lbs. of wax. This was a surprise to me, as I have stoutly maintained that I did not believe a stream could be started, yet it proves my belief that I could get 99 per cent of the wax without *flooding*.

In regard to the time spent in getting this pound and a half of wax I would say that two good hours were used up in scraping the particles and getting them in shape, besides there was a great amount of fussing, yet the fact remains that I secured this amount.

Again using the single-basket extractor, using bits of comb from transferring, large sheets of drone brood that had been thrown out while transferring, and some bad, old combs, I made another test as follows: Steamed out, 17 lbs., flooded out 1½ ounces; pressed out six and one-half ounces. In this test I had too much confidence in the flooding, as I let it boil only to moments when I set it from the stove.

How Mr. Gemmill could get the results he has given is beyond my comprehension. I could not by any process I ever tried. I thank him very much for the experiment, as it has shown that although no wax can be *scraped* after flooding, pressure will demonstrate there *is* some left; and the agitation has led me to further improve my extractors; and I hope the tests this fall from Mr. Elwood and Mr. Hetherington will demonstrate that I have in no way exaggerated this statement; and that I have the only steam wax extractor in the world that will extract *all* the wax from old combs rapidly by steam.

In conclusion I will say that the refuse from these experiments shows no traces of wax. The sample sent me by Mr. Gemmill showed wax plainly; hence I maintain that the press that I have did its work as well, if not better, than the one used by friend Gemmill.

So. COLUMBIA, N. Y., June 28, 1899.



PREVENTION OF INCREASE.

A Reply to Mr. Taylor's Criticism of the Miller Plan.

ARTHUR C. MILLER.

SIR, Mr. Taylor, my plan for the avoidance of the swarming troubles, is, like all rules, subject to exceptions; but the only exception, the one to which I referred, is the rare one in which a colony

swarms *after* the bees are apparently settled under the new order. I presume they do it for the same reason that prime swarms sometimes abscond after being a week in their new quarters. Can you tell me what that is? I do not know.

As for ventilation, I did not mention it, as I presume experts, for whom I was writing, would not need to be told. Regarding water, very few bees remain above after the first twelve hours; and I have seen no evidence of the need of water. The loss of brood is very slight, and is more than offset by the gain in *honey* by the new colony. I mean that the full force, having little brood to feed—none for three days—puts all the honey in the boxes. Brood in the middle of the harvest is not worth its feed, unless it is needed for workers for a fall flow. I did a lot of estimating as to the loss and gain along that line, and decided that I gained rather than lost. I say "estimating" because it was not subject to exact demonstration.

If only one in three of your colonies swarm, I judge that you are exceptionally favored. How about the fellows who have two and even three swarms from the same parent stock, not to mention swarms from swarms? Just try my way before you condemn it. And, by the way, my apiary is in an apple orchard, in a breezy spot, and I almost always make the changes in the afternoon. The combs removed, as you will see by referring to my article, are cared for by the bees. Not until after the flow is over do I have to use them, and then they are used to complete the number required by the treated colonies. I use "L" frames, nine in a ten frame hive—with a "follower." This treatment gives me a chance to cull out poor combs and yields quite a lot of wax. When cutting combs from the frames, half of the top rows of cells are left adhering to the top bars, and form the "starters" on which the treated colonies are put. I have abundant use for this wax and it is worth more than it costs.

As to propolis mixing with wax, just take a lot of old comb, divide it into two parts, boil one lot hard, and treat the other carefully, and see which wax has propolis in it. It is hardly fair to condemn these things until you try them.

PROVIDENCE, R. I., July 20, 1899.



BEES CHOOSING LARVÆ FOR QUEENS.

Also a few Last Words about Words.

C. C. MILLER.



FRIEND Hutchinson, — You think I will admit that any one reading my writings might be excused for believing that I thought all queens would be good reared in a colony with the queen removed.

It is possible, yet I certainly never had any such thought, and I should be obliged to have pointed out any expression that would convey that idea. Indeed, I have put myself on record more than once as believing the contrary. Perhaps too much silence on that point, however, may have been misleading. The fact is that it isn't the easiest thing in the world never to leave any chance for misunderstanding. For example, your heading on page 215 might be misunderstood. It reads: "Dr. Miller explains; and admits that some of the queens will be poor when the bees choose the larvæ." Some might understand that to mean, that I admit that when several colonies are unqueened and left entirely to themselves some of the colonies will have poorer queens than they would have had if nothing had been left in the hive older than just hatched larvæ. I certainly do not admit

anything of the kind, but believe that when larvæ of all ages are present the queen that will be reared by that colony if meddled with no more than to remove the queen, will be just as good as if the breeder most carefully selected the larvæ out of the same hive.

Your large experience as a queen breeder has given you chances for observation that I have not had, and I greatly respect, on that account, any expression of opinion of yours in that realm. But when some of your views are so directly opposed to my own observations, even though those observations have been on a limited scale, I cannot help wondering whether it may not be possible that you got your impressions in a kind of general way without having had your attention minutely called to the points on which we differ. If you are doing some queen-rearing after receiving this, I wish it might be convenient for you to make some observations and report specifically. If it should be convenient for you to do this, would you kindly report whether you found larvæ more than three days old chosen for royalty any time within three days after removing the queen? And in the case "when just hatched larvæ, and eggs are given, and no older larvæ," would you carefully keep track of the queen cells started, and tell us when the last ones are started? With your attention particularly directed to the matter, if you should report that in a particular case you saw larvæ more than three days old made a first choice, and that a careful count showed that no queen cells were started 48 hours after the removal of the queen, it would be much more helpful in settling the problem than a general reference to past experience.

And now

A WORD TO CRITIC TAYLOR.

I said that if a writer finds a word in a reputable dictionary he ought to be allowed to use it as there given. To this, Bro. Taylor, you reply, page 207, "Certainly, and no one I hope proposes to

deprive the doctor of that right. But hasn't another person a right to object to the use of the word?" You don't propose to deprive me of the right to use a word as I find it in the dictionary, but when I use the word "boil" as I find it in the dictionary, and you hold it up to public gaze, dangling at the ends of your critical fingers with a "sic" tag pinned on, are you doing nothing to deprive me of the right to use it? "But hasn't another person a right to object to the use of the word?" You admit my right to use the word; then it must be I am doing right to use it; what right have you to object to my doing right?

I quoted the dictionary to you, and you would none of that. Then I quoted good authorities, and you object. Will you kindly say definitely what you require that I may feel safe from being gibbeted by you? Must I find a word in all the dictionaries, or which one will satisfy you? Please don't say I must buy several dictionaries if you can possibly help it, for this is another season of failure in the honey crop. But I hope you will not fail to give a definite answer as to what standard I must follow.

Please allow me to enter a mild protest against your statement that "the silence of a dictionary concerning a word in contemporary use is the weightiest possible condemnation of it." There are constant changes taking place in the language, and all dictionaries are not fully up to date. According to the latest dictionaries it is correct to say, colloquially, that a man is well posted in bee-keeping, although the older dictionaries are entirely silent as to such use of the word "posted." The same applies to the expression, "I am in poor shape for work." And until a word has been given in all the dictionaries must I refrain from using it for fear you'll "sic" me?

You object to my using the word "in" with the meaning "into." It may not satisfy you for me to quote the dictionary, but for the benefit of others who might be misled by your criticism, I may say

that one of the definitions of "in" in the dictionary reads, "toward, so as to enter; into; as, come in the house."

MARENGO, Ill., July 13, 1899.

[The doctor has repeatedly said that if bees were left to themselves they did not choose larvæ that is too old for the rearing of good queens. In the manner in which this discussion was being conducted this was equivalent, in my opinion, to saying that they did not rear any poor queens when left to themselves. Whether there is any excuse for me or not, that is the view that I took of the case. As I understand the matter now, the doctor admits, and believed all of the time, that if a queen is removed and the bees left to themselves, that *some* of the queens will be poor; but his view of the matter is that the bees keep on starting cells for several days after the queen has been removed, and that some of the last-started cells result in poor queens; and the point is that he does not call this using of too old larvæ, when there is no younger in the hive, a matter of choice, but one of *necessity*. If they start any cells then, there is no opportunity for a choice—the old larvæ is all they have to use. When they have both old and young larvæ in the hive he believes that they never use the old from choice. That is his position; but it is only lately that he has made it clear—to *me*.

Let me tell you how I am able to so clearly understand his position. While on my way home from Wisconsin I made the doctor and his family a short visit. He and I drove down to the city, and came back just at dusk. On the way home we began discussing this very subject and kept it up until the doctor had the team partly unhitched from the buggy. He reached the point where all of the tugs were unhooked, then he became so interested that he sat right down on the buggy tongue and talked until first one horse would look around, and then draw a long breath, and then the other would repeat the operation. I thought

of it afterwards, what a capital picture E. R. Root might have gotten with his camera if he had been there. There would have been only one drawback—the lack of light—the stars had come out while we were talking.

The doctor asks me to try some experiments and see if the bees really do choose larvæ more than three days old. Doctor, I don't know the size of a larvæ that is three days old. Let me tell you just what I do know about this matter. I know from a great number of trials that when bees are given larvæ of all ages from which to rear queens that some of the queens are very poor; while if given only eggs, or just hatched larvæ, all of the queens are good.

I did think that Bros. Taylor and Miller would finally wear out this sic (kening) controversy, but it seems that I shall be compelled to do something that I have never done before, that is arbitrarily cut off a discussion.

There, it is done; and it was not such a difficult job as I had supposed it would be.—E.D.]



CUBA.

The Probable Reason why Mr. Poppleton Secured so Little Honey from Royal Palm.

O. O. POPPLETON.

(7) On page 202 of the Review for July Mr. Snyder draws attention to what seems like a difference of opinion between Mr. Somerford and myself as to the value of the Royal Palm as a honey yielder. This difference is more seeming than real; and arises from the fact that what I said about the Royal Palm was not as full and detailed as it might have been.

My two years of bee-keeping in Cuba were in what I think was a largely overstocked locality; we having from 400 to

500 colonies in our own apiary; besides, there was at least one native apiary close by. There were large numbers of the Royal Palms near us, but they were not a source of surplus honey. About 15 colonies, say three per cent., did store more honey than they used from May 1st to Oct. 1st; but not to exceed 5 lbs. per month by any one of them. About one-third of the apiary held its own without feeding; while the remaining two-thirds had to be fed for months. Both of the seasons, while I was there, were nearly alike so far as honey yield was concerned. My experience was exactly as stated in the article referred to by Mr. Snyder; viz., that a Royal Palm was not a yielder of surplus honey.

Mr. Somerford's experience was probably with localities not so badly overstocked as mine; and I have no doubt but what he told his experience just as correctly as I told mine; in fact, judging from theory, I should think that bees not in an overstocked locality would get surplus honey from the Royal Palm.

The bulk of the surplus honey, aside from that from Bellflower, comes mostly in March and April; and most of it is from a flowering tree, that grows along the roads and fences; I do not remember the name of the tree, so omitted to mention it. The honey is not, in my opinion, equal in either flavor or body to buckwheat honey; while it is very nearly as dark.

No, I purposely said nothing about foul brood in Cuba, because I knew nothing about it personally; and I try to follow the rule of writing about such things only as I have a personal knowledge. I only heard through Mr. Somerford, either just before, or just after, leaving Cuba, that the disease was in the Cassanova apiary. Those who had personal knowledge of the facts could give them better than I could.

STUART, Fla., July 24, 1899.



Good things From Other Journals.

MOVING BEES SHORT DISTANCES

Most of bee-keepers at times wish to move one or more colonies of bees a short distance, but are kept from doing so because of the difficulty of preventing the return of many of the bees to the old stand; but Mr. E. R. Jones, of Milano, Texas, tells the readers of the *Southland Queen*, in the June number, how to do it. He says:

"Choose a day that bids fair to be pleasant and warm enough so that *all* the adult bees will fly as soon as given their liberty. Early in the morning, before a single bee has left the hive, close the entrance with wire cloth to all hives that are to be moved, and let them remain closed a short while (one to two hours) when all the colonies so imprisoned will exhibit great uneasiness. Now move them all once, as nearly as possible, and disturb them sufficiently to cause all the bees to fill their honey sacs. Place them on the stands they are to occupy and give them their liberty at once. If you follow these instructions, and have any bees worth mentioning return to the old stand it will be an exception: such as I have never seen; and I have moved hundreds of colonies short distances. I know this is a pretty hard lick on some of the old veterans, the doctors and wise men of the east."

There, Mr. Jones, those words, "some of," saved your bacon; for I'm one of the "doctors" who keep bees and I've been practicing this same method for more than twenty-five years, and you've been doing so for only nine years, as you say.

We all know that if we move our bees several miles we have no fears of their returning to the old stands, and the "second thought" will tell us that it is not the distance they have been moved that causes them to remain at the new location, but the disturbance that has been caused by shutting them in and moving them. I have never tried it, but I am quite sure

that if one or more colonies could be moved in the night during the working season, without being shut in, and so quietly that the bees would not know that they had been moved, they would be badly depopulated because of the loss of bees leaving the hive without marking their new location; so that it is not the distance they have been moved that causes them to mark the new location, but the disturbance; and believing this to be the case, I have often moved a few colonies a few feet or a few rods, as might be desirable, and I have usually done the moving with a wheel-barrow. I generally close the entrance with wire cloth in the morning, before the bees begin to fly, making sure to give enough ventilation so that the heat generated by their excited condition shall not smother them, and then move them at my leisure.

Living as I do in the city, and wintering the bees in our house-cellar, and keeping them during the summer on vacant lots from ten to thirty rods from the house, I usually set the bees in our back yard, between the house and barn, when removed from the cellar in the spring, so that I can more conveniently care for them till warm weather has come to stay, when I move one or more colonies, as I have time, to their summer location.

The bees are fastened in as above described, and if I can't move them at once they are set in the shade until I can move them. They will sometimes remain shut in for a half day or even longer, and when I am ready to move them I place a colony on the wheel-barrow and go out to the sidewalk with it and wheel it along for several rods, backward and forward, till I have wheeled them forty rods or more, (the sidewalk being uneven keeps up a constant jar) and then wheel them to their summer stands, and never till this season have enough bees returned to the old location to attract attention. This season, however, for some reason, this method which I have practised so many years, has been a flat failure. I had four colonies standing near each other,

not more than a foot apart, on the south side of the barn. Three of them were strong and one was weak; the weakest I had. I moved the strong colonies as above described, intending also to move the weak one, but the bees from the three moved were returning to the old stand so rapidly that I left the weak one to catch those returning from the three moved; and a few days later I sold this colony for nearly twice the amount I was getting for good colonies.

One morning I prepared several colonies for moving, and put them in a wagon where they remained for over half a day before I got time to give them a ride of over one mile and back, and the bees returned as badly from those colonies as from those given a wheel-barrow ride.

CANDY FOR SHIPPING QUEENS IN HOT WEATHER.

In Gleanings for April 1, in reply to a question, Mr. Doolittle tells how to make "Good" candy so that it will stand shipping to a hot climate. He says that "out of the forty Adel queens sent to one party last year only four arrived in any other than a good condition, and these four were fumigated to death in the mails." I judge the party these queens were sent to lives in Jamaica; and he says, "it would be dollars in our pockets if more of your queen-breeders knew how to make *Good* candy." He further says;

When shipping queens when they must go in hot weather, or go from our cool climate into a hot one, I take the candy and knead into it some very fine granulated sugar, to the amount of about one-sixth of its bulk, and this granulated sugar makes the candy "hold up" in place, no matter what the weather, while at the same time it does not take from it its moisture. To first make the candy I use good powdered sugar, setting it near the stove from four to six hours, till thoroughly warmed through, when some good, thick, extracted honey is warmed till it feels quite warm to the hand. The two are now stirred together, adding sugar until it can be worked with the hands, when enough of the sugar is kneaded in till a loaf is formed

which will stand up of its own accord without flattening down when placed on a flat surface. It is now set in a warm room for a week or so, when it is ready for use, using granulated sugar, as above, when the weather is warm or the queens are to go to some climate where it is warmer than it is here. Before granulated sugar is added, candy that will stand up nicely in a temperature of 75° will go down and slowly run about if kept in a temperature of 100° for half a day. But after the granulated sugar is added it will hold its place, even when the temperature is above 100°. From what I have seen, I am convinced that more queens are lost when sent to a warm climate by the candy getting soft and daubing the bees than from all other causes put together.

It seems to me that nothing of value can be added to what Mr. Doolittle says as to how best to make candy to be used in shipping queens, especially in very warm weather or to hot climates; and perhaps this clipping will explain to some who have had trouble in shipping queens to hot climates the reason for that trouble. I have received queens and the accompanying bees so daubed with the food accompanying them that it seemed a wonder they were not all dead when they arrived.

SPEAK KIND, ENCOURAGING WORDS WHEN THEY CAN DO THE MOST GOOD.

Mr. Editor, will you please allow me space to thank the American Bee Journal, and the editor of the American Bee-Keeper, for their kind words regarding this "Selector" and his work for the Review? Also the "Picker" for the Canadian Bee Journal (D. W. Heise) who devotes over half a column to a description of my peculiarities, but, notwithstanding his calling me a "Wily personage," I really enjoy reading "his pickings," mixed as they are with his brief, crisp, comments that hit the "nail on the head" every time.

Now don't let any one say that I'm resurrecting the "mutual admiration society." I really pity the man or woman that has neither the inclination nor the

ability to say good things of others while they live, not waiting till they are dead. It has been a source of real enjoyment to me to read the kind words said of each other by the editors of our bee journals. I believe there are very few people who do not like to be well spoken of. The truthful words kindly spoken of each other, encourage to better efforts and better living. Prof. Cook on page 819 of American Bee Journal for 1898 refers to the dawning of a new era, when "denunciation" and "hard criticism" ceased to be the rule, and gives much credit to A. I. Root, and refers to Drs. Miller and Mason as men whose influence made it hard for quarrels and bitterness to exist, and to Mr. Hutchinson "who was too fair in his judgment and feelings to brook anything tainted with dissension." May this new era continue to exist, and its influence widen till it covers the whole earth.

TOLEDO, Ohio, June 30, 1899.

Notes From Foreign Bee Journals.

BY F. L. THOMPSON.

THE GERSTUNG THEORY.

In the Southland Queen for February Mr. L. Stachelhausen says that I confess myself that I never have read Gerstung's books, and consequently American bee-keepers do not know any more of Gerstung's theory than before. Probably he has forgotten or does not know that in the Review for 1896, I think in either the August or September number, I gave a fairly full account of the Gerstung theory, based on the summaries of two of Gerstung's most prominent followers, Herren Klein and Cremer.

Mr. Stachelhausen shows by his writings in the German journals that he has an intimate acquaintance with Gerstung's theory and the principles on which it is

based, as well as of related science, and also with American apiculture; and probably no one in America is more competent to pass judgement upon Gerstung's ideas. In the Southland Queen from January to April, inclusive, is a series of articles by him which should be read by all interested in further pursuing the subject. I note that he thinks Gerstung is right in advising that empty combs, where added, be placed between combs containing the least number of capped brood cells, and having young brood and eggs in the center.

On page 206 and 207 of the Review, all the items should have been credited to Gerstung's Deutsche Bienenzucht.

EXCHANGE OF BROOD-COMBS.

The editor of Bienen-Vater gives the following advice regarding the exchange of combs of brood between weak and strong colonies.

"More to be recommended than the taking away and giving of brood is the exchange of brood-combs, *i. e.*, from the weak colony is taken a comb with eggs or quite young brood, and from the strong colony a comb with sealed brood nearly ready to hatch, and the latter is given to the weak colony and the former to the strong one. By so doing the weak colony is prevented from being unable to well cover and keep warm the brood-comb, that, for it, represents a considerable enlargement of its brood-nest; so that the brood does not partly perish."

BEEES DESTROYING CELLS.

From the Meheszeti Kozlony is quoted the statement of M. Lukos, that he has repeatedly observed that after a colony swarms, a part of the queen-cells are destroyed while there are no queens in the hive. In this case it is always the point of the cell that is gnawed. Often when two or more cells are close together one will be left untouched. Frequently, good-looking cells will be destroyed, while more insignificant ones are left untouched. Since he has observed this, he uses only those cells for queen-rearing that

are left four or five days after swarming, and since then his queens are not only handsomer, but decidedly better.

Young queens, says Editor Weippl, should not be hastily condemned if they do not lay much at first. Many queens arrive at their full prolificness only after months; sometimes not until the next year.

FINDING QUEENS INDOORS.

For finding queens in colonies that are kept in bee-houses or pavilions, a writer in the Magyar *Méh* is quoted as recommending a small mirror stationed on the outside so that the sun's rays will be reflected so as to throw light on the combs while examined by the operator inside. (With a window near every hive, this might be applied also where one is looking for eggs in a house-apiary.)

TIN COMBS FOR SURPLUS.

To limit brood-rearing at will, Julius Steigel prefers deep-cell, artificial, tin combs coated with wax to the use of excluders. He has never known the queen to lay in them except in a single instance. In that case the eggs were deposited on the side walls of the cells, but the larvae that hatched, he thinks, could not reach the food at the bottom, and did not survive.

THE ORIGIN OF HONEY DEW.

Gaston Bonnier, professor at the Sorbonne, Paris, who has made honey dew a special study, agrees that in most cases it is of insect origin; but that which is secreted in the morning, not during the heat of the day, is an exudation of the plant similar to nectar, as is proved by the fact that it can be artificially produced on the leaves of branches on which there are absolutely no insects, by subjecting them to the same atmospheric conditions.

According to the Swiss observing stations, colonies united late in the fall are re-tive during the winter, and consume more.

SHAPE OF FRAMES AND THE WINTERING OF BEES.

Rudolf Dathe found that colonies on normal German frames, which are about equivalent to a Laugstroth frame set on end, required 15 to 20 pounds for winter stores, and 5 to 7 pounds more in the spring, while colonies on Gerstung's frames, which are the same depth but considerably broader, required 30 pounds for wintering and 15 to 20 pounds more in the spring; while the surplus yield of both sets at the end of July was the same.

EXCREMENTAL DISCHARGES.

Gottfried Rumber contends that the deposit on the bottom-board in winter is mainly dry excrement of the bees. To prove it, let some of this stuff be put into a glass of water, and some into a glass of ether. It will nearly all sink in the water, showing it is not fragments of wax; and in the ether, which dissolves all wax, it settles to the bottom, and is not dissolved. The water in which it is put has a strongly bitter taste, like pollen. Examined by an ordinary magnifying glass, a characteristic form of the particles is seen to resemble a curved sausage. The particles are not excrements of the wax-moth, for they are of a different size and shape. If some healthy bees are enclosed in a bell-shaped glass, and the latter inverted over clean white paper and left 24 hours, with provision for ventilation, particles of the same form and color will be seen strewn on the paper. Spots resembling those caused by diarrhoea are also sometimes seen, but rarely, and may come from unhealthy bees, or because the glass was not warm enough. He therefore concludes that normal, healthy bees discharge their excrement at all times and whenever they please, in or out of the hive, and that this excrement is in the form of dry, firm particles; that so-called cleansing flights are absolutely unnecessary and even injurious to healthy bees, as the weather is generally cool and many

perish; that an overloading of the intestines can not take place, and hence diarrhoea never can ensue because of it, or of an excessive consumption of food; that diarrhoea is promoted by cleansing flights, which chill the bees; and that liquid excrements are only discharged by diseased and never by healthy bees. One may produce diarrhoea in summer by suddenly sprinkling, with cold water from a brook, bees brushed on a piece of linen. In a short time the linen will be spotted.

A WAX-PRESS.

Prof. Schmid's wax-press, a cheap lever press combined with a can and perforated cylinder so that the wax-material is pressed in a sack in a cylinder under boiling water, and the wax drawn off above, was experimented with by Editor Weippl and two other bee-keepers, using old and pretty black comb. Forty-three per cent. was obtained. The sack was left in water over night, and a little more wax rose to the surface, but scarcely two per cent. The refuse formed a rather friable cake. The press is not claimed to yield quite as much wax as a screw press, but considering the difference in cost, is said to be preferable for the small bee-keeper.

FERTILITY IN SLUM-GUM.

Herr Gosch is quoted as saying in the Schleswig-Holsteinische Bienenzeitung that he was offered 5 marks per 100 kilogrammes for slum-gum after being pressed, by a party who proposed to make a fertilizer out of it by mixing other fertilizers with it. The reviewer, Alois Alfonsus, adds that he knows by his own experience that this material has great value as a fertilizer.

To cause the impurities of wax to settle, Herr Alfonsus throws in a handful of finely pulverized salt while the wax is boiling.

BLEACHING WAX.

To bleach wax, according to a quotation from the Oesterreich-ungarische Bienenzeitung, it is melted and allowed to fall through a skimmer into a large

vessel of cold water, which is kept stirred. The finely divided wax obtained is then put in a sieve and exposed to the sun two weeks, and often sprinkled with water.

THE POWER OF PRINTER'S INK.

Herr Maurus cites the experience of a bee-keeper in an agricultural district, who, as soon as his honey is harvested, advertises far and near that he will exchange honey for grain in small amounts at fixed prices. He always disposes of it all, several hundred kilos, and sells the grain for cash. He also reports another case of success. A bee-keeper's wife, a woman of education and social standing, when a large sum of money unexpectedly became due, helped her husband out of the hole by dressing as a peasant woman and selling their honey from house to house in genuine American style. The honey was packed in glasses of four sizes, attractively labeled, and accompanied by honey leaflets. She found the richest and most aristocratic people the poorest customers, while the middle classes furnished many more buyers, but they often did not have the money to pay for it. After one day's experience of this, she wrote a letter to the editor of the newspaper of the largest circulation in the town, setting forth the progress of apiculture, the lack of a market, and the advantages of honey as food and medicine, enclosing one of her leaflets, and asking the editor to speak a good word for her in the interests of the bee-keepers of the land. The amiable editor proved a veritable *deus ex machina*, for he printed her letter in full and added a recommendation, and the fact was at once visible in the attitude of the people she called on, most of whom now knew what honey was good for. The result was that 600 pounds were sold within a week. The moral, I take it, is not that editors will advertise free, but that newspapers have power.

A GALA HONEY-MARKET.

On August 29, 1897, through the efforts of the Kaerntner association, a honey-

market was held in the city of Friesach, in Kaernten. For weeks before, the occasion was advertised in the local newspapers of the district. The city was decorated on that day, and about 500 strangers, outside of the townspeople, came to be entertained. The market was held in the afternoon, in ten large tents, decorated with branches of fir, containing long tables spread with white cloth on which the honey was arranged, mostly in glass. In some of the tents, exhibitions were given by sixteen boys and girls of the public school in uncapping and extracting honey, making foundation, and nailing frames. The costs were reimbursed by the sale of souvenirs, such as scarf-pins representing bees, etc., by young women in country costumes. The sale of honey was a success, although the prices were pretty stiff in comparison with the customary ones, and many orders were taken to be filled later. The day was closed by a bee-keeper's convention, at which it was resolved to hold another market the next year at another town.

MONTROSE, Col., July 18, 1899.



Department of criticism

CONDUCTED BY R. L. TAYLOR.

The best critics are they
Who, with what they gainsay,
Offer another and better way.

PUTTING SWARMS WITH NUCLEI WITH- OUT THEIR QUARRELING.

In the American Bee Journal, 371, Doolittle criticises Dr. Miller sharply on account of his treatment of questions relating to the hiving of swarms with nuclei. The doctor responds later in a calm and dignified way that is quite refreshing, putting the whole matter into a proposition which, if accepted, must speedily give such results as will leave nothing

more to be said. If his course in this instance were generally emulated, much of the loose discussion, and the contending for more space, would be avoided. But there is one point in Doolittle's discussion which the doctor does not notice, and that is the method of living swarms with nuclei. Doolittle says "there is only one way which I know of without having many bees killed and making a general 'muss' of it all around." The method given is, in brief, having first smoked the nucleus and removed the queen from the swarm, to shake the bees of the nucleus out on the ground and let them run back into the hive with the swarm. I was much surprised at Doolittle's position on this matter; for, during swarming time, I have never found it necessary to use any such care. Moreover, I have just been having considerable experience on the point. I recently formed a number of nuclei with virgin queens to get a lot of imperfect combs repaired, and for other purposes, and the hope of surplus having passed, and bees in the shape of swarms being superabundant, I have dumped many in front of these small colonies, without ceremony, and let them run in. In no case was there any quarreling. In all my experience in such cases I have only deemed it necessary that the invading bees should be in considerable numbers and without a queen; and if of a prime swarm, that the queen of the nucleus should be fertile. I have been inclined to make light of the talk about "locality" in such cases, but may be there is more in it than I think.

VIRGIN QUEENS AND DRONE COMB.

C. P. Dadant, in the American Bee Journal, 403, in discussing Increase by Division, says of the hives having virgin queens "their bees will build nothing but drone-comb until the young queen is laying which will require from 6 to 15 days." This being entirely contrary to my experience so arrested my attention that I went and examined the small colonies referred to in the preceding para-

graph, and found all the new comb entirely worker; though in none were eggs yet hatching, and in one at least there were yet no eggs. But in considering the matter I saw that Mr. Dadant was contemplating cases in which a strong force of field bees was to attend each of the young queens. It seemed quite reasonable to suppose that this fact might make a difference in the character of the comb built; so, as a test on this point, I arranged a hive composed of three sections of the Heddon hive, the upper section of which had five or six frames in large part devoid of comb. Into this hive I put a swarm of bees with a virgin queen—a swarm sufficiently heavy to crowd the entire hive. This was six days ago right in the midst of a moderate basswood yield. Now the frames mentioned are almost entirely filled with comb and not a sign of a drone cell anywhere; and the queen is not yet laying. I would like to know the character of the circumstances or the localities in which bees with a virgin queen will build drone comb.

CRIMSON CLOVER.

Dr. Miller (American Bee Journal, 374) says in substance, in response to questions concerning crimson clover, that he sowed some in the spring and some of it bloomed that same year but the larger part early the next summer; and that it is "fine" for all kinds of stock. I think there is an entire agreement among those of experience that it should never be sown in the spring, as it amounts to nothing on account of the hot dry weather of summer. It is chiefly valuable as a "catch" crop; *i. e.*, when the ground cannot be otherwise occupied, as in growing corn, or after oats, or as a fertilizer for orchards and other fruit trees and plants. Sow in July or August or as soon during that time as the ground is sufficiently moist. Cultivate it in at the last working of corn, or harrow it in on oat stubble as soon as the oats are off. It blooms here the latter part of May, the following year, in time to be followed by corn. At that

time it is a great aid to the bees. It does not always endure the winter. It is excellent food for all stock *except* when dry it is dangerous for horses, as the large heads are liable to become impacted in the stomach.

A FOUL BROOD CURE.

H. W. Brice, in the British Bee Journal, according to the "Boiler," gives this cure for Foul Brood: "(b) Keep bees confined for 24 hours (this will kill many of the badly diseased ones,) re-hive them in a clean hive on starters only; (c) re-queen or give hatching queen-cell in 48 hours, *i. e.*, before any eggs are hatched out that may have been laid; (d) feed daily with medicated syrup for two months at least; (e) paint old hives and supers used in connection with diseased bees, and (f) consign to the flames without delay all quilts, combs, frames etc., removed from diseased colonies." That should please editor Root in point of safety, put it would be a great and unnecessary burden, and is neither science nor economy. To shake the bees into a hive furnished with foundation during a honey-flow, keeping all infected combs and honey strictly from other bees, is just as safe, with one-tenth the trouble and the expense.

HOW LONG BETWEEN THE PRIME AND THE SECOND SWARM?

I never could quite understand how Doolittle can be so certain that the first after-swarm is to be looked for on the ninth day after the prime swarm issues. To keep down increase I have this season returned a considerable number of prime swarms; first removing the queen. In order to test the applicability of Doolittle's teaching to this locality, I kept a record of the time of the issuing of the prime and the second swarms, in ten colonies. This is the record: 1 issued in five days; 2 in seven days; 2 in 8 days; 4 in 9 days; 1 in 10 days. It was a surprise to me that from several colonies so treated a second swarm did not issue at all, owing probably to the scarcity of nectar.

QUEEN-CELLS IN HIVE WITH
LAYING QUEEN.

The editor of *Gleanings* has been raising our expectations by promising a plan of producing queen-cells in the *brood-nest* of a hive with a laying queen, a step in advance of Doolittle, (*Gleanings*, 428.) But it turns out that it is done in a portion of the brood-nest shut off by perforated zinc. Isn't that Doolittle's plan exactly—in principle? No, it is a step behind Doolittle; inasmuch as the brood-nest is more difficult to get at than in the story above. Then the editor says "the whole secret of the plan rests in having the artificial cups perfectly made. Without the artificial cups nothing could be done." The editor is clearly wrong. I have found the natural cups, of which an abundance for ordinary purposes can be easily gathered from the hives, to be quite as acceptable to the bees.

[Friend Taylor, I fear you have failed to catch the true spirit of Bro. Root's editorial. I think he intends to convey the idea that the success of this plan of securing the building of queen cells by fencing off, with perforated metal, a portion of the brood-nest, was dependent upon furnishing the bees with cells already begun, and not that there was any special value in *artificial* cells, as compared with natural cups. I presume he would agree with you that the natural cups would answer every purpose. Of course, these natural cups may be saved up and used, but I think the professional queen breeder will find more satisfaction in cells dipped *a la* Pridgen—ED. REVIEW.]

DO BEES KEEP DIFFERENT HONEYS
SEPARATE?

Gleanings has a picture of a section of honey (p. 428) a large part of its center being raspberry honey; the rest of a white honey. The editor in his comments says: "it shows only how the bees placed the raspberry honey, calico fashion—or perhaps, more strictly speaking, raspberry

juice. It goes to show that bees have a preference for putting honey of a kind in patches rather than making a checker-board as it were—a cell of one kind of honey and a cell of another kind side by side." I wonder how he arrived at his conclusion. It seems to me it shows that the bees gathered the raspberry honey first and very naturally placed it in the upper centre of the comb, and gathering the white honey later they quite as naturally put it in the part still vacant. Bees do not intentionally keep different honeys separate. In other words, if the raspberry honey and the white honey had been gathered concurrently they would have been mingled throughout the section. The editor does not, I suppose, intentionally libel raspberry honey by intimating that it is raspberry juice. Raspberry honey, be it known, is made of nectar gathered from raspberry bloom, and a very fine honey it is.

THAT COURT.

In the June number of the *Review* I appointed Dr. Miller and editor Root a court to try me for persisting in error. But the editor evidently has no confidence in the court for he goes on without the knowledge or consent of his colleague and passes upon the whole record; besides something outside of it. His deliverance exhibits some curious specimens of reasoning, but as it is extra-judicial I let it pass and pray for the early convening of the court.

LAPER, Mich., July 10 1899.



EDITORIAL
offerings.

WISCONSIN'S wonderfully fertile soil, and the remnants of what were once magnificent forests of basswood, explain the wonderful success of Adam Grimm in years that have passed.

CROWDING the bees in order to get the sections filled out at the corners is not a profitable proceeding; but not all seem to have discovered it. This point is well brought out in the reported conversation between S. A. Niver and E. R. Root, published in *Gleanings* for August 1st.

A TRIP THROUGH WISCONSIN.

I have just returned from a two-weeks' trip among the bee-keepers and supply manufacturers of Wisconsin, bringing with me about forty views of apiaries, factories, hives, etc., and a notebook full of items of interest; all of which will eventually find their way into the *Review*.

STRAW is used for smoker fuel by some of the Wisconsin bee keepers. They get the fire to going well, and then jam in the straw. It will burn a long time, and the smoke is not so hot as that from wool. I believe that this practice originated with Mr. France. He saw a burning straw stack smoulder for days, and this suggested the use of straw for smoker fuel.

BRO. HOLTERMAN, of the Canadian Bee Journal has recently lost a little, six-year-old boy under peculiar circumstances. The boy had had his hair cut very short, and then went out into the hot sun. Soon after he was found in spasms, from which he soon died. Bro. Holterman and family have the sympathy of all their friends in this sad bereavement.

A NEW CAMERA is something in which I have been rejoicing the last few weeks. It is the largest and best camera I have ever owned. It is what is called the Empire State; made by the Rochester Optical Co., of Rochester N. Y. It has a rising and falling front, reversible back, double swing, pneumatic shutter, and all the little conveniences so dear to the heart of a photographer. It takes a picture 8 x 10 inches in size. I expect that my possession of this instrument will add to the picturesqueness of the *Review*.

A CAGED QUEEN may be laid at the entrance of any populous colony during the working season, and the bees will cluster over the cage and care for the queen just the same as though she were inside the hive. This is the way Mr. John Otto, of Forest Junction, Wisconsin, has his extra queens cared for in the summer. Queens may be left this way for days.

THICK SECTIONS.

Page & Lyons made some thick sections to order for two bee-keepers of Wisconsin. The sections were one-sixth of an inch in thickness. This extra thickness so increased the weight of the sections that when they were filled with honey, and sold, the extra weight would pay for the sections. They also made some nailed sections for a York State bee-keeper in which two of the sides of the section were of hard maple, five-sixteenths of an inch in thickness. In talking this matter over with a lady bee-keeper, she expressed the opinion that such practices were dishonest, if done for the sake of cheating the ones who bought the honey stored in such sections.

THICKNESS OF WINTER-PACKING.

Nearly all of the bee-keepers in Wisconsin winter their bees in cellars, but occasionally there is one in the Southern part of the State, or near the lake, that depends upon packing; leaving the bees in the open air. R. H. Schmidt of Sheboygan is one of the latter. Last winter he wintered 15 colonies out of doors with no loss. He places special stress, however, upon the thinness of the packing and packing-box. The outside case is made of narrow strips only $\frac{3}{8}$ of an inch in thickness, and the packing material is only three inches in thickness. His idea is that thick packing deprives the bees of the benefit of the sun's rays; that oftentimes the bees are aroused to a flight when surrounded by thin packing; some-

thing that would not occur with thick packing. He thinks that thin packing is particularly advantageous towards spring.

On the other hand, Mr. O. O. Poppleton, who once kept bees in Iowa, places great stress upon *thick* packing; saying that out door wintering often fails because of the insufficiency of the packing. It is true that bees in thickly packed hives are not so easily aroused to a flight by the sun's rays; but Mr. T. F. Bingham's remark on this point is worthy of consideration. He says that bees so packed "don't have to" fly.

Will those who have had experience in this matter please report it to the Review?

DO NOT

Tip up or turn over. This is the top of the crate, not the bottom. If handled roughly there will be damages claimed for breakage.

The above is what I saw printed in enormous letters, and pasted upon the tops of some crates standing at the depot at Wauzeka, Wisconsin. Almost everybody on the train noticed it, and commented upon it. From this it seems that the freight handlers might notice it, and, possibly, heed it. It seems as though something of this character might be used to advantage on the tops of crates of honey.

REVERSIBLE HONEY EXTRACTORS.

There have been several attempts at making an automatically reversible honey extractor; that is, an extractor in which the combs can be reversed automatically without stopping the machine. Some of these attempts have been more or less successful; but there are one or two objections that are very difficult to over-

come. The reversing of combs while in motion results in a shock, when they are stopped, that is liable to injure new combs. There is also a shock to the muscles of a man's arm when he suddenly stops and reverses the motion of a crank that is whirling four heavy comb-baskets and their contents. While in Wisconsin I found several men who owned automatically reversible extractors, but they did not use the automatic feature, on account of the objections that I have mentioned. They stopped the machine and then reversed the baskets by hand. A brake on a machine is a saver of time and muscle. According to my judgment, the Cowan reversible is the most desirable extractor on the market. It is now made with a brake.

INTRODUCING QUEENS.

A large number of my customers have reported how they have succeeded introducing queens by the plan described and illustrated in the June Review; viz., that of caging the queen against the comb where bees are hatching out. A few have reported failure from the bees gnawing under the comb and releasing the queen before they were ready to accept her. If care is taken to select old, tough comb, this will seldom occur. By far the greater number of failures have come from opening the hive and looking up the queen in a day or two after she was released, to see if she was all right. This disturbance alarmed the queen, and she ran and "squealed," and the bees took after her. In one instance the queen flew away and was lost. In some instances she would be found all right, and then the next time that the colony was examined the queen would be missing. I think that it can not be too emphatically urged that a colony be left entirely undisturbed for several days after a queen is released—until she has fully regained her normal condition and is thoroughly established as queen of the colony.

Mr. W. H. Pridgen suggests that, instead of removing the cage, a hole be

made through the comb, at the back of the cage, and this hole filled with candy. The bees will then release the queen by eating out the candy. We will thus have the advantage of both the hatching brood and of the candy plan of releasing. As soon as a hole is eaten through the candy, the bees will begin to go in and mix up with the queen, and she will come out when all is quiet. Mr. Pridgen thinks that with this plan not one queen in 1000 will be lost.

.....

THE PHILADELPHIA CONVENTION
PROGRAM.

Dr. A. B. Mason, Sta. B, Toledo, Ohio, the secretary of the United States Bee-Keepers' Association, has sent me the completed program for the national convention to be held in Philadelphia Sept. 5, 6, and 7 next. A copy of the same follows:

Necessity of Pure Food Legislation from a Bee-Keepers' Point of View—Rev. E. T. Abbott.
 Out Apiaries and their Management for Comb Honey—W. L. Coggs-shall.
 Possibilities and difficulties of Bee-Keeping in Cuba and Porto Rico, and the Effect of Our New Relations With those Islands on our Honey Market—Fred L. Craver-craft and W. W. Somerford.
 Best Method of Comb Honey Production, with Latest Hive Improvements—F. Danzenbaker.
 Possibilities of Bee-Keeping—Address by G. M. Doolittle.
 Marketing Honey—Can and Ought We to Control Prices?—P. H. Elwood.
 Bee-Keeping and the Source of the Honey Supply in and Around Philadelphia—W. E. Flower.
 Foul Brood: Its Detection and Eradication—N. E. France.
 Our Pursuit as Viewed by an Amateur—F. Bah-man.
 Why Bee-Keepers Exchanges Fail—C. A. Hatch.
 Bees or Honey—Which in Spring Management?—R. F. Hofferman.
 Bee-Keeping as a Profession—W. Z. Hutchinson.
 How to Successfully Conduct a Bee-Keepers' Exchange—J. Webster Johnson.
 The Fall Honey Crop of Philadelphia—John L. Kugler.
 Organization Among Bee-Keepers—If Desirable—Why, and How Best Accomplished?—Thomas G. Newman.
 Best Method of Extracted Honey Production—Frank Rauchtiss.
 Address by A. J. Root.
 Eads, Frames, and Lollies in the Apicultural World—Hon. Eugene Seagr.
 The Products of the Bee: Pollen, Propolis and Honey—W. A. Selsor.
 Food Value of Honey: Its Adulteration and Analysis—Hon. H. W. Wiley.
 President's Address—E. Whitcomb.

Secretary Mason announces that since his last notice was published about rates,

the Western Passenger Association has written that the rates in their association will be one fare for round trip plus \$2.00, added to the rates charged by the other association through whose territory the person may travel. By inquiring of the local station agent, any one may learn the rate.

For any further information, address Secretary Mason.

EXTRACTED.

PICKLED BROOD.

How to Detect it, and how to Treat it.

What has been termed "pickled brood" is often taken for foul brood by those who are not acquainted with the latter. Mr. N. E. France, foul brood inspector for Wisconsin, has prepared a leaflet upon both foul brood and pickled brood; I take from it his description and treatment of pickled brood. He says:—

Some seasons pickled brood is very bad, and in a few cases I have known it to reduce large colonies to doubtful hopes, but those same colonies, after treatment, were in a month free from disease, never showing it since. It may take as careful handling as if it were foul brood. Here is a description of the symptoms.

The larva bee shows light brown spots; a little later the capping, of natural color, has a small pin hole. The bee underneath will be round, having a black, dried, hard, pointed head, Chinaman-shoe-like. The skin of the bee is quite tough, and if punctured the liquid portion underneath will run out somewhat colored, as thin as water but never rosy like foul brood. It has little or no odor, does not stick to the walls of the comb, is easily pulled out and, if properly cared for, in nearly every case, the bees soon remove the dead brood.

Never make your bees use old black combs, or combs with dead brood left in them, better make the combs into wax, and replace with sheets of foundation. If the queen shows feebleness by putting several eggs in one cell, missing others, so that the brood is irregular, I shou'd kill her, and, in a week, remove all the

queen cells from her brood, then introduce a good queen or give a card of brood with eggs in it from a good colony. Keep all colonies strong. I do not think the most of pickled brood is owing to the queen, but rather to heat and lack of proper food at stated times. In most cases I find it to be a lack of unsealed honey and pollen stored near the young brood. There come times in the spring, (between dandelion and white clover bloom) with no honey coming in, when the old bees eat this uncapped honey, starving the larva bee at an early age. The result may be pickled brood, and at a date late enough so that they are gathering honey. If a little careful feeding during each day of these shortages is practiced, there will be little or no pickled brood. Rye flour in early spring often will be taken as pollen by the bees if put out doors in a warm place. Strong colonies with plenty of good feed and young laying queens seldom have any pickled brood.



THE PHILADELPHIA CONVENTION.

Rates That may be had in Going to the
Meeting of the United States Bee-
Keepers Association.

As has been already announced, the United States Bee-Keepers' Association will hold its annual convention in Philadelphia, Sept. 5, 6, and 7. I have just received from the Secretary, Dr. A. B. Mason, of Toledo, Ohio, the following in regard to railroad rates:

STA. B, TOLEDO, Ohio, June 26, 1899.

MR. EDITOR:—I have been faithfully trying to get the railroad rates to the G. A. R. encampment at Philadelphia for the information of those bee-keepers who may wish to attend the convention of the United States Bee-Keepers' Association on the 5th, 6th, and 7th of next September, and find that in the territory covered by the General Passenger Association the rate will be one cent per mile each way, "with a minimum of \$11 (except that the fare will not apply via Pittsburg, Pennsylvania road and Washington), but via Harrisburg direct," but the \$11 rate will be waived where the current first-class one-way fare is less. In such cases the fare will be one cent per mile each way in the Central Passenger Association territory added to the authorized one-way

fare for the round-trip from the nearest Trunk Line gateway (or station). Tickets for sale Sept. 1 to 4, inclusive.

The rate in the territory covered by the Trunk Line Association will be "one fare for the round with a minimum of \$1.00, except that the fare from New York and Baltimore will be \$3.00; from Washington \$4.00; from Newark, N. J., \$2.85; from Elizabeth, N. J., \$2.75; and and proportionately from intermediate points. One fare to New York plus \$3.00 from points west of Binghamton and Syracuse via New York, going and returning same route." Tickets to be sold, and good going, Sept. 2 to 5, inclusive.

The Central Passenger Association territory includes that part of Canada lying south of a line running from Toronto nearly west to Lake Huron; the southern peninsular of Michigan; that of Illinois lying east of a line running from East St. Louis to Chicago, including both of these cities; all of Indiana and Ohio; that portion of Pennsylvania lying west of the Allegheny River, and that part of New York lying west of a line from Salamanca to Buffalo.

The remainder of the United States lying east of the Mississippi River, and south of the Ohio River and those portions of Pennsylvania and New York not in the Central Passenger territory above described, and all of New England, are in the Trunk Line Association territory.

In both the territories named above, "tickets will be good returning to Sept. 12, inclusive; except that by deposit of ticket with joint agent at Philadelphia, between Sept. 5 and 9, both dates inclusive, and on payment of a fee of 50 cents, return limit may be extended to Sept. 30, inclusive."

Rates have not yet been fixed by the Southwestern Passenger Bureau, and the Western Passenger Association, but both have promised to inform me as soon as announcement is made."

By inquiring of the station agent any one can readily learn the rate of fare.

Side trips to Washington, Richmond, Norfolk, Gettysburg, Antietam and other points of interest will be provided for at about one fare for the round trip, or a cent and a half per mile for circuitous routes.

In a letter just received from Mr. F. Hahman, secretary of the Philadelphia Bee-Keepers' Association, he writes in substance:

"If those expecting to attend the convention will write me we will find quarters for them; those not notifying us will have to take their chances, as we cannot

engage rooms for anybody except those we are sure will come.

Let me suggest that all such as desire entertainment write Mr. Hahman *at once*, or as soon as they have decided to attend the convention, so as to be sure and reach him by August 15 or 20, and tell him what you wish provided. Mr. Hahman's address is Harrowgate Lane, Sta. F., Philadelphia, Pa.

The Philadelphia Association proposes to find good lodging-places for all who notify Mr. Hahman, and breakfast at the lodging-places if possible; and dinner and supper can be had at some of the numerous restaurants near the place of holding the convention, which will be in Franklin Institute, at 15 South 7th Street, between Market and Chestnut Streets.

A. B. MASON, *Secretary*.

BARRELS FOR HONEY.

How to Use Them—Some Reasons for Their Use.

It is quite likely that, for the majority of bee-keepers, the 60 lb. tin is the best package for extracted honey, but there may be conditions under which the barrel is a more desirable package. Mr. Dadant tells in the American Bee Journal why barrels may sometimes be desirable, and also how to use them in the best way. Here is what he says:—

In a recent number of the American Bee Journal I see an editorial criticising the use of barrels as honey-packages.

I will readily agree that tin makes a much more convenient receptacle, yet barrels have served us so long, especially to keep honey for several years, that I cannot help saying a word in their favor. We have, many times in the past, kept honey as long as three or four years in barrels without any trouble.

The important thing is to have good, tight barrels, sound and well dried. The great mistake many bee-keepers make when putting their honey in barrels is to treat them as if intended for wine or vinegar, or other wood-soaking liquid. A barrel which needs to be soaked in order not to leak, is not safe for honey. Only the very best hardwood barrels should be used for honey, and among these, those that have been treated to a coat of glue, as for coal-oil or alcohol, are the safest. These are entirely impermeable, and un-

less they have been soaked and again dried they will not leak. If they have remained in a dry place when not in use, all that needs to be done is to tighten the hoops on them just before using them, and keep them as before—in a dry place. We have used some barrels over and over again for 10 or 15 years without any loss.

As to taking the barrel apart to take out the honey, it is an easy job, and does not injure the barrel in the least if properly done. When we speak of barrels, we mean iron-bound barrels, for wooden hoops are un-satisfactory, always. To open a barrel of granulated honey all you need is a strong gimlet, a hoop-chase and a hammer or mallet. The barrel is set on end, the head is thoroughly cleansed, and the gimlet screwed into the center of it. Then a couple of marks are made on the edge of the head to correspond with similar marks on the chime, so that the head may be replaced in the same position as first found, after the barrel has been emptied. The hoops are then chased off, the staves spread a little, and the head is lifted off by the help of the gimlet. The honey may then be scooped out with a ladle, a scoop, a shovel, or even a spade, according to its density. After it has been entirely emptied, the head is replaced in exactly the position it occupied. A barrel treated in this way may be used over and over again without risk. This is not theory, but a practical fact, and the first thing I teach a new clerk who is expected to handle honey and put it up in different packages is how to remove a barrel head properly.

It is true that if we use the 60-pound cans we are saved some trouble, but I do not believe I would trade good barrels for those 60-pound cans when harvesting honey which may have to be put into small receptacles, according to the customers' wishes. For instance, if we have a crop of 20,000 pounds of honey, and put it all in 60-pound cans, we may have orders for some 10-pound or 5-pound, or even smaller cans. You will ask, Why not put it up in different sizes? We have tried it, but this has to be done during the harvest, when we are busy, and then we do not know how much should be put up of each different size of packages. If it is all in 60-pound cans, when we take it out, to put, say 3,000 pounds in small sizes, we have 50 of these cans to empty. It is a great trouble to wash them, and it is not advisable to leave them sticky with honey for a season. If you wash them, they will not dry inside and will rust.

If your honey is in large barrels the putting up of the 3,000 pounds will use up the honey of only about six barrels. These are easily emptied, easily cleansed, and ready for another crop without fear of rust or bad taste.

The demand for honey in 60-pound cans is on the increase, and I am glad of it. I should very much like to sell all the honey we produce in that shape, but we must cater to the trade, and I do not think that we will ever cease retailing out our goods in all sizes of packages, from 500 pounds to a single pound. We expect to use tin cans mainly but we will always prefer barrels from which to put up different sizes according to orders.

One word of warning: It is unsafe to melt granulated honey and return it to the barrel while it is hot. Honey has such wonderful hygrometric properties that the hot honey will absorb any moisture that may exist in the wood and actually shrink it till it leaks. This does not happen with cold honey. We were caught at this twice before we understood what was the cause of the trouble. So if you have to melt honey do not put it back into the barrel before it is cold. It is always best to use a good, strong can—an extractor can is very good—as it may be used till the honey has all been drawn off. If large tin cans with open top were not so inconvenient, they would make excellent packages to keep honey till the apiarist is ready to put it up for retailing.

I spoke of barrels glued for coal-oil or alcohol; I meant barrels that have not been in use. A barrel that has contained alcohol is safe for honey, but a barrel that has contained coal-oil is fit for nothing but coal-oil afterwards.

THE FIRST ANNIVERSARY.

It is just a year since the Chicago, Milwaukee & St. Paul road inaugurated its celebrated Pioneer Limited passenger train service between Chicago, Milwaukee, St. Paul and Minneapolis. This service marked a new era in the railway world in the line of passenger accommodations. At a cost of a quarter of a million dollars that progressive company furnished the traveling public, in its Pioneer Limited train, comforts and facilities the best ever produced. This train has been described many times in newspapers and magazines, but should be seen and examined to be appreciated. In beauty of finish, richness and elegance of furnishing nothing equal to it has ever been attempted by any other road. The

car builders were nearly a year in completing the Pioneer Limited trains (there are two—one leaving Chicago for the West and the other leaving the Twin Cities for the East every evening in the year) and they stand a monument to the builders' art. No regular passenger train service in America is as well known as the Pioneer Limited. From the standpoint of passenger traffic the past twelve months have been the most successful in the history of the St. Paul road, made so very largely by the Pioneer Limited. The patronage of this service is a striking illustration of the fact that the public appreciates a good thing.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee-Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

NEW YORK.—Good demand for all kinds of extracted, excepting buckwheat. Some demand for amber and white comb. Beeswax is dull. We quote as follows: Fancy white, 12; No. 1 white, 10 to 11; fancy amber, 9 to 10; No. 1 amber, 9; white, extracted, 7 to 7½; amber 6½ to 7; beeswax, 25 to 26.

HILDRETH & SEGELKEN,
July, 7. 120 West Broadway, New York.

BUFFALO, N. Y.—The honey season may be considered closed for the present. A few stray lots of old honey are selling at from 6 to 8 cents. There is no strictly fancy here. A little would probably bring 11 or 12 cents. Some fancy pure beeswax is wanted at about 30 cents per pound in small cakes.

BATTERSON & CO.
May, 13. 167 & 169 Scott St., Buffalo, N. Y.

BUFFALO, N. Y.—Honey has sold slower since the first of January than I ever knew it to sell at this time of the year. I quote as follows: fancy white 11½ to 12; No. 1 white, 11 to 11½; fancy amber, 10 to 11; No. 1 amber; 9 to 10; fancy dark, 8 to 8½; white, extracted, 7 to 7½; amber, 6 to 7; dark, 5 to 6; beeswax, 28 to 30.

W. C. TOWNSEND,
Jan. 25. 86 West Market St., Buffalo, N. Y.

CLEVELAND, O. We quote as follows: Fancy white, 12½ to 13; No. 1 white, 11 to 12; fancy amber, 10; No. 1 amber, 8 to 9; fancy dark, 7 to 8; extracted, 7.

A. B. WILLIAMS & CO.
July 8. 80 & 82 Broadway, Cleveland, Ohio

CHICAGO, ILL.—As yet no new crop received. Extracted meets with prompt sale. As to quality and style package, will sell from 7 to 8 cents per pound. We quote as follows: Fancy white comb honey, 14; No. 2 white, 12; amber, 10 to 11; beeswax, 27. Those preferring to sell at home can write us, as we will buy for cash.

S. T. FISH & CO.,
July 7. 189 So. Water St., Chicago, Ills.

CHICAGO, ILL.—Not any of the new comb from other than the Southern States has yet appeared on our market, and most of that is amber to dark. It sells at an average of from 8 to 10 cents. New white that would grade choice to fancy would sell at 13 cents, extracted, white, 7 to 7½; ambers, 6 to 7; dark, 5 to 6. Beeswax, 26 to 27.

R. A. BURNETT & Co.,
July 8. 193 So. Water St., Chicago, Ill.

KANSAS CITY.—Only a few cans of new white comb in the market yet. It is selling readily. We quote as follows: No. 1 white, 14 to 15; fancy amber, 14; No. 1 amber, 13; white extracted, 6½; amber, 5½; dark, 4½; beeswax, 20.

C. C. CLEMONS CO.,
July 7. 423 Walnut St., Kansas City, Mo.

NEW YORK, N. Y.—Our market has never been in better condition, for handling both honey and wax, so far as stock in hand is concerned. We would suggest to Southern shippers of extracted honey the advisability of letting it come forward. At this writing we have en route several shipments of new Southern extracted.

Our market has dropped off slightly on wax, although there is a steady demand.

We do not expect much more trade in comb honey until the new crop begins to arrive in early fall. We quote as follows: Fancy white, 12½ to 13½; No. 1 white, 11½ to 12; fair white, 9½ to 10½; fancy buckwheat, 8 to 9; No. 1 buckwheat, 7 to 8; fair buckwheat, 6½ to 7.

Extracted honey, Florida white, 7½ to 7½; light amber, 6½ to 7; amber, 6 to 6½. Other Southern, fancy, per gallon, 65 to 70; fair, 60 to 65; good, 52½ to 55. Beeswax, 27 to 28.

Write us before shipping.

FRANCIS H. LEGGETT & CO.
April 25. 17 Broadway, Franklin & Varick Sts.

THE
A. I. ROOT CO.,
10 VINE ST., PHILADELPHIA, PA
BEE-SUPPLIES.

Direct steamboat and railroad lines to all points. We want to save you freight.

Dark: YOUR Golden
Italn: CHOICE Italian
QUEENS.

Reared by the best methods known.

Untested, single queen, 75 cts.; six for \$1.00; one dozen, \$7.50. Tested queens, just double these prices. Choice breeding queens, from \$3.00 to \$5.00. Circular telling how to *introduce any kind of a queen, free.*

E. R. JONES.

3-98-12t

Milano, Texas

Please mention the Review

If You Wish Neat, Artistic

PRINTING,

Have it Done at the Review.

Bee keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.

J. H. M. COOK, 62 Cortland St., N. Y. City

Please mention the Review.

**THE MONITOR
PAPER FILE**

Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music, &c., by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome. **PRICE.**—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper.

Comb HONEY

And its production interest the practical bee-keeper more than anything else connected with his business. To have the best bees, hives, supers, foundation and implements, and a knowledge of how to use them in securing the most comb honey with the least labor, is that for which he strives; and it was to aid him in this attainment that **ADVANCED BEE CULTURE** was written—it is the one, grand, central idea kept in view from the first to the last of its thirty-two chapters.

Price of the book, 50 cts.; the Review one year and the book for \$1.25.

W. Z. HUTCHINSON,
Flint, Michigan.

GOLDEN

Italian Queens, warranted purely mated, sent by return mail, and safe arrival and satisfaction guaranteed, at 75 cts. each; or six for \$4.00. Selected queens, \$1.00 each; or six for \$5.00. After July 1, single warranted queen, 50 cts.; six for \$2.75; selected, single queen, 75 cts.; six for \$4.00. Specially low price on large orders.

I have had eleven years of experience, and know what good queens are. My queens are prolific, and their workers industrious, as well as beautiful to look upon; as hundreds of testimonials abundantly prove. I shall run 1,200 nuclei; and employ the most scientific methods.

H. G. QUIRIN,
Parkertown, Ohio.

6-99-6t M. O. Office, Belleune.

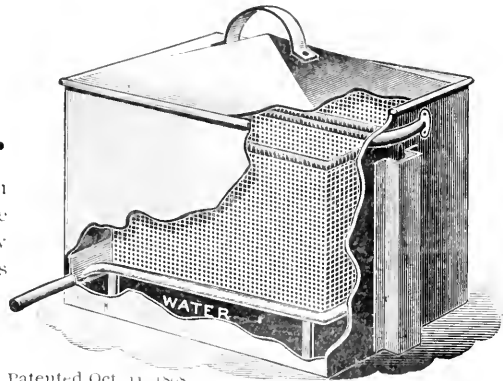
M. H. HUNT & SON,
Have a Full Line of Root's
Hives and Other Supplies.
Unless you Order Your Goods
Now, why, it will be too Late
To Secure the Best Results;
& That Means a loss of Honey.
So be Ready for Your Bees, and
Order all of Your Supplies
Now. Send for Our Catalog.

M. H. HUNT & SON, Bell Branch, Mich.

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1895

QUEENS, Untested, 75 c; 6 for \$4.00; tested, \$1.00; 6 for \$5.00; breeders \$2.00. The best stock, imported or golden. W. H. LAWS, Lavaea, Ark.

Please read on the Review

—If you are going to—

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Our Prices are worth looking at. We are making the new

Champion Chaff Hive

with dovetailed body and supers and a full line other Supplies, and we are selling them CHEAP. A postal sent for a price list may save you \$ \$ \$ \$.

R. H. SCHMIDT & CO.,
Box 157 Sheboygan, Wis.

1-98-tf

— If you wish the best, low-priced —

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

1899 Queens 1899

For Business—Queens for Strong Colonies—Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list. 12-97-tt

J. P. H. BROWN, Augusta, Ga.

Please mention the Review.

Bee - Supplies.

Root's goods at Root's prices. Ponder's honey jars. Prompt service. Low freight. Catalog free. Walter S. Ponder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Please mention the Review.

To stick things, use **MAJOR'S CEMENT.** Beware!!! Take no substitute. 2-98-421

Please mention the Review.

Best on Earth. 19 Years Without a Complaint.



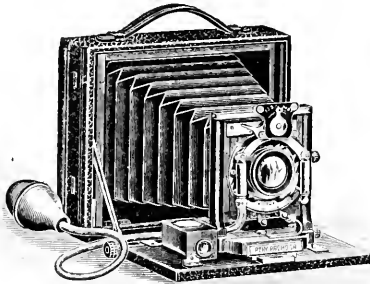
Smoke Engine	(largest smoker made)	4 inch stove	Dozen	Each
Doctor	3 1/2	"	9.00	1.10
Conqueror	3	"	6.50	1.00
Large	2 1/2	"	5.00	.90
Plain	2	"	1.75	.70
Little Wonder (wt. 10 oz.)	2	"	4.50	.60
Honey Knife			6.00	.80

For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

Amateur Photography

Anyone, without any experience, and with no instruction other than that contained in the manual furnished, can make beautiful photographs with the



PREMO CAMERA

Catalogue sent free upon application. For five cents we will enclose sample photograph.

Rochester Optical Co., Rochester, N. Y.

Orrin P. Safford, agent at Flint, Mich.

Free

Bee Books and subscriptions to Bee Journals given with orders for Supplies. Sections, Foundation Shipping Cases and Hives.

Send for list; free.

W. D. SOPER, Box 565, Jackson, Mich.

1-99-1f

Please mention the Review.

100 Colonies for sale.

Owing to poor health I am compelled to sell all my bees; and I will take two hundred dollars for the lot, including supers, section holders and separators all ready for comb honey. The bees are in 8-frame L. hives, all strong and in first condition. This is a bargain.

N. H. SMITH, Tilbury, Ont. Can. Lock box A.

Please mention the Review.

Early Queens,

Ready now, at \$1.00 each; after April 15 75 cents each.

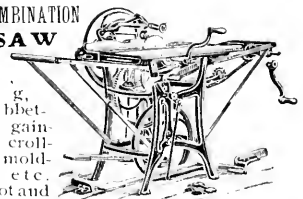
six for \$4.25; in May, six for \$3.75. For particulars, send for circulars. Two yards and the earliest location in the United States.

4-99-1f

J. B. CASE, Port Orange, Fla.

UNION COMBINATION SAW

For ripping, cross cut g. mitering, bbetting, grooving, gaining, boring, cross-sawing, edge molding, beading etc. Full line of foot and hand power machinery. Send for catalogue A.



1-99-12f

Seneca Falls Mfg. Co.

48 Water St., Seneca Falls N. Y.

Please mention the Review.

Selection.



Selection has been the chief factor in the development and building up of our improved breeds of horses, cattle, sheep, swine, and poultry. Men have devoted the best years of their lives to a single line or branch of this work—and not without their reward. In bee-keeping but little has been done in this direction. The development of a bright yellow bee has been the most noticeable thing that has been done in this line. This is the most easy of accomplishment, as results are so quickly and easily discernible. To breed for honey gathering qualities is a much slower process. As soon as bees hatch out we can decide in regard to their color, and as to whether we wish to rear queens from their mother for the purpose of improving the color of our stock; to decide in regard to their working qualities requires months—perhaps years.

Every experienced bee-keeper must have noticed how much more surplus is stored by some stocks than by others. Time and time again, when visiting bee-keepers, have I been shown some particular colony, and heard the owner tell with pride how much honey it had stored year after year; always coming through the winter in good condition, or doing this or that that was so desirable. The strange thing is that bee-keepers so seldom seem to realize the value of such a colony, or queen, as a starting-point from which to improve the stock of their whole apiary. If they do realize it, they seldom take advantage of the knowledge. Suppose, by the introduction of improved stock, a man can increase his surplus, on the average, one year with another, ten pounds per colony, and that is not an extravagant estimate on *one* colonies his crop would be increased 100 pounds. The cost for hives, grounds, labor, wintering, etc., is nearly the same with one kind of stock as with another, just as it costs as much to keep a scrub cow as it does to keep a Jersey, and a gain in surplus that comes from improvement in stock is the most profitable that can be secured. To improve your stock, get the **VERY BEST** that you can for breeding purposes, and with this stock your apiary, then watch carefully, and breed from the colonies that do the best. Continue this year after year, and you will be surprised at the results.

This matter of beginning with as good stock as you can get, is all-important. Don't lose years of time by commencing with common or inferior stock. Get the best, and thus be able to commence right where some other breeder left off.

As explained in previous advertisements, I am selling queens from stock upon the development of which a good man has spent twenty years; making crosses, and then each year selecting the best to breed from. I have several times tried this strain, and know it to be the best that I have ever tried.

The price of these queens will be \$1.50 each. This may seem like a high price, but the man who pays it will make dollars where this breeder and myself make cents; and when you come to read the conditions under which they are sold, it will not seem so high. The queens sent out will all be young queens, just beginning to lay, but, as there are no black bees in the vicinity, it is not likely that any will prove impurely mated. If any queen should prove to be impurely mated, another will be sent free of charge. Safe arrival in first-class condition will be guaranteed. Instructions for introducing will be sent to each purchaser, and if these instructions are followed, and the queen is lost, another will be sent free of charge. This is not all; if, at any time within two years, a purchaser, for any reason **WHATSOEVER**, is not satisfied with his bargain, he can return the queen, and his money will be refunded, and 50 cents extra sent to pay him for his trouble. It will be seen that the purchaser runs **NO RISK WHATSOEVER**. If a queen does not arrive in good condition, another is sent. If he loses her in introducing, another is sent. If she should prove impurely mated, another is sent. If the queen proves a poor layer, or the stock does not come up to the expectations, or there is **ANY** reason why the bargain is not satisfactory, the queen can be returned and the money will be refunded, and the customer fairly well paid for his trouble. I could not make this last promise if I did not **KNOW** that the stock is **REALLY SUPERIOR**.

I said that the price would be \$1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the Review. Any one who has already paid me, or who will pay me \$1.00 for the Review for 1890, can have a queen for \$1.00. Of course, all arrearages previous to 1890 must be paid up before this offer will hold good. This special offer is made with a view to the getting of new subscribers, and as an inducement to old subscribers to pay up all arrearages and to pay in advance to the end of the year.

W. Z. HUTCHINSON, Flint, Mich.

BEEES!

If you keep bees, subscribe for THE PROGRESSIVE BEE-KEEPER, a journal devoted to bees and honey. Fifty cents a year. Sample copy free. Also illustrated catalogue of bee-keepers' supplies.

Address LEAHY MFG. Co.,
Higginsville, Mo.; or at 1730
South 13th St., Omaha, Neb.;
or at 404 Broadway, East St.
Louis, Illinois.

300 Selected

Golden, Italian Queens, large and yellow all over, warranted purely mated, reared by Doolittle's method, queens by return mail, safe delivery and satisfaction guaranteed. Have 11 year's experience. Queens 75 cts. each; 6 for \$4., or \$7. per doz. Order quick, as above queens are young and will soon be taken. Read testimonial.

Romeo, Mich., July 10, 1896.

Mr. Quirin: Dear Sir:—The queens you sent me have turned out the yellowest bees in my apiary; are gentle to handle, large, and well marked.
C. C. Chamberlain.

H. G. QUIRIN,
Parkertown, Ohio.

6-99-6t M. O. Office, Belleune.

Page & Lyon,

Mfg. Co.

New London, Wis.

— * * * —
Nearness to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

ORDER EARLY.

There are indications that the demand for supplies will be very large this season, and everyone should order as early as possible. We have large facilities for manufacturing all kinds of *Bee-Keepers' Supplies*, and will serve our customers as quickly as possible.

Falcon sections are the finest made. 1896 catalogue ready Feb. 1st. Copy of the *American Bee-Keeper*—20 pages—sent free. Address

W. T. Falconer Mfg. Co.,

Jamestown, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wired*.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

Sprout Brook, N. Y.

Now is the time to requeen. Hyde & Son have the queens, either

GOLDEN

Italian, or the Holy Lands. Nothing but the best of stock. They have had years of experience and rear queens by the best known methods. *Special attention* is called to the Holy Lands. They are excelled by none for hardiness, prolificness and honey gathering. Try them. Untested queens, either race, 75 cts. each. Tested \$1.00. Discounts on quantities. Prompt service. Root's goods in stock. The Hyde - Scholl separators. 36-page catalog free.

O. P. HYDE & SON,

6-99-ft

Hutto, Texas.

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tons and tons of the very finest

FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered ere. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

18



99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.50; 1,000 for \$2.50; 3,000 for \$6.75; 5,000 for \$10.00; 10,000 for \$17.50.

No. 2 sections are not made to order, but when in stock are sold at \$1.50 per M.

J. FORNCROOK,

Watertown,

Wisconsin.

COMB

HONEY

And its production interest the practical bee-keeper more than anything else connected with his business. To have the best bees, hives, supers, foundation and implements, and a knowledge of how to use them in securing the most comb honey with the least labor, is that for which he strives; and it was to aid him in this attainment that **ADVANCED BEE CULTURE** was written—it is the one, grand, central idea kept in view from the first to the last of its thirty-two chapters.

Price of the book, 50 cts.; the Review one year and the book for \$1.25.

W. Z. HUTCHINSON,
Flint, Michigan.

Violin for Sale.

I am advertising for the well-known manufacturers of musical instruments, Jno. F. Stratton & Son, of New York, and taking my pay in musical merchandise. I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Stradivarius," Red, French finish, high polish, and real ebony trimmings, price \$14.00. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver shield, ebony screw-head, German silver ferules, and pearl dot in the end, price \$2.50. The case is wood with curved top, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this on fit, and would accept one-half nice, white extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apiarian Supplies. Send for circular. 1-96-6

Please mention the Review.

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1.25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEANES & MINER, Ronda, N. C.

Make Your Own Hives.

Bee-Keepers
Will save money by
using our Foot Power
Saw in making
their hives, sections
and boxes.

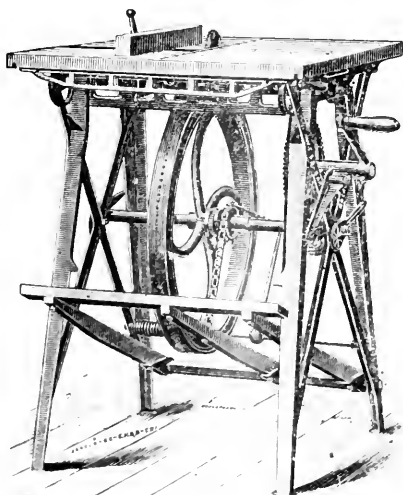
Machines on trial.
Send for Catalogue.


W. F. & JNO. BARNES CO.,

381 Ruby St.,

Rockford, Ills.


11-98 121





**WEBSTER'S
INTERNATIONAL
DICTIONARY**


WEBSTER'S



Hon. D. J. Brewer, Justice of U. S. Supreme Court,
says: "I commend it to all as the one great stand-
ard authority."

It excels in the ease with which the eye finds the
word sought; in accuracy of definition; in effect-
ive methods of indicating pronunciation; in terse
and comprehensive statements of facts and in
practical use as a working dictionary.
Specimen pages, etc., sent on application.

G. & C. Merriam Co., Publishers, Springfield, Mass., U. S. A.



INTERNATIONAL DICTIONARY

Some Odds and Ends That Will be Sold Cheap.

For a dozen or more years Mr. M. S. West of this place dealt in bee-keeper's supplies. Since his death, two years ago, his daughter has endeavored to close out his stock of goods, and has succeeded to large extent. There are still a few odds and ends, and she has brought them to me and left them for me to sell. Here is a list of the articles with prices at which they will be sold.

One ten-inch foundation mill. (second-hand) Root's, (one of recent make) dipping tank, etc. in good order 15.00

Three Woodcock foundation fasteners, each75

Thirty-three Simplicity hives, in the flat, sides, ends, covers and tin rabbits, but no frames nor bottom boards, each 40

Send all orders to **W. Z. HUTCHINSON,**
Flint, Mich

Free

Bee Books and subscriptions to Bee Journals given with orders for Supplies, Sections, Foundation, Shipping Cases and Hives.

Send for list; free.

W. D. SOPER, Box 565, Jackson, Mich.

1-99-11 *Please mention the Review*

Golden Italian Queens.

Virgins our specialty; 40c each, or 3 for \$1.00

GARDINER L. ELLIS, Millsboro, Del.

9-99-21 *Please mention the Review.*

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Root. Show and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking. 3-99-14

THE JENNIE ATCHLEY CO.,

Beville, Bee Co. Texas.

Bee - Supplies.

Root's goods at Root's prices. Poulter's honey jars. Prompt service. Low freight. Catalog free. Walter S. Poulter, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

JOHN F. STRATTON'S

CELEBRATED

GUITARS,

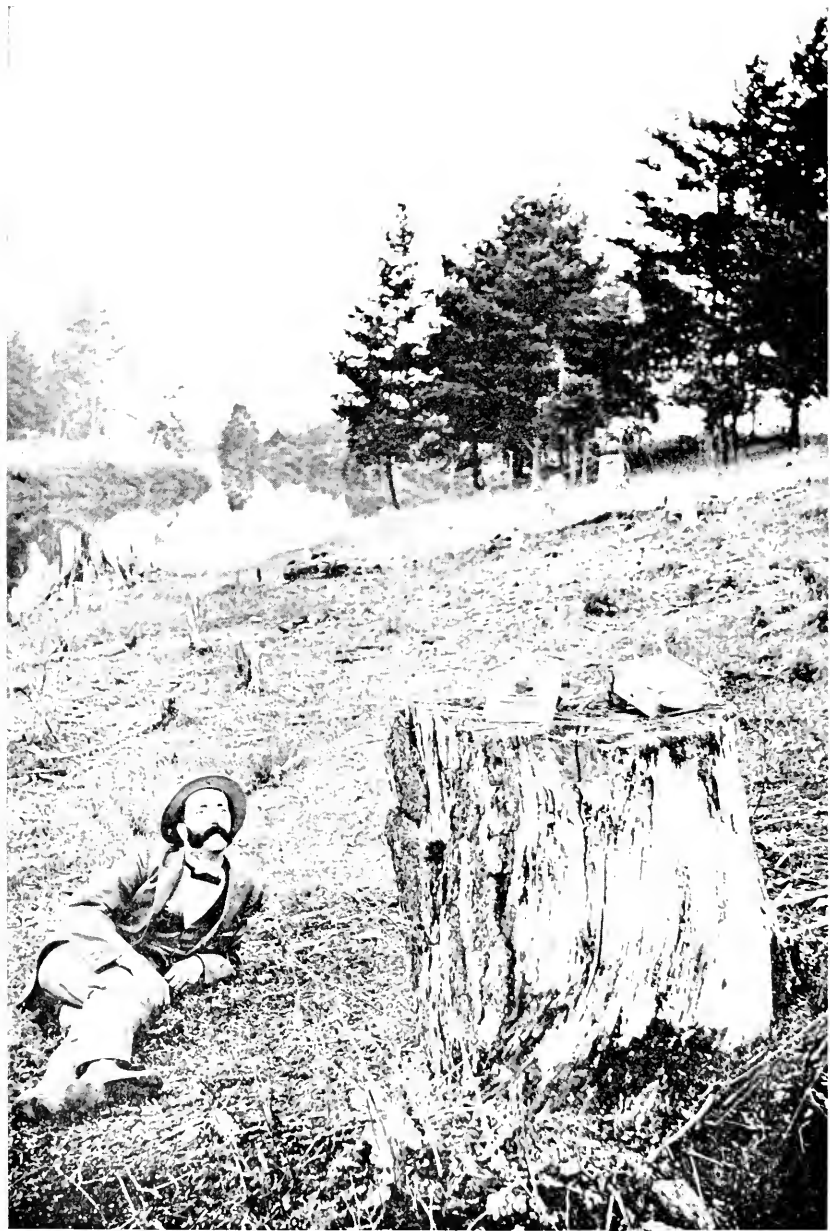


Importer of and

Wholesale Dealer in all kinds of

MUSICAL MERCHANDISE,

811, 813, 815, 817 East 9th St., New York.



Lining Wild Bees.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL. XII, FLINT, MICHIGAN, SEPTEMBER 10, 1899. NO. 9

General Correspondence.

HUNTING WILD BEES.

Starting the "Line;" Following the "Line;"
Finding the Tree.

J. D. BEASLY.

IN hunting wild bees, the first thing necessary is getting the "course;" *i. e.*, a direction from the position which you occupy, while watching the bees "load for home," and the tree containing the colony. Next, you must learn to remain on the course while hunting them; and how to look for the bees while searching the timber.

There are many ways of "getting a course," but I will mention only a few as practiced by myself and other Tennessee backwoodsmen.

In winter when there is a warm day so that the bees may fly freely, a piece of comb containing honey or sugar syrup is carried to an open elevated place near the woods and placed in the sunshine. If a bee happens to fly near he will of course be attracted by the smell of the comb and will immediately alight upon it, fill his honey sac, and fly away.

Soon, quite a number will find the honey or sugar. After carefully noting the direction which they take, the "bait" may be taken and moved some distance in the same direction which the bees *have* taken. The bees will soon find it again; and, if they fly in same direction, you will know that you have not as yet arrived at their domicile. Go forward again, being careful to keep on a line with the bees, carrying the "bait" with you, and examining the trees as you go. Put the "bait" down every few hundred yards and watch the bees until they turn back toward the place where you started. If you can not now locate them, go a short distance at right angles to the "course," carrying your bait with you, and thus get a new "course" which will, of course, intersect the first course, and there is your "bee-tree."

When bees are "coursed" from immovable objects, such as water, blooms, etc., it is necessary to be *very* careful to get the *precise* "course;" and then, what is sometimes more difficult, *to stay on it*. There is no better way to "keep" a "course" across hills and hollows than by breaking bushes as you go, continually looking backward, that you may keep a straight course to "The Home of the Honey-bees."

Now for the third essential: When bees are supposed to be in a tree seventy-five or a hundred feet from the ground, great care is necessary to see them with the naked eye; and some experience is necessary to make sure they are bees when seen. Never examine the body of the tree, but get the tree top between you and the sun and simply gaze through it into space. If you see insects flitting about the branches you may suspect they are bees; and if they move regularly, as though they meant business, you may be sure your suspicions are correct.

CROWELL, Tenn., May 24, 1899.



HONEY DEW AND BEE HUNTING.

Some Points as to the Origin of the Former
and the Prosecution of the Latter.

J. O. SHEARMAN.

THE "spirit moves me" to make some comment on Mr. McKnight's excellent explanation of the cause of honey dew, which seems a little incomplete at the finish.

Honey dew, in this latitude, at least, is secreted only when there has been a rapid development of vegetable growth (a "growing time") followed by a sudden change of temperature; such as cool nights, etc., causing arrested development. As soon as the conditions change back to normal, and everything is "hot and booming" again, the honey dew disappears—lice or no lice. Does that indicate *insecta impedimenta* as a prime cause? Please excuse the big "I" in the cause of science, and accept my experiences. In an experience of thirty years in and near this location, I have known three heavy "flows" or secretions of honey dew; and each time it was followed by a heavy loss of bees. 1898 was the most profuse, and was followed by the worst effect of any

previous year. It struck the bitternut hickory this time; and just here allow me to observe the same atmospheric conditions do not seem to effect *all* plants in the same way at the same time; owing, perhaps, to a different stage of development, or hardihood. "There are many things twixt heaven and earth, my Horatio, not ever *dreamed* of in your philosophy"—nor mine either. This is beyond our knowledge. We *do* know the effect, and can study into some of the causes, but, practically, I suppose a good thing to do would be to extract everything from the brood chamber; leave nothing for physic. This plant juice is very laxative, even when a small quantity is mixed with the honey. This may explain why some of my bees had dysentery early and others were not affected till near spring. They had honey gathered later, near the cluster, and did not get too the outside and ends of the combs till the best was used up. Last year honey dew came in June, just in the white clover flow, and tainted it all. We were having a fair flow of nectar with warm damp nights, then came a rain with sudden cold for four nights in succession. The bees neglected the clover (probably it did not secrete) and fairly roared on the bitter nuts, all over them, clear to their tops, for half the forenoon or more; and then again a little towards night, only to begin again next morning where they left off. No aphides were in sight. There were aphides in plenty on a white-wood tree for two weeks or more, but no bees about them. Perhaps they were not the right kind to Cook. (Editor, you can expunge this last remark if it is improper. It was intended as a joke.)

Some sharp tongue may ask why I did not try extracting the juice, when I had had former experiences with it. I would answer, I had enough else to do, with 80 to 100 colonies, and haying coming on, so I took the risk as I did before and generally came out with enough bees any way.

In 1880 the honey dew came on oak, and even *wheat stubble*; but I presume

this is enough on this subject, and I will now give a few points on bee hunting.

First catch a bee. And for this purpose it is well to have a handy "bee-box." Make a shallow box about as big as—weil, as a *book* say—but thicker. That is definite enough as to size; but make it with a sliding cover so it will slide either way, (endwise), but groove only one side of the box for the cover to slide in. The other edge should be a square shoulder, so that the cover sets on it. This is for convenience in catching bees. Have the cover longer than the box, with a window of wire cloth, or glass, near one end. This is to make the box dark or light at will. When ready to go, put in a piece of old comb and pour honey on it; or use scrap honey. Take along more old comb and honey put up in a bee-tight pail or can.

Now seek bees in the woods where you suspect there may be wild bees. Look along the edges of streams or marshy places, and when you find one at work, cuff it gently off the flower into the box, and darken it till it begins to "fill up."

After it has made a few trips, or other bees return with it, you may leave the cover off till you are ready to move. Set the box upon something, if nothing more than a stake with a bit of board nailed on top, and "lie low" so you can watch the circling bees between your eye and the sunlight. Bees will always "circle" at first to mark the location of the bait. Old hunters have a "knack" of "lining" bees and can see a bee flying direct in a line from the eye for quite a distance. They also have a way of "sighting" bees, by watching up by the edge of a shady tree, noting the direction the bees take, between the eye and the sunlight. A bee can be seen in that way above the top of the tallest trees. Old hunters often find bee-trees by lining in that way, without a bait. As soon as you have a "line" move *with* the bees; and if they are working steadily you may carry the box open and *keep going*. But if only a few come, then shut some in the darkened box when you

move on the line; and go quite a distance. If convenient go to some open spot suitable to sight from. Leave a bit of old comb on your last stand, as it may enable you to "pick up the line" again if you go past the bee-tree. When plenty of bees are at your bait, and making quick trips, look for a tree. If you do not find it by "sighting," try a cross-line. Carry the box to a suitable spot at right-angles to your line, and "sight" as before; and the tree will be found where the lines intersect. It is sometimes quite difficult to find where the bees go in, even after the cross-line is taken, especially if the timber is thick, and the leaves are on the trees, or if clouds obscure the light, or if the hole is very high up, or in thick shade. In such cases choose a time when there is good light, and move back and forth in the shade and "sight" for flying bees between your eye and the strong sunlight as seen close by the edge of a shade.

I omitted one point in order—while "finding" bees they may sometimes be "called" by burning some old comb on a heated stone or hot iron.

NEW RICHMOND, Mich., May 22, 1899.



EXTRACTING UNFINISHED SECTIONS.

How to Manipulate them Four at a Time. A
New Shop and Honey-House.

O. H. TOWNSEND.

I HAVE just finished extracting my $\frac{1}{4}$ unfinished sections, nearly 1000 in number, and, as I struck upon a very convenient way of holding them, I send a set of the four which I had in use, to see if you remember of anything so good for the purpose. I don't remember of ever having read of any contrivance for this purpose that is anywhere near as good.

The contrivance is simply two slats of wood held together by strips of rubber at

the ends. I expected that the rubbers would break occasionally, but can say that none broke with me. The rubbers were cut from the inner tube of old bicycle tires.

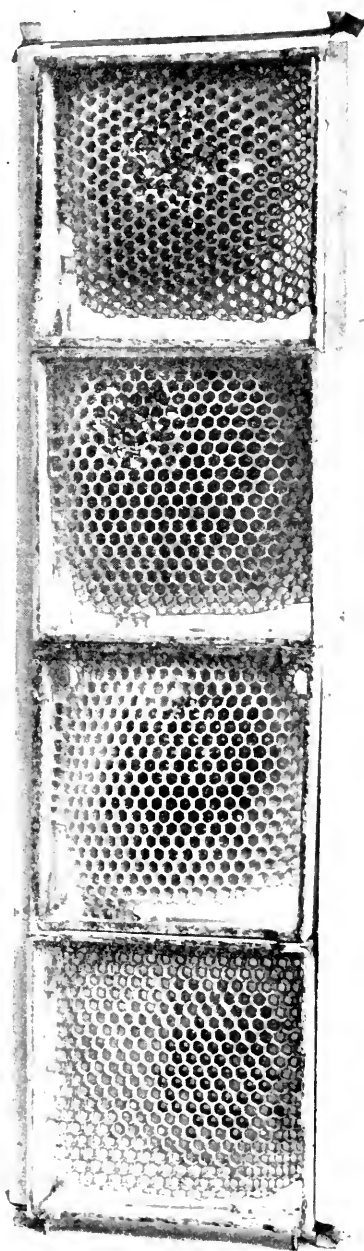
To use, get four sections ready to extract, by uncapping, standing one above another, to the height of four sections. Then take a form in both hands, pulling the sides or wood-strips far enough apart to pass over the sections. Place the lower ends on the table, about $\frac{1}{4}$ in. to you from the sections, passing the upper ends from you a little past the middle of the top one. Let go, and then pass the hands to the bottom, catching the lower section with the second finger of each hand, lifting the whole four sections up enough to pass the rubber then crowd the lower one into the form. Now crowd the four sections down from the top, which will adjust them all right to set into the extractor.

If you have some sections with comb in them, please try them as above, and see how easily they can be manipulated.

My last extracting, including the sections, was above 550 lbs. and I must say it was not so much of a job as I expected before getting at it. Of course, I had it in a warm room in my shop where I can govern the temperature. It was in my new shop which, by the way, is not finished yet; and one which, if I hold out to see finished, I shall invite you to see. I hope to finish it next spring. It is two stories, with room to store both comb and extracted honey above and planned for tanks below, to receive the honey from extractor. There is an elevator to move the cans of honey up or down. I also have a steam boiler with melting and heating appliances in the basement, but think I shall make the foundation in the upper story.

Am wintering 200 colonies in the Heddon hives, and 5 in old chaff hives with Gallup frames.

OTSEGO, Mich., Jan. 16, 1899.

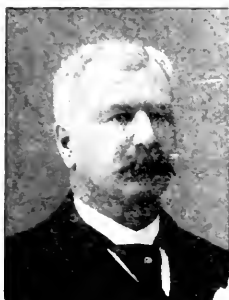


ARRANGEMENT FOR HANDLING FOUR SECTIONS AT A TIME WHEN EXTRACTING THEM.

CONGRATULATIONS.

A Bouquet Containing a Poësie for Each of us.

VARON SNYDER.



FRIEND H.: I desire to congratulate you on the good qualities of the July Review. You are waxing eloquent in what you say, on page 197, where you say so many nice things about

basswood. You have bright prospects as a writer, if you will only follow up that business.

C. Davenport gave some quite good ideas on selling honey; but if we have got to get down and *retail* honey for less than six cents a pound, it seems to me we will starve out after a little.

Dr. Mason is a wonderfully good writer—knows just how to pick out and tell all the good things

What has become of Heddon? Is he dead, or only sleeping?

I like Critic Taylor tip-top. He seems to be honest and fearless—two of the best qualities known.

J. T. Hariston thinks you have taken advantage of him (See page 209). Good for him.

Your "Catch the spirit of the times" is right up to date.

"Fool-cells" Eh! Hutchey? Well, well, what next. You must be a curiosity fool queen breeder. There now.

Doolittle shoots off his mouth pretty good about boiling foul broody honey. He has a pretty good head on him in many different ways.

Now a little about basswood. I know of a section of country which has many good things, such as buckwheat, clover, etc., and a whole lot of basswood that will, in all probability, not be

cut down in our time (unless we live so long we will be in some one's way); now, why wouldn't that be an ideal location for me, for instance—right in the heart of the best State Uncle Samuel owns? What do you say?

KINGSTON, N. Y., July 17, 1899.



HONEY DEW.

Some Arguments in Support of its Insect Origin.

ADRIAN GETAZ.



FROM time to time articles on the origin of honey dew appear in the bee-papers of this country, and, perhaps, also, in other countries; yet, notwithstanding all this discussion, the question is still undecided.

For the last two hundred years, or more, there have been hundreds, or, rather, thousands, of men and women who have spent years and years, many of them their whole lives, in the study of plants and animals. They have done it as carefully and thoroughly as it could be done. Now, if honey dew is really a secretion of the leaves, it seems to me that under such circumstances, the fact would have been ascertained beyond any possible doubt long before now. Instead of that we find only a dozen or so bee-keepers who have merely *seen* the honey dew, and failed to see the insects that produced it, asserting boldly that honey dew is a secretion. They have never made a full investigation; and all that they can say is that they saw the honey dew but didn't see the insects. To my knowledge, not a single one has even tried to wipe off the honey dew,

and see if more of it would come out of the leaf.

To me, the above considerations are almost an absolute proof that the honey dew is not a secretion from the plants.

But there are other considerations. If we break off or cut off a grapevine twig in the spring of the year, the sap will exude; but it will be *sap*, not honey dew, the very same identical sap that is running throughout the plant. The same occurs with the sugar maple bored for sugar; and under favorable circumstances the cut stalks of wheat or corn will exude sap also, but nothing but *sap*.

To produce something else than sap, it is necessary for the plant to have some glands or cells made especially for changing sap into something else—honey dew or nectar, or whatever the case may be. This is the case with the flowers. We find there the nectaries, which are glands, the function of which is to change the sap into nectar, and secrete that nectar.

Similar conditions exist in the animal kingdom. For instance, a cow has blood throughout her body, but milk is secreted only in the udder. If we cut a cow with a knife anywhere on the skin, blood will come out, but it will be blood; not milk. And if we cut or bruise a plant, we will find sap, and not honey dew. It is as impossible for a plant to secrete honey dew as it is for the skin of a cow to secrete milk.

The manner in which honey dew is found does not speak in favor of a secretion. There may be a big drop at the end of a leaf, and nothing on the three or four following leaves. The next one may be bespattered all over. Another may have a drop in the middle, etc. Now, if all these leaves are made alike, and if honey dew is a secretion, it seems to me that it would be spread on all the leaves uniformly—on *all* of them and over the whole surface.

The production of honey dew by aphides and other insects is a fact; a fact fully established; one which cannot be denied, unless the one denying it wishes

to make an ass of himself. Descriptions of the aphides, enlarged pictures of them showing the tubes through which the honey dew is ejected, can be found in all the text books; and, with a good magnifying glass, and some hard common sense, any one can see these things for himself if he wishes.

Somebody may ask where were the insects he did not see. Well, perhaps at the top of some near by tree that you did not investigate. Perhaps at the top of the tree which you climbed and tore your breeches; but you could not reach the end of the branches, as the ends are not strong enough to support the weight of a man. The aphides are of necessity always at the top of the trees or of the plants. If they were scattered all over, the excretion of the ones above would daub and smother the others.

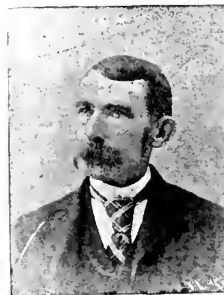
KNOXVILLE, Tenn., Aug. 2, 1899.



PLANTING TREES FOR HONEY.

Our old Friend "Rambler" thinks it not altogether an Entirely Hopeless Enterprise.

J. H. MARTIN.



EDITOR Hutchinson: The fine illustration in the July Review, showing a sprig of basswood bloom, and your article in relation thereto, almost makes me homesick to take a stroll in a bass-

wood forest, or where basswoods abound, and as I cannot take the stroll I am inclined to write you something in relation to tree planting and the increasing of our honey pasturage.

When living at the old home in Eastern New York I was in daily contact with specimens of such noble trees as the basswood, sugar maple and elm; and the drooping willow grew to perfection on the old homestead farm. The public highway ran through it for a distance of about eighty rods, and it was once my desire to make that eighty rods a beautiful avenue; and whenever opportunity offered I planted trees, both basswood and maple. Those trees have now been growing for more than twenty years; and I have assurances from parties who live near them that there is now a fine avenue, with but few bees near to gather the honey. Certainly, a score or more of basswood trees along the roadside, would amount to but little for the operations of a large apiary, but if farmers could be come interested in tree planting there would be a chance for more bee-keeping later on.

My ideas in relation to tree planting had been definitely formulated and settled long before I left the East. There is scarcely a farm in the hill country of Eastern New York and the New England States without more or less waste land upon it. The steep and stony hillside has been denuded of trees, what little fertility the land possessed has been exhausted from repeated croppings, and now it is turned over to stones and weeds, and called the back pasture. Upon this same barren hillside the tree will grow, and in its thrift will draw moisture to the surface, and perhaps the long forgotten spring will come to life again.

I have seen many hillsides that were naturally moist, or which had a fringe of springs upon their lower edges, made as dry as a bone from the free use of the woodman's axe. When the spring fails, the little stream below diminishes, the river a little farther down becomes sluggish, sand bars appear, and navigation ceases, all a result from the denuded hillsides.

It seems to me that the remedy for these evils is very simple. Nature has

been thrown out of balance, and we must get it back. In order to get it back we must ask Nature a few questions. Nature says that the shade of the tree is necessary for the continuous flow of the spring; and how lovingly the willow performs her part; and where the trout-brook winds its way through the meadow, the clover and the grasses grow with such vigor, and intertwine from bank to bank if possible, thus shielding the water from the rays of the sun, and preventing evaporation. Wherever the land is not too valuable, these springs and little streams can be protected by the planting of trees. The willow, locust, basswood and the maple would be agreeable to the bee-keeper and perform the work of making shade. The locust tree alone would make a rapid growth, and in a few years the grove could be trimmed out at a profit for wood or fence posts. The sugar maple would make fair returns from its honey and sugar, while the basswood would bear thinning out within twenty years for its white lumber. Going a little further, is there not a benefit in the judicious planting of trees even where the land is valuable?

The ten acres planted by Mr. Root was upon poor ground, but, according to his confession, if he had been as enthusiastic in forestry as he is in gardening, the result would have been different in spite of the lack of drainage.

The basswood and the locust will make a good growth in ten years, and produce quite an amount of honey, and, as the years pass, the tree top acreage will increase.

The planting of trees for the honey they will secrete is a matter of wide application; and here in California some of our bee men are alive to its importance.

Here where so much depends upon the conservation of the water supply, the government comes to our aid, and has set off large tracts of our mountain lands into government parks. Our large timber grows upon these mountains; and but for the timely interference of the govern-

ment, the woodman's axe would leave them as barren as a desert. Associations, with men of wide experience in forestry, are in active operation; and when the planting of trees is in progress the bee man is remembered in the planting of the eucalyptus. The basswood will grow in California, and a judicious planting of it in favored locations on the mountains would surely result in benefit.

We hope the time will come when we shall learn to cultivate Nature, as seen in the animal, the tree, the fountain, the flower and the insect, and there will be harmony between them all. We have much to learn, and many questions to ask of dame Nature, but she will not fail us if we ask unselfishly and listen patiently.

SHERMANTON, Calif., July 24, 1899.



Good things From Other Journals.

SELECTED BY DR. A. B. MASON.

CELLAR VERSUS OUT-DOOR WINTERING.

In the August 1st Busy Bee, Mr. Hairston tells Mr. Brown how to prevent frost and ice accumulating under his hive covers. He says:—

If he will put on supers in the fall and spread a cloth over the frames of the brood-nest, and pack the super full of nice clean hay or forest leaves, he will not be bothered any more with this trouble. "I have good success with the eight-frame standard depth, but one as shallow as the Danzy. hive won't do to winter on the summer-stand.

I wintered a three-frame nucleus with bees enough to cover one frame, by putting the frames on one side of the hive, with division board, and spread a cloth over the frames and let it extend down the division board to the bottom of the hive; then put on an empty super, and finished filling the hive and super with nice clean hay. You can imagine my

glad surprise to find them considerably stronger after the extreme cold winter than when I packed them. It was 22 degrees below zero at one time.

I don't winter my bees on their summer stands, but it is quite a common occurrence to have them come out of the cellar in the spring stronger in numbers than when put in winter quarters in November, and that with but little if any signs of disease, and I believe it pays well to winter in a good cellar. The average loss in weight last winter was a little less than two pounds per month per colony.

It seems to me that with proper stores in the right place, and with the proper winter protection, there need be but little, if any, loss in wintering.

BEEES SOMETIMES WINTER WELL ON HONEY-DEW.

Mr. Hairston also says that "dampness, or inferior stores, such as honey-dew and fruit-juice are what cause winter losses." Now it doesn't seem possible that any, or either, of these were the cause of the large loss last winter, and that bees do frequently winter well on what might be called a very poor grade of honey-dew I know to be a fact; for I believe I never knew my bees to gather such a poor lot of honey (honey-dew) as last season, so very poor that I didn't offer a pound for sale, and my bees never wintered better than they did last winter.

"SASSING" THE CRITIC.

Say, Mr. Editor, can't I "sass" your Critic Taylor a little? In my article in the March Review I gave him notice not to "sass" me or there might be trouble. A few weeks ago I wrote him that I enjoyed his criticisms, and, in reply, he expressed his pleasure at the fact, and in a sort of jocose way added, "perhaps you won't enjoy them so well when I have to pitch into you. Some don't seem to enjoy them;" and goes on to name a few, for fear, I suppose, that I may not have noticed it; but I had.

QUEEN-TRAPS VERSUS CLIPPED QUEENS.

On page 209 he says Mason is "enthusiastic in praise of queen-clipping, and cites a host who are with him. I was once with him, and would be still were it not for the queen-trap which I now prefer to clipping." He then proceeds to give his reasons; and among them all I see but one that I would consider of enough value to justify the outlay for traps if they cost as much as they cost me—75 cts. each. He says "the presence of a queen in the trap will always reveal the fact that a swarm has issued." That is the only good reason I ever knew or heard of that makes the trap of any value; except as indicated below, and I'm not sure but the time employed in examining the traps for queens as he prefers would be of more value than the time spent watching for queens when swarms issue.

Mr. Hairston says "I have no use for queen-traps. * * * Throw them away and clip your queens."

But there are certain conditions under which I believe the use of a queen-trap is advisable; even if the queen is clipped. I have a few colonies upstairs in our barn, and the entrances to the hives vary from ten to fifteen feet from the ground, and when a swarm issues and the queen falls that distance she is pretty sure to be injured. If the bee-keeper is so crowded for room that the hives can not be put far enough from each other to prevent the queen returning to the wrong hive when she comes out with a swarm, it is a good plan to have some device to prevent the queen leaving the hive, or to catch her when she does leave, and I know of nothing better than an entrance guard, or a queen-trap.

PRESERVING DRONES FOR LATE QUEEN-REARING.

In the *Progressive Bee-Keeper* for August Mr. Doolittle tells how to keep drones until late in the season for the mating of late raised queens in localities

where there is not a fall honey flow. He says:—

Well, what do I do? Just what I did yesterday, July 21, which was to go to each hive which had my drone-breeding queens in them and take all of the drone brood there was in their hives and mass it together in one hive, making that hive two or three stories high, according to the amount of drone brood I found. Some of this brood was in the egg form, and will not be out of the cells under nearly a month, so that these last will be in the full vigor of manhood during the month of September. Why I am massing this brood now is because it is at the close of the basswood honey harvest, and a few of the colonies are showing signs of persecuting their drones, from which I know I must take care of this drone brood if I would preserve it, as the next thing after driving out the living is to destroy all drones in the brood form. * * * Before massing this drone brood over the colony, which should always be a very populous one in worker bees, the queen is taken away, as only queenless colonies will keep drones after the honey flow is over. This colony is now allowed to rear its own queen, and when she gets to laying she is taken out, and the bees allowed to rear another queen, and so on, thus keeping them in a queenless state nearly all the time, otherwise they will kill off the drones we are trying to preserve as soon as the queen has been laying long enough so that many larvae have hatched. If by being kept thus queenless, the colony becomes weak in worker bees, brood should be given from other colonies, enough to keep them strong enough so they do not become a prey to robber bees. Such a colony of drones requires lots of honey, for each drone fills up on honey every time it leaves the hive for a flight, which is every pleasant day after it becomes of suitable age. There is generally honey enough in the combs containing drone brood to last well into the fall, when it is to our interest to feed some warm thin syrup each day at about noon, when it is warm and pleasant, so as to insure a full flight of these drones. Then, if in addition to this, we go some cool cloudy day, a day not in accord with the pilfering ideas of robber bees, and yet not cold enough to chill the bees handled, and carefully look over all of these combs in our drone colony, picking out and killing every inferior looking drone, we shall have something which will give us stock the next year we may well be proud

of, for after all other drones are killed off our queens do not have any other drones to meet except those preserved in this colony which, under this system of weeding and securing are the best possible to obtain under any light known at the present time.

CONSIDERING THE LOCALITY.

Some bee-keepers have a disposition to make sport of the locality question, and Mr. S. P. Culley, in the *Progressive Bee-Keeper* for the present month, August, says:—

It has been discussed and discussed upon until it seems to have become a sort of fad and hobby with some writers, and a by-word or joke with others. Still, in spite of exaggeration and belittlement, it has a rank of importance that should be as well and as clearly defined as may be, that its real importance and bearing upon success may be understood—especially by the A B C class.

Quite a number of years ago, before so much was said about "locality," I was rather made sport of by such noted men as D. A. Jones, Prof. Cook and T. F. Bingham at a Michigan State bee-keepers' convention held at Flint, for simply suggesting that perhaps some things we are unable to account for might be owing to "locality," and the splendid advice given above by our friend Doolittle, regarding the saving of drones, might never have occurred to him if he had lived in this, or in thousands of other localities, for so long as a surplus is being gathered by the bees they will keep, and continue to raise drones.

It is generally the case that in this locality the bees secure surplus almost continually till frost, although but little after buckwheat, but enough to keep up brood rearing till the middle of October; so there is no necessity for our being put to the trouble Mr. Doolittle is, in order to preserve drones.

STA. B. TOLEDO, O., Aug. 11, 1899.

Notes From Foreign Bee Journals.

BY F. L. THOMPSON.

A PECULIARITY OF YEARLING QUEENS.

A writer in *Bienen-Vater*, referred to as a practical bee-keeper, is quoted as saying in the *Magyar Meh*, that colonies with queens one year old are slow in development in spring, and only become populous by the end of June, as compared with colonies having queens two or three years old. (If so, then the adjectives *young* and *prolific* belong together only in summer. Important if true. I believe this is the second time I have seen a hint to that effect.)

INTRODUCING VIRGIN QUEENS.

Virgin queens were successfully introduced to two laying-worker-colonies by Julius Strigel by dipping the queens in water and turning them loose in the colonies. He thinks this plan worth experimenting with, as it evidently removes the specific scent of the queen.

INTRODUCING A QUEEN TO A COLONY HAVING A DRONE-LAYING QUEEN OR LAYING WORKER.

A sure method of introducing a queen to a colony with a drone-laying queen, or having laying workers, even when much depopulated, is claimed by a writer in the *Magyar Meh*. He beheads the drone brood, then smokes the colony well, takes a queen from a normal colony and gives her also a few puffs of smoke, and lets her run down on the center combs. Often in five to ten minutes the bees are seen carrying out the defective queen; and in colonies with laying workers thus treated he has observed one or two bees ejected from the entrance, which were presumably the laying workers.

CONTROLLING A QUEEN'S FLIGHT BY
CLIPPING HER WINGS.

Among the first Italian queens that Dr. Dzierzon raised was one that had short wings, but she was successfully mated. Another had one long wing and one short one, and could not fly until he clipped the long one a little, when she also mated. Both flew with some exertion, and he concludes that to clip the wings slightly would be a means of having them mate near home to desirable drones, and suggests that the clipping be done in a room, and but slightly at first, then the queen allowed to fly to the window, so that one may judge whether to clip her wings still shorter.

HUNGARIAN BEES.

The Banater or Hungarian bee, says Baron Bela Amboozy, occupies an intermediate position between the Italian and Carniolan in swarming proclivities, and also in brood rearing, and storage of honey in the brood-chamber. The colonies do not become weak in a prolonged flow as Italians do, while at the same time they store enough for the future. Its only faults are its inclination to rob, and to fly for nectar in bad weather, when numbers often perish. Since 1873 he has shipped nearly 6000 swarms and 8500 queens to nearly all the countries of Europe and America, and from Russia to Illinois, Ohio and Kentucky it has met with great favor. It is gray, with yellowish abdominal rings and yellowish down, and somewhat slenderer than the Carniolan, and it has a direct flight, while that of the Carniolan is waving. The best colored examples are in southern Hungary; those from the mountainous regions are much darker.

KAERNTNER BEES SOLD AS CARNIOLANS.

Dealers in Carniolan bees, says Wilhelm Hild, buy many colonies in the Gail valley, Kaernten, and take them to Carniola, whence they are shipped as Carniolans, so that the Kaerntner bees really deserve

the world-wide reputation that the Carniolans have, instead of the bees in Carniola.

IMPORTANCE OF INSECTS IN FERTILIZING
BLOSSOMS.

In seven localities in Austria last year experiments on the fertilizing of fruit-blossoms were conducted according to a concerted plan on a variety of trees and shrubs, choosing those that had not borne much the preceding year. In one locality apple-blossoms covered from insects bloomed one to three days longer, than uncovered ones; pear-blossoms four to five days longer; and plum-blossoms four to six days. No fruit set on the covered apple-boughs; and less on the covered pear and plum-boughs than on the uncovered ones; much of which fell off prematurely. In another locality the experiment was tried on an almond tree, a pear and a cherry, which bore fruit in abundance on the uncovered branches. All the covered blossoms remained in bloom longer, but none developed except one of the almond blossoms, apparently because it rubbed against the covering, and this withered without a kernel. In the third locality, two covered apple boughs bloomed three days longer than the others, and no fruit developed, while the uncovered branches bore in abundance. In the other four localities the experiments and results were so similar it is not worth while to mention them particularly. The whole forms a convincing proof that insect aid is necessary to the fruit industry.

WHAT TO DO WHEN A RELAPSE IS THREAT-
ENED FROM A BEE STING.

A person of a weak constitution, visiting a bee-keeper, was so affected, for a short time, by a sting on the ear as to seem about to die. Commenting, Dr. Ritter in such cases advises a horizontal position, immediate loosening of the collar, belt, etc., opening a window if in a room, and energetic spraying of the face (but not the eyes,) breast, and abdomen with cold water; not hesitating to dash a glassful

upon the latter two, together with a vigorous beating of the face and breast with a cold moist cloth, with quick, short sharp blows. This excites the activity of the heart; and when that is done the most is accomplished. But if this is ineffectual, then artificial breathing should be resorted to, by grasping the lower part of the breast with both hands, quickly compressing the ribs, and as quickly releasing them, continuing until the patient breathes regularly. Rhythmical raising of the arms and quickly lowering them also helps, but this needs some skill.

THE DICKEL THEORY—THE WORKERS DETERMINING THE SEX.

As Mr. L. Stachelhausen, in the December Southland Queen, has already summarized the chief points involved in the discussion of the Dickel theory, I will only say here that editor Dickel, of the Noerdliche Bienenzeitung, said at the Salzburg convention that he has transferred eggs by a pin with a bent point from drone-cells into worker-cells, and given these to a colony made queenless three or four days, and that both workers and queens developed from these eggs; also that when young drone larvae are moved and worker larvae put in their places, and these given to a colony made queenless three or four days, that workers, queens, and drones will be raised from these larvae. On these experiments and other considerations he builds his own theory that every egg is fertilized, and that the workers determine its sex at will by special secretions.

HONEY FOR THE COMPLEXION.

Herr Maurus says that Roumanian girls often mix honey with water for washing face and hands, and affirm that it produces a very fine complexion.

MONTROSE, Colo., Aug. 22, 1899.

Department of Criticism

CONDUCTED BY R. L. TAYLOR.

The best critics are they
Who, with what they gainsay,
Offer another and better way.

THE VITALITY OF FOUL BROOD GERMS, HOW THE PROBLEM NOW STANDS.

The problem as to the amount of heat necessary to render honey infected with foul brood safe for feeding to bees is provoking some attention, as it ought, both from a practical and a scientific point of view. It will be remembered that editor Root of *Gleanings* recently gave up his opinion that "a few minutes" at the boiling point rendered such honey innocuous to bees, and went to the other extreme, now holding that two and a half or three hours' boiling is necessary to render it safe as food for bees. He appears not to have noticed that an experiment has been made by F. C. Harrison, B. S. A., Bacteriologist, Ont. Agricultural College, which appears to sustain him in his later opinion. Mr. Harrison prepared test tubes in three different ways, viz., with dry spores, spores in honey, and spores in water. These tubes were then suspended in boiling honey which reached the temperature of 113° C., to 116° C., which is equivalent to about 235° to 240° F. Every fifteen minutes spores were removed from the tubes and put in nutrient media kept at the proper temperature for promoting growth, with the result that growth was obtained from spores from each preparation after 2 hours and 15 minutes boiling, and from two of the preparations after 2 hours and 30 minutes boiling. I say this experiment appears to sustain editor Root in his present opinion, but there is another side, for even scientists must reckon with practical af-

fares. It may be that the conditions under which the spores were placed in the nutrient media were much more favorable to their growth than are any set of conditions in which they could find themselves in the course of nature. Practical experience, at least, seems to sustain this view. Doolittle related recently how his bees once happened to test the point pretty thoroughly. He had a quantity of honey affected with foul brood and desiring to prepare it for feeding to the bees he placed it over the fire, and when it was near the boiling point something called him away, with the usual result that the honey forthwith boiled up and ran over upon the floor. A combination of circumstances prevented his gathering it up until his bees undertook the job, when he found it convenient to let them finish it. The bees of his entire apiary joined in the work, and yet without a single colony contracting foul brood. Mr. McEvoy, inspector of apiaries for Ontario, has also had large practical experience, and he holds that such honey is safe to feed to bees if just made to boil sharply. In my own experience I have fed a good deal of such honey to bees after boiling, making it my aim to boil it fifteen minutes, without finding in a single case any indication of foul brood as a result. I am strengthened in my opinion that such boiling renders honey safe to feed bees by the results of an experiment I made during the present season in feeding foul broody honey which was never boiled at all. The experiment was this: I procured some combs containing some honey and much brood dead of foul brood. These combs I placed in a solar wax-extractor where they remained until both the wax and honey were pretty thoroughly extracted. The temperature in this extractor sometimes reaches 180° F., but I believe I never found it to go higher than that. After the honey was ready, just at the close of the basswood season when no nectar was coming in from the fields, I took a virgin queen with two or three pints of bees and put them

on frames with starters and gave them the honey just mentioned, amounting to one or two quarts. The bees took the honey readily, and built comb amounting to more than a square foot, in all, storing therein a considerable portion of the honey. In due time brood appeared and I looked carefully for signs of foul brood, expecting, naturally, to find them, but as yet I have not done so; at least, I have not according to the accepted canon on that point. There has been, indeed, some dead brood; but none of it has been found viscid, and the bees have removed it all without difficulty. There thus appears, so far, a considerable interval between practical results and the scientist's results. It remains for future investigations to explain and harmonize these apparent differences.

AT WHAT AGE MAY QUEENS MATE?

A questioner (*American Bee Journal*, 170) is troubled because his queens take so much more time to mate than is allowed by the authorities. In reply Dr. Miller quotes Huber as placing the limits of possible fertilization at 21 days from the time the queen emerged from the cell. At one time I gave a virgin queen, which I had preserved in a large cage for about four weeks, the time not varying more than a day or two either way from that, to a queenless colony, and she, nevertheless, was fertilized and began laying very soon. During the present season an unusual case came under my observation. A colony which cast a prime swarm toward the last of June afterwards cast two or three after-swarms, the last one issuing on the 2nd of July. All of the swarms were returned, minus their queens. On the 21st of August the first eggs were discovered, the oldest of which were just beginning to hatch, so that the queen could not have begun to lay before the 16th of August—forty-five days after the time when she probably emerged from her cell. This would perhaps not appear so strange had there been an entire dearth of honey during the

time, but the contrary was the fact, for at least a month sufficient nectar was coming in to keep brood-rearing flourishing.

RE-HASHING.

The doctor is persistent. I think I may say, without exaggeration, that he has recently discussed in a dozen different articles and items the quality of queens reared by colonies in a natural way on the removal of the existing queen. Now he is entering upon a similar campaign against the opinion of Doolittle that the color of Italian bees is not properly called yellow. Several other evidences of the same trait might be mentioned. Persistence is a good thing if thereby some new fact or argument is brought to light.

CRITICISM.

F. L. Thompson, in the *Progressive Bee-Keeper*, for August, makes some sharp "comments" on the teachings of sundry editors and leading lights. They are very readable, and are well calculated to bring out the truth, but it would be well for brother Thompson to have a care to the character of his language, otherwise some one's feelings may be hurt. He should give more attention to the cultivation of a spirit of brotherly love. Of course, truth is a good thing to get, if it can be done without disturbing anyone's complacency, but the main thing is to avoid wounding the self-esteem of prominent writers. The editor of *Gleanings*, 618, says "some bee-keepers are, unfortunately, sour—soured on particular people who for some slight cause have gained the ill-will of that person. This thought came to me after reading a communication The writer of said article—a chronic pessimist—seems to be leaving no stone unturned to say some mean thing of some one person," etc. I am at a loss now whether it was Mr. Thompson or Dr. Miller the editor had in view in this item.

FOUL SMOKERS.

In the article just referred to Mr. Thompson is inclined to ridicule the ad-

vice to clean the smoker, which Dr. Miller gives an inquirer who complains that his smoker drops inky-looking stuff, saying that he (Thompson), having just cleaned his smoker, went out and tried it, and that it dripped that black stuff more copiously than he ever knew it to do before. This locality is like Mr. Thompson's—cleaning the smoker is no remedy here. The cause of the dripping is the use of fuel not thoroughly dry. Fuel, if pieces of wood, should be kept under cover for two or three years in a dry place; and even then it may be improved, when prepared for the smoker, by being kept for a few days in the hot summer sun, care being used to protect it from dew and rain. If the supply must be replenished quickly, thorough toasting in an oven is the best way

REMOVING HONEY WITHOUT BEE-ESCAPES.

F. A. Snell makes this broad assertion "Before the invention of the bee-escape there was no way to take off honey without demoralizing the bees, unless one waited until cool weather." This, if true, would be deplorable, but I have not found it to be true. If all *unnecessary* handling of bees during times of a dearth of nectar is avoided, all necessary handling with judicious management may be done without educating the bees up to the point of making annoying attempts at robbing. *Rapidity* is the key. Two do the work much more advantageously than one. One loosens the cover and the case, and raises the case, turning it up in a convenient position for brushing the bees off its lower side. The other removes the cover, sends a few puffs of smoke into the top of the case, and with a large quill, or other brush, by two or three passes removes the bees from its bottom, when it is turned up. The cases must not be exposed for a minute. They may be removed at once to the honey house where the remaining bees may escape through the windows; or they may, for the time, be piled securely in the

yard, when an escape may be used to free the honey of the bees that are left, or the bees may be easily secured by setting a hive of combs, one of which contains some young brood, on top of the pile of cases. The work should not only be done rapidly but it should be cut short quickly on the first indication of undue excitement on the part of the bees, and a few hours' rest given them. Some days, and some parts of the day, are better than others for this work. As a rule, a bee-escape is a nuisance.

LAPEER, Mich., Aug. 30, 1899.



EDITORIAL Offerings.

CHICAGO is where will be held the next meeting of the United Bee-Keepers' Association.

The REVIEW is late this month on account of my absence attending the Philadelphia convention and stopping on my way home to make a visit at Medina, Ohio.

EUGENE SECOR'S essay at the Philadelphia convention was all in rhyme. It is pleasant to know that we have both a poet and composer of music—Dr. Miller—in our ranks.

GLASS is the proper material for packages holding one pound or less of honey. For more than a pound tin is better. This is the experience of Mr. Selser of Philadelphia.

THE OFFICERS elected at the Philadelphia convention were as follows: President, E. R. Root, Medina, Ohio; Vice-President, G. M. Doolittle, Borodino, N. Y.; Secretary, Dr. A. B. Mason, Toledo, Ohio.

CONTROLLING PRICES was the gist of a paper by P. H. Elwood read at the Philadelphia convention. He thought that there was no insurmountable obstacle in the way of producers and dealers consulting and agreeing upon a scale of prices based upon the cost of production.

EXTRACTED HONEY, said O. O. Poppleton, at the Philadelphia convention, ought to stand at least 24 hours after extracting, and then be drawn off from the bottom of the receptacle, leaving what was at the top undisturbed—that is, the top is not to be bottled up, as it is the thinnest of the lot.

MANUFACTURERS use more honey than is used on the table; if Mr. Selser of Philadelphia is correct in his views. He is in close touch with the Eastern markets, and has great opportunities for observations in this line. He said that one baking firm, of Reading, Penn., used twelve carloads of honey last year.

RAPID EXTRACTING was done by W. L. Coggshall and Harry L. Howe of York State, when they and a boy extracted 1,400 pounds in an hour and a quarter. Before this, these two men, unassisted, had extracted 900 pounds in one hour. This does not mean simply extracting the honey from the combs, but includes the taking of the combs from the hives as well.

THE DECORATIONS in Philadelphia during the meeting of the G. A. R. were fine. In the business portions the fronts of the buildings resembled great walls of waving banners. At night the electrical displays were very beautiful. I noticed one large banner made of colored lights in which the current was shut off in succession, beginning at one end, and it gave the flag something of the appearance of waving in the breeze.

SMOKING BEES OUT OF SUPERS.

W. L. Coggshall told at the Philadelphia convention how he smoked bees out of supers or upper stories very quickly. His upper stories are covered with oil cloth. This oil cloth is raised at one corner, and, as the smoke is puffed in, this oil cloth is given a sort of up and down flopping movement which causes a draft or suction down into the hive that very quickly draws the smoke down among the bees and causes them to hustle.



SHADE for hives is considered a source of profit by the Wilson Bros., of the Kickapoo Valley, Wisconsin. For two years they have been making observations on this point, and they think that shade increases the surplus about one-fifth. Their idea is that the intense heat upon the walls of a single-walled hive drives the bees from the hive to a certain extent upon hot days. Herbert Clute, of Greenwood, Wisconsin, told me that he secured more honey from colonies in chaff hives than from those in single-walled hives. I related these views to C. A. Hatch of Richland Center, Wisconsin, and he took opposite views. The Wilsons prefer trees for shade. Box elders grow quickly and make a nice tree.



REVERSING COMBS QUICKLY.

A reversible extractor was not used in the rapid work done by Messrs. Coggshall and Howe, as mentioned in another place, but they have a rapid method of reversing the combs. There are two combs in each basket, with a sheet of tin between them. The honey from the inner comb is thrown against the tin and runs down just the same as though it had been thrown against the inside of the extracting can. To reverse the combs, a comb in the basket farthest away is grasped with the left hand, and one in the nearest basket by the right hand, then they

are lifted up and quickly exchanged without any turning about. The comb from the far basket is put down in the near basket, and *vice versa*. This obviates any turning around of the combs, and two are moved at the same time. Coggshall prefers to have shallow combs go into the basket the same way as they hang in the hive, as they can be reversed with less motion.



THE CONVENTION AN HONORED GUEST.

Right royally were we entertained at Philadelphia. Incoming members were met at the train, when it was known what train they were coming on, even if the train was three or four hours late at night. Places were ready and waiting for them. Many were taken to the homes of bee-keepers. Bro. Selser took some eight or ten home with him every night. A good hall was hired and paid for. By the way, this room was centrally located, and, at the same time, it was away from the noise; being in the back part of a building, shut away from the rattle of the street. It was tastily decorated with bunting, plants and flowers. Mr. Hahman, the Secretary of the local society, is a florist, and I suspect that this accounts for the fine decorations in that line. Fine music was also furnished free of charge. Neither time, labor nor expense was spared in piling up comforts and pleasures for the visiting bee-keepers. Three cheers for the Philadelphia boys?



BOILING FOUL BROOD GERMS.

In this issue of the Review Mr. Taylor calls the attention to the experiments of Prof. Harrison of the Ontario Agricultural College in boiling the germs of foul brood. According to these experiments the germs will grow even after two hours' boiling. In this connection it is interesting to note that Harry Howe, who has been taking a course in bacteriology at Cornell University, reported at the Philadelphia convention that he had prepared cultures of foul brood in almost every

conceivable manner, and boiled them under different conditions, and in no case had he succeeded in getting any growth from a culture that had been boiled fifteen minutes. "When doctors disagree, who shall decide?" It appears to me that some factor in this problem has evaded us. Mr. Whitecomb called attention to the influence of altitude in this matter, which is, of course, an important factor, but not, I think, the one that is misleading us.

THE PROSECUTION OF ADULTERATORS.

The United States Bee-Keepers' Union has been trying its hand at the prosecuting of adulterators of honey in Chicago. It has lost its first suit through what seems like the unfairness of the justice before whom the suit was brought—he taking advantage of a technicality. The law says that the seiler of adulterated products must use reasonable diligence in striving to know if the goods that he sells are pure. It seems that this man did not use any diligence, or make any effort to determine whether the honey that he sold was pure or not, yet, his plea of ignorance cleared him; the justice ruling that the mixer was to blame instead of the dealer. This suit, however, has not been without its moral influence; as some of the dealers and manufacturers in Chicago are now taking pains to have their mixtures properly labeled.

BEE-KEEPER'S EXCHANGES.

In his paper at the Philadelphia convention, C. A. Hatch of Richland Center, Wisconsin, took the ground that Exchanges fail because they attempt too much. He would advise nominal fees and very few rules. The best Exchange to which he ever belonged had no constitution and no formally elected officers. It consisted of simply half a dozen neighbors who clubbed together to do their buying and selling. J. Webster Johnson, of Tempe, Arizona, took much the same

grounds. He said that an Exchange usually has too many objects. It is better to start with only two objects, viz., that of buying cans and selling honey. I suppose that where Mr. Johnson lives the production of extracted honey is greater than that of comb honey. In other localities the buying of sections might be put in place of buying cans. It seems to me that the word "supplies" might be put in place of the word "cans" that Mr. Johnson uses.

HONEY ought not to be classed by us as a luxury, said Mr. E. T. Abbott at the Philadelphia convention; its use should be urged as a necessity. Dr. Miller differed—thought people liked to think that they were getting a luxury cheaply. As a rule, I think that people buy honey because they want it, and that they care very little whether it is called a luxury or a necessity. It is possible, however, that some people would buy it who do not now use it, if they could be convinced of its healthfulness—they might then look upon it as a necessity. To accomplish this is the work of honey leaflets.

AMOUNT OF HONEY PRODUCED IN THE UNITED STATES.

Some two or three years ago E. R. Root attempted to form something of an idea how much honey is produced in this country by asking each manufacturer of sections to tell how many sections he had made. Thinking that some advertising scheme was on foot, in which belittling comparisons would be drawn, one or two firms declined to give the number of sections they had made. Later, when they fully understood the matter, they furnished the figures. The average number of sections used each year, for the last three years, is somewhere between 50,000,000 and 60,000,000. It is thought that a fair estimate of the number of pounds of honey stored in them would be at least 50,000,000 pounds each year. Considering that extracted honey is produced almost exclusively in the South, it is

thought fair to assume that twice as many pounds of extracted as of comb honey are produced. This would make the number of pounds of extracted honey 100,000,000 in round numbers. Calling this worth five cents a lb., it would be worth \$5,000,000, and the comb honey at ten cents a pound would be worth a like sum; making the annual honey crop of this country worth \$10,000,000.



AMALGAMATION.

During the last three years, or more, there have been several unsuccessful attempts at uniting the National bee-keepers' Union and the United States Bee-Keepers' Association, but it now seems that there are bright prospects for its accomplishment. There has been, of late, considerable correspondence between Dr. Mason and Mr. T. G. Newman, looking to the amalgamation of the two societies, and at the Philadelphia convention changes in the constitution were recommended, which, if adopted at the next annual vote of the two societies, will unite them.



PURE FOOD LAWS.

Many people suppose that Congress can pass a law prohibiting the manufacture and sale of adulterated articles in the United States. This cannot be done. It can make a law prohibiting the sale of adulterated articles in the District of Columbia and in the Territories, but not in the States. The most that it can do in this direction is to prohibit the shipping of adulterated goods from one State to another. Each State can regulate this matter to suit itself, but National pure food laws have only to do with Interstate commerce. Such a bill has been introduced and referred to the Committee on Interstate and Foreign Commerce. It is known as the Brosius bill. Mr. Emerson T. Abbott explained all this at the Philadelphia convention. He also said that we as bee-keepers ought not to ask for the passage of a pure food law

simply to protect us in selling our honey. No class ought to ask for special legislation to protect *their* business. The selling of adulterated foods ought to be prohibited simply because it is an injustice to the consumer. Many articles of food that are adulterated are not injurious to health, but it is a fraud to sell them for what they are not. All mixtures ought to be labeled showing exactly what they are; then if a purchaser wishes to buy them, no wrong is done.



QUOTATIONS AND COMMISSIONS.

In the discussion at the Philadelphia convention of commission men and their methods, as mentioned in another place, there was one other point to which I must call attention, and that is the misunderstandings in regard to the quotations given. It transpired in the discussion that some supposed that the figures given were those that it would be realized; but the general impression prevailed that the quotations given were those at which the honey was *sold*, and that freight, cartage and commission must be deducted from these figures. Considering that there is a difference of views, it was suggested that the editors of the journals learn the truth of the matter, and keep a standing notice at the head of the column in which quotations are given.

There is still one more point upon which light was asked, and that is, what per cent. commission is charged for handling honey? If a man knew that the figures given are those at which the honey is sold, also what commission would be charged, he could consult his railroad agent in regard to freight rates and would then be able to decide in regard to which point to send honey. Without this data, some of which he could secure only through extensive correspondence, he is somewhat at sea. How many of those who give quotations in the Review are willing to state just what is meant by the figures given in their quotations, and also to say what commission they charge?

A MAGIC LANTERN SHOW.

In another place I mention some of the things done by the Philadelphia boys for our comfort and entertainment, but I neglected to say anything about one very enjoyable feature, that of bee-keeping subjects shown by a magic lantern one evening. This part of the entertainment was under the charge of Mr. W. E. Flower, and the talks that accompanied each picture were something of a surprise to some of us—a professional showman and lecturer could not have done better. We were surprised because Mr. Flower had been so quiet during the convention that we did not suppose he could talk like that. He was really eloquent over a picture of Father Langstroth; and had an excellent explanation, or some little witticism or drollery, for almost every picture shown. For instance, in a picture of a local apiary in which the owner and his little dog were seen sitting side by side on a bench, he said that that dog knew more about bees than some folks did; besides this, she was remarkable in another way; she was *longer* in the morning than at night. Some one in the audience wanted to know "how that was," and he said that her owner "let her out in the morning and took her in again at night."

COMMISSION MEN.

There is seldom a convention in which commission men are not hauled over the coals; and the Philadelphia convention was not an exception. Some looked at the commission business as entirely wrong in principle—that the producer or seller is actually furnishing the commission man with capital upon which to do business. Others looked upon the commission man simply as an agent of the seller, and asserted that it was perfectly right and legitimate to employ some man to sell your honey for you; and when you could realize more from the sales when such a man was employed, than when the honey was sold outright, which was the

experience of some who were present, it showed good business principles to have the honey sold in that way. Great care should be exercised, however, in choosing the man who is to sell your honey on commission. Not only should he be honest and financially reliable but experienced in the handling and selling of honey. Several instances were given in which fine lots of honey had been sold at ridiculously low prices simply because it had been sent to some commission man who had had no experience in the sale of honey. There was quite a disposition on the part of some to urge bee-keepers to sell for cash only, which can easily be done this year, on account of the short crops, but others reminded us that years of plenty might soon follow in which we might be glad to avail ourselves of the services of the commission man. It was intimated that some one dealer might make his house very popular with bee-keepers by abandoning the commission feature, and paying cash for honey. This is probably true, but it must not be forgotten that, in the very nature of things, such a dealer could not afford to pay as high prices as might be secured by the commission man. If a man furnishes his own capital, and takes the risks of business, he must have pay for it.

EXTRACTED.

RASPBERRY JUICE.

In the Absence of Nectar the Bees Filled their Combs with the "Next Best."

In the last issue of the Review, Critic Taylor took Bro. Root to task for intimating that raspberry honey might be the juice of berries. It is true that raspberry *honey* comes from the blossoms of raspberries, and, as Mr. Taylor says, it is a very fine article, but, in times of scarcity, it seems that bees may possibly

gather, and store as surplus, the juice of berries, that is, if we may believe the following clipped from the Michigan, Selby Herald. The article was headed "A Queer Kind of Honey," and it reads as follows:—

S. Coulthard brought home from Copenish some comb honey the cells of which were filled with a blood red fluid. He says this peculiar color of honey was caused by the bees working on red raspberries in the absence of blossoms of any kind. He has shipped several hundred pounds to Chicago, which commanded ready sale.

CLEANING SECTIONS.

Some Hints in Regard to Knives, Benches, and Methods.

A few bee-keepers may have section cleaning machines, but the majority of them are still cleaning their sections by hand; and it is well to know how to do the work to the best advantage. Mr. C. Davenport told the readers of the American Bee Journal, some time ago, how he managed; and, as he considers it ahead of the ordinary plan, I give it below.

Most of those new to this work hold the section in one hand while cleaning it, and I even know a man who had produced tons of comb honey who said he knew no better way. It is, however, quicker and easier to clean a section if it rests on a solid bench; and if much of this work is to be done, two benches of different heights, so that one can change off and work both standing up and sitting down, are a great help. On top of the bench tack a piece of board that is two or three inches wide, four or five long, and about 1-6 of an inch thick. Have it back a few inches from the front of the bench. Stand the section on this strip so that the front projects over it a trifle, then scrape up and down, not across the top. The object of the thin board on top of the bench is to let the edge of the section project over it so that the knife can reach clear down. Of course, the same effect can be obtained by letting the section project over the edge of the bench itself, but if this is done there is nothing to catch or stop the downward strokes of the

knife; and this makes it harder work for me. Some, though, prefer to let the section project over the edge of the bench itself.

There is quite a knack about cleaning sections by resting them on a bench or table, but after it is acquired, one can, if the sections are badly stuck up, clean at least a third more than by holding them loose in the left hand.

I prefer a knife the blade of which is stiff enough so there is no spring in it whatever. Mine are made from small flat files; one edge is drawn down thin and sharp, and the other is left thick, and is ground square across; this edge is used mostly for cleaning the edges of the sections. The knives are long enough so they will reach clear across and clean the edges of two sides at once.

HUNTING THE HONEY BEE.

A Graphic Description of the Methods and the Fun.

In the Country Gentleman of June 22nd, is a very readable and instructive article on bee-hunting, and, as this issue of the Review is a sort of special number devoted to bee-hunting, I take pleasure in copying it. It was written by "G. H. D." and reads as follows:—

No one knows who our first bee-hunter was, whether black bear, red Indian, or white hunter, but the bear or the Indian was likeliest to become such. Bruin's keen nose was his guide to the prize, the Indian's sharp eyes and woodcraft his, and the white man improved on the primitive ways by the invention of the bee-box and the science of cross lining.

Bee-trees are sometimes found by accident, as when the bees, having been beguiled untimely forth by the warmth of the February or March sunbeams, are benumbed on exposure to the chilled outer air and fall helpless and conspicuous on the snow at the tree's foot; or when in the genial days the in-going or out-coming of the busy inmates betrays their home to some hunter of larger game, or searcher for a particular kind or fashion of a timber tree.

I have some good friends who are bee-keepers, chief among them one who knows enough of nature's secrets to make the reputation of two or three naturalists. Our bee-hunter chooses August and

and September for his labor, or pastime, whichever it may be called, and he can hardly find a pleasanter day for it than one of those which August sometimes brings us in its later weeks—days that give us a foretaste of September's best, but are fuller of blossoms than they will be, though there are not enough flowers in the woods to keep the wild bees busy there.

The bee-hunter is burdened with but few implements in his chase. First of all, a "bee-box," six inches or so in length and a little less in width and height, with a hinged lid, in which is set a small square of glass; midway between this and the bottom is a slide dividing the box into two compartments, the lower one holding a piece of honey-comb partly filled, when in use, with a thin syrup of white sugar and water; then an ax, or perhaps no larger tool than a jack-knife; sometimes a compass and a dinner-pail. So equipped, he takes the field, seeking his small quarry along woodside meadow fences, whose stakes and top rails alone show above a flowery tangle of golden-rod, asters and willow-herb. Carefully looking over the flowers as he goes slowly along, among the bumble-bees and wasps that are gathering from them their slender stores or present food his quick eye discovers a honey-bee alight on the upright tassel of a thistle, or sucking a medicated sweet from the bitter-flower of the hone-set, or working a placer of golden-rod, or exploring a constellation of asters, and stealthily slipping the open box under her, he claps the cover down and has her a fast prisoner. Now he darkens her cell by covering the glass with his hand till she has buzzed away her wrath and astonishment and settles on the bit of comb which, before catching her, the hunter had placed on the slide. Seeing through the skylight that she is making the best of the situation and is contentedly filling herself with the plentiful fare provided, he sets the box on a stump, boulder or fence (if either be at hand; if not, he drives a triple-forked stake or piles a few chunks for the purpose) and, opening the lid, sits or stands a little distance, awaiting the outcoming of the bee.

This takes place in five minutes or so, when, having freighted herself, she takes wing and rises a few feet, circles rapidly until she gets her bearings, and then sails swiftly homeward. What compass does she carry in her little head to guide her so truly? The hunter takes no great pains to get her course this first trip. He places the comb on the closed

lid of the box, replenishes its cell from a vial of syrup, lights his pipe, and disposes himself comfortably to watch the return of his sometime captive. The length of time he has to wait for this depends partly on the distance the bee has to go and partly on the wealth of her swarm, the members of a swarm with a scanty store of honey working faster than those of a rich one.

But soon or late she comes humming back, and, beating about a little, finds the lure and settles upon it, fills herself, rises, circles, and is off again. Now the hunter tries his best to catch her course, and it needs a quick and practiced eye to follow the brown speck as it gyrates widely overhead for a moment and then darts away on the "bee-line," straight and swift as an arrow.

The bee has told her people of the easily-gotten nectar, and, when next returning, brings a companion with her, and at each return perhaps another, till, maybe, a dozen are busy about the comb, and, as each flies homeward, the hunter tries to get its line of flight. Having this line pretty well established, if their journeys are evidently short, he follows it into the wood, and perhaps has the luck of finding the tree in a few minutes.

If the bees are long in coming and going, he removes the comb to the bottom of the box, and, when some of the bees have settled upon it, closes the lid. Then he jars the box till the bees rise to the top, when he shuts them off from the comb by closing the slide. This is to prevent them from besmearing themselves with the syrup while "moved up the line," which is now to be done.

The bee-hunter strikes into the woods at a smart pace, but carefully keeping his course and nursing his box tenderly under his arm. So going for twenty, thirty, forty or more rods, but not too far, in some convenient little opening or clearing, if he comes to it, he "sets up" again and lets the bees on the comb, where they fill themselves and go and come as before. But if the box has been unwittingly carried beyond their home, somehow the bees fail to find it again, as they do if it is set very near the tree on the side it was approached on. In the last case they probably overtly it, but both failures seem strange in such wise little folk.

"Cross-lining" is done by setting up at some little distance from the line already established, and getting a new one. Like other mortals the bee-hunter has his disappointments, as when the bees that he has lined through the woods and across fields for a whole day, perhaps, or

even longer, lead him at last to the sheltered hives of some farm house; or more than this, when, having found the tree and put his mark upon it, he goes at the first opportunity to cut it and finds that he has been forestalled by some free-booter, who has left him only the fallen tree, some fragments of empty comb, and the forlorn survivors of the harried swarm.

When the stronghold of the bees is sapped by the hunter's ax and topples down, in many cases the garrison appears to be so overwhelmed by the calamity as to offer little or no resistance; but often the doughty little amazons fight so bravely for home and honey, that their assailants are obliged to smother them with a "smudge" of dead leaves or straw before they can secure their booty.

A couple of our bee-hunters had looked long for a tree on their line, when one of them, backing up against a great basswood to rest, was stung midway between his head and his heels, that part of his person happening to block the entrance, so low that it had been overlooked, to what proved to be an 80-lb. bee tree. My particular bee-hunter was puzzled by a swarm last season, which he found at last in a fallen tree, and so was saved the labor of much chopping.

BEE-HUNTING.

The Difficulties During a Honey Flow. Catching the Bees and Getting the "Line" Started.

It is well known that it is difficult to get bees to notice bait when there is a good flow of honey. I remember bringing home a colony of bees just at the opening of the basswood harvest. The combs were rather new, and the jolting broke them down. The hive was brought home in the night and set upon the stand that it was to occupy, and the entrance opened. The next morning there was a great puddle of honey standing on the hard clay soil in front of the hive. It had run out of the broken combs. The soil was so hard and dry that the honey stood there for days before it finally soaked into the ground. The point that I wish to make is that not a bee so much as

smelled of that honey during the yield from basswood. Mr. L. J. Clark writes to the American Bee Journal asking how he can "line" bees during a honey-flow. Some of the correspondents of the Bee Journal tell him that bees will work on fresh honey, even if honey is to be found in the flowers. Possibly they will if the yield is light; but it seems to me that a man could make but slight headway hunting bees at a time when they will not rob; and that is when there is a good honey-flow.

Some others advise Mr. Clark to go along streams of water, and "line" the bees as they start for home with their loads of water. Near my apiary at Rogersville was a small brook. In dry, hot weather, at a time when little honey was being gathered, the edges of this brook were fairly swarming with bees after water; and on hot afternoons there would be quite a "line" of bees from the brook to the apiary; but during a good honey-flow scarcely a bee could be found near the brook. The freshly gathered nectar furnishes the bees all the water that they need; in fact, they have to exert themselves to get rid of the surplus water. As in the case of using fresh honey for bait during a honey flow, so I think that lining bees from bodies of water at such a time might be a success, if the yield of honey was scanty or the honey very thick.

The American Bee Journal prints several replies to the query of Mr. Clark. Some of these replies contain quite a little general information upon the subject of bee-hunting, and I take pleasure in copying the reply of a subscriber from New Hampshire. He says:—

I will describe the way I hunt bees in New Hampshire. First, take some strips of lumber $1\frac{3}{4}$ inches wide, about 5-16 thick, and make three boxes $2\frac{3}{4}$ inches wide, $3\frac{3}{4}$ long, nail a bottom on one. This will be the comb-box. Before nailing the other two together cut two grooves on the inside of each side-piece of the box, one near the top, and one near the bottom; then cut a piece of glass that will just fit into the top groove, when you nail the box together. When nailed, fit

a thin wood slide in the bottom groove—these are the catching boxes.

In the comb-box fit a piece of black brood-comb—the old black comb is the best, as it won't soften in the heat of the sun. Take some good granulated sugar and water, equal parts, mix well together, and fill the piece of comb in the comb-box. Get a very small vial of oil of anise, and now you are all ready to start.

Go where the bees are working on the flowers, set the comb-box on a stump or stake—on anything that will be seen by the bees when they "come back." Don't set it too near the flowers (at this time of year). Then take one of the catching boxes, draw the slide nearly out, take it in the right hand with glass side up; when you come up to a flower with a bee on it, put the left hand under the flower, bringing the box down over the bee, and the left hand up the same time; the bee seeing the light through the glass will fly up against it at once, when you push in the slide, and you have the bee. Go to the comb-box, put the catching-box on top with the slide side down, then draw the slide, put your hand over the glass to darken it inside, and the bee nine times out of ten will at once begin to fill. You can look in the glass and see if she is loading up all right. If so, raise the catching-box gently, and take it off; then sit down and watch the bee go; also note the time, so as to estimate the distance they are from you.

Be sure to put a little oil of anise on the outside of the comb-box, so that when a bee comes back she can smell it. She will be sure to go into the box when she comes back, as the smell attracts the attention more than the flowers.

After a bee has been a few times she will go straight off the box without whirling at all. Then if she is gone so long that you wish to "carry them" and set off again, you will now need your second catching-box. As the bees come back and alight on the comb you must catch them at once, by putting the catching-box over the comb-box. As they fly off to the glass, push in the slide, and you have them. Then take the other catching-box and do the same, and then put the two catching-box slides together, open both slides, and the bees will go into the top one; take the empty one to catch some more off the comb. When you have enough bees, you "go on the line" nearly as far as you think the time they are gone will take them, allowing 15 minutes for a mile the first time a bee goes, then set off again, and so on until you find them.

TO CALIFORNIA.

Via the Midland Route.

Every Friday night, at 10.35 p. m., a through Tourist Car for San Francisco, carrying first and second-class passengers, leaves the Chicago, Milwaukee & St. Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City (with stopover privileges at Salt Lake City), for all points in Colorado, Utah, Nevada and California.

The Tourist Car berth rate from Chicago to San Francisco is only \$6.00, and the sleeping car births should be reserved a few days in advance of departure of train.

Through tickets and sleeping car accommodations can be secured from any agent in the east, or by applying at the Chicago, Milwaukee & St. Paul Depot or City Ticket Offices in Chicago.

Send for our free illustrated California folders. Address Geo. H. Heafford, General Passenger Agent, Chicago, Ill., or Harry Mercer, Michigan Passenger Agent, 7 Fort Street, W. Detroit, Mich.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

NEW YORK.—The demand is good for white and amber comb honey, also for extracted. Beeswax is dull. We quote as follows: Fancy white, 11 to 15; No. 1 white, 12 to 13; fancy amber, 11; No. 1 amber, 10; white, extracted, 7½; amber, 6½; to 7; beeswax, 25 to 26.

HILDRETH & SEGELKEN,

Aug. 26. 12 West Broadway, New York.

BUFFALO, N. Y. Honey has sold slower since the first of January than I ever knew it to sell at this time of the year. I quote as follows: fancy white 11½ to 12; No. 1 white, 11 to 11½; fancy amber, 10 to 11; No. 1 amber; 9 to 10; fancy dark, 8 to 8½; white, extracted, 7 to 7½; amber, 6 to 7; dark, 5 to 6; beeswax, 25 to 30.

W. C. TOWNSEND,

Jan. 25. 80 West Market St., Buffalo, N. Y.

BUFFALO, N. Y.—Receipts of fancy new 1-lb. combs are very light; selling at 13 to 14 cts. Fair to good, 10 to 12; low grades less. We advise moderate shipments for the present. Some fancy beeswax wanted.

BATTERSON & CO.
Aug. 25. 167 & 169 Scott St., Buffalo, N. Y.

CLEVELAND, O.—We quote as follows: Fancy white, 15; No. 1 white, 14; fancy amber, 12; No. 1 amber, 11; fancy dark, 9; white, extracted, 8; amber, 6½ to 7.

A. B. WILLIAMS & CO.
Aug. 26. 80 & 82 Broadway, Cleveland, Ohio.

CHICAGO, Ill.—As yet no new crop received. Extracted meets with prompt sale. As to quality and style package, will sell from 7 to 8 cents per pound. We quote as follows: Fancy white comb honey, 14; No. 2 white, 12; amber, 10 to 11; beeswax, 27. Those preferring to sell at home can write us, as we will buy for cash.

S. T. FISH & CO.,
July 7. 189 So. Water St., Chicago, Ills.

CHICAGO, ILL.—We quote as follows: Fancy white, 15; No. 1 white, 13 to 14; fancy amber, 11 to 12; No. 1 amber, 9 to 10; fancy dark, 8 to 9; No. 1 dark, 7 to 8; white, extracted, 7 to 8; amber, 6½ to 7½; dark, 6 to 6½; beeswax, 25 to 26.

R. A. BURNETT & Co.,
Aug. 26. 163 So. Water St., Chicago, Ill.

KANSAS CITY.—Receipts are not large and the demand is good for this time of the season. We quote as follows: Fancy white, 15; No. 1 white, 14; fancy amber, 13; No. 1 amber, 12½; white, extra cd, 6½; amber, 6; dark, 5½ to 5.

C. C. CLEMONS CO.,
Aug. 26. 423 Walnut St., Kansas City, Mo.

NEW YORK, N. Y.—We would suggest to our Southern shippers of Extracted Honey that they endeavor to get the new crop into the Northern Market as early as possible, as later shipments grow heavy, and stocks accumulate here. Our market has dropped off some on beeswax. Some new trade in comb honey. We quote as follows: Fancy white, 12 to 13; No. 1 white, 10 to 11; fancy and No. 1 buckwheat, 10 to 11; extracted Florida white, 7 to 7½; extracted Fla. id. light amber, 6 to 6½; other Southern fancy, 65 to 70 per gallon; other Southern fair, 60 to 65; other Southern good, 52½ to 58. Beeswax, 26½ to 29½. Write us before shipping.

FRANCIS H. LEGGETT & CO.
July 22. W. Broadway, Franklin & Varick Sts.

THE
A. I. ROOT CO.,
10 VINE ST., PHILADELPHIA, PA
BEE-SUPPLIES.

Direct steamboat and railroad lines to all points. We want to save you freight.

Dark  **Golden**
Italian **Italian**
QUEENS.

Reared by the best methods known.

Untested, single queen, 75 cts.; six for \$4.00; one dozen, \$7.50. Tested queens, just double these prices. Choice breeding queens, from \$3.00 to \$5.00. Circular telling how to *introduce any kind of a queen, free.*

E. R. JONES.

3-98 12t

Milano, Texas

If You Wish Neat, Artistic

PRINTING,

Have it Done at the Review.

Bee keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.

J. H. M. COOK, 62 Cortland St., N. Y. City

Please mention the Review

**THE MONITOR
PAPER FILE**

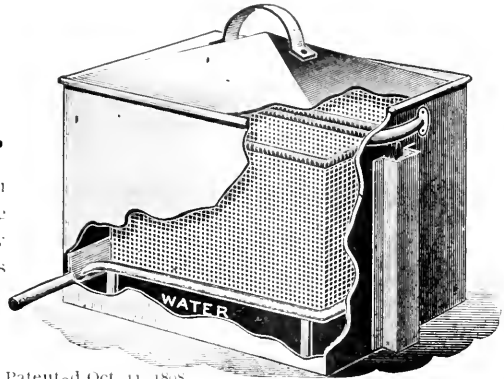
Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music &c., by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome. **PRICE.**—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper.

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1895

- If you are going to -

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Here is the thing you were looking for last winter. *The New Champion Winter Case*, which does away with all unnecessary work, and in which the bees will not die in the coldest winter. Send for special prices on quantities wanted.

R. H. SCHMIDT & CO.,
9-99-11, Shtoygan, Wis.

- If you wish the best, low priced

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

Please mention the Review.

1899 Queens 1899

For Business-Queens for Strong Colonies - Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list. 12-97-tt

J. P. H. BROWN, Augusta, Ga.

Please mention the Review

JOHN F. STRATTON'S CELEBRATED



Birmingham Steel Strings

for Violin, Guitar, Mandolin, Banjo
Finest Made. Extra Plated.
Warranted not to rust. Send for Catlg

JOHN F. STRATTON,
Importer, Manufacturer and Wholesale Dealer
811, 813, 815, 817 E. 9th St., N. Y.

Please mention the Review.

To stick things, use **MAJOR'S CEMENT.**
Beware !!! Take no substitute. 2-98-121

Please mention the Review.

Best on Earth. 19 Years Without a Complaint.



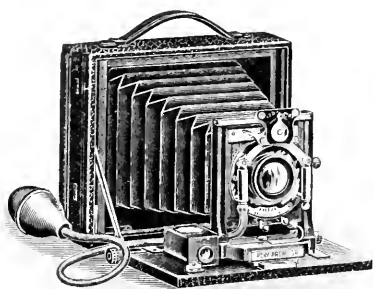
Smoke Engine	Largest smoker made	4 inch stove	Dozen	Each
Doctor	3 1/2	"	\$13.00	mail, \$1.50
Compu tor	3	"	9.00	" 1.10
Large	2 1/2	"	6.50	" 1.00
Plain	2	"	5.00	" .90
Little Wonder (wt. 10 oz)	2	"	1.75	" .70
Honey Knife	2	"	4.50	" 60
			6.00	" 80

For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

Amateur Photography

Anyone, without any experience, and with no instruction other than that contained in the manual furnished, can make beautiful photographs with the



PREMO CAMERA

Catalogue sent free upon application. For five cents we will enclose sample photograph.

Rochester Optical Co., Rochester, N. Y.

Orrin P. Safford, agent at Flint, Mich.

Greenwood Apiary

for sale, with five acres of land in city limits. Very best of bee pasture. Will be sold cheap. For prices, terms, and other information, write to
HERBERT CLUTE, Greenwood, Wis.

The Time has Arrived

for you to buy your shipping cases, those five-gallon cans, and a few hundred of the new Danz. cartons (send for sample) to harvest that crop of honey in proper shape. We can furnish you with these and all other supplies. Cash paid for beeswax. Send for catalog.

M. H. HUNT & SON,
Bell Branch, Mich.

Please mention the Review.

QUEENS, Untested, 75 c; 6 for \$1.00; tested, \$1.00; 6 for \$5.00; breeders \$2.00. The best stock, imported or golden. W. H. LAWS, Lavaca, Ark.

Please mention the Review

UNION COMBINATION SAW.

For ripping cross-cutting, mitering, libbetting, grooving, gaining, boring, croll-sawing, edge molding, beading etc. Full line of foot and hand power machinery. Send for catalogue A.

Seneca Falls Mfg. Co.

48 Water St., Seneca Falls N. Y.

Please mention the Review.

Odd Points.



Who is this breeder? Who is the man that has developed this wonderful strain of bees that you are offering for sale? This is the question that comes to me very often. It is not in the spirit of trickery, nor from any hidden motive, that his name is withheld. It is simply from a business reason that will be apparent upon a moment's thought. If this man's name and address were given, most of the orders would go to him direct, and I should lose all of the money that I have paid for advertising. Try to be content, my friends, in knowing where you can get this superior stock, and sometime I may be able to gratify your curiosity and allow you to bestow well-deserved honor upon this breeder. At present you can help him most by sending your orders to me.

Is there any foul brood near this breeder? This is a question that is sometimes asked. Neither foul brood nor bee paralysis has ever been in that region of country.

How does he rear his queens? By the Doolittle method. Without doubt this method produces the best queens that it is possible to rear—certainly the equal of those reared under the swarming impulse.

Am I making promises that will get me into trouble? A few of my friends fear that I am—that some unscrupulous person may take advantage of me. I had thought of all this before making the promises, but I have enough faith in bee-keepers to believe that, if I help them to secure really superior stock, there will be no disposition to take advantage of me. If the stock isn't what I claim for it, then I ought to have trouble. But there will be no trouble, no

arguments, no disputes; if a man begins to complain, he will simply be asked to return the queen and get his money back, and 50 cents besides. That will end the matter. One man writes me that this stock will have to be "away up in G" if it equals his. That is encouraging. It is another proof that there is a difference in stock, and that this man knows it. I do not claim that this stock is superior to any in the United States; but I honestly believe that it has no superior, and I know that it is way ahead of the general run of stock.

Is the price too high? A few think that \$1.50 for an untested queen is a big price. I think not, considering the superiority of the stock and the conditions under which the queens are sold. I guarantee safe arrival, safe introduction (if instructions are followed), purity of mating, and ENTIRE SATISFACTION. Any time within two years, if a purchaser is dissatisfied, for ANY reason, he can return the queen and get his money back and 50 cents besides.

I said that the price would be \$1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the Review. Any one who has already paid me, or who will pay me, \$1.00 for the Review for 1899, can have a queen for \$1.00. Of course, all arrearages previous to 1899 must be paid up before this offer will hold good. This special offer is made with a view to the getting of new subscribers, and as an inducement to old subscribers to pay up all arrearages, and to pay in advance to the end of the year.





BEEES!

If you keep bees, subscribe for *THE PROGRESSIVE BEE-KEEPER*, a journal devoted to bees and honey. Fifty cents a year. Sample copy free. Also illustrated catalogue of bee-keepers' supplies.

Address LEAHY MFG. Co.,
Higginsville, Mo.; or at 1730
South 13th St., Omaha, Neb.;
or at 404 Broadway, East St.
Louis, Illinois.

300 Selected

Golden, Italian Queens, large and yellow all over, warranted purely mated, reared by Doolittle's method, queens by return mail, safe delivery and satisfaction guaranteed. Have 11 year's experience. Queens 75 cts. each; 6 for \$4., or \$7. per doz. Order quick, as above queens are young and will soon be taken. Read testimonial.

Romeo, Mich., July 10, 1899.

Mr. Quirin, Dear Sir: The queens you sent me have turned out the yellowest bees in my apiary; are gentle to handle, large, and well marked.

C C Chamberlain

H. G. QUIRIN,
Parkertown, Ohio.

6-99-6t M. O. Office, Bellevue.

Page & Lyon,

Mfg. Co.

New London, Wis.

--- * * * ---
Nearness to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

Latest Improvements Perfect Goods Reasonable prices.

Hives, shipping cases, sections, extractors, etc., everything a bee-keeper needs. Catalogue and copy of the American Bee Keeper free.

The American Bee Keeper is a live monthly and has been published by us for the past ten years—50 cts. per year.

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wired*.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y.

Now is the time to requeen. Hyde & Son have the queens, either

GOLDEN

Italian, or the Holy Lands. Nothing but the best of stock. They have had years of experience and rear queens by the best known methods. *Special attention* is called to the Holy Lands. They are excelled by none for hardiness, prolificness and honey gathering. Try them. Untested queens, either race, 75 cts. each. Tested \$1.00. Discounts on quantities. Prompt service. Root's goods in stock. The Hyde - Scholl separators. 36-page catalog free.

O. P. HYDE & SON,

6-99-4t

Hutto, Texas.

Listen! Take my advice and buy your bee supplies of August Weiss; he has

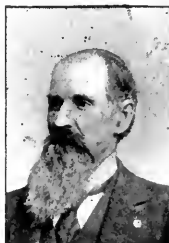


tons and tons of the very finest

FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered ere. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

18



99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.50; 1,000 for \$2.50; 3,000 for \$6.75; 5,000 for \$10.00; 10,000 for \$17.50.

No. 2 sections are not made to order, but when in stock are sold at \$1.50 per M.

J. FORNCROOK,

Watertown,

Wisconsin.

WINTER

Losses are not always the result of the same cause. They may come from starvation; from poor food; from improper preparations; from imperfect protection; from a cold, wet, or possibly, a poorly ventilated cellar, etc. Successful wintering comes from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "ADVANCED BEE CULTURE." Five of its thirty-two chapters treat as many different phases of the wintering problem.

Price of the book, 50 cts.; the REVIEW one year and the book for \$1.25. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,

Flint, Mich.

Violin for Sale.

I am advertising for the well-known manufacturers of musical instruments, Jno. F. Stratton & Son, of New York, and taking my pay in musical merchandise. I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Stradiuarinus," Red, French finish, high polish, and real ebony trimmings, price \$44.00. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver ferrules, and pearl dot in the end, price \$2.50. The case is wood with curved top, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this on fit, and would accept one-half nice, white extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apiarian Supplies. Send for circular. 1-96-6

Please mention the Review.

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1 25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEANES & MINER; Ronda, N. C.

Make Your Own Hives.

Bee - Keepers

Will save money by using our Foot Power Saw in making their hives, sections and boxes.

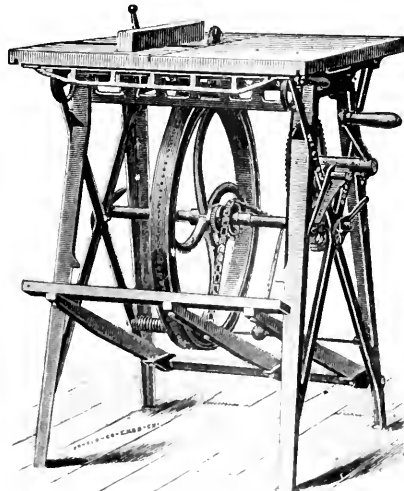
Machines on trial. Send for Catalogue.


W. F. & JMO. BARNES CO.,

384 Ruby St.,

Rockford, Ills.


11-98 121





**WEBSTER'S
INTERNATIONAL
DICTIONARY**

WEBSTER'S




Hon. D. J. Brewer, Justice of U. S. Supreme Court, says: "I commend it to all as the one great standard authority."

It excels in the ease with which the eye finds the word sought; in accuracy of definition; in effective methods of indicating pronunciation; in terse and comprehensive statements of facts and in practical use as a working dictionary.

Specimen pages, etc., sent on application.

G. & C. Merriam Co., Publishers, Springfield, Mass., U. S. A.



INTERNATIONAL DICTIONARY

Some Odds and Ends That Will be Sold Cheap.

For a dozen or more years Mr. M. S. West of this place dealt in bee-keeper's supplies. Since his death, two years ago, his daughter has endeavored to close out his stock of goods, and has succeeded to large extent. There are still a few odds and ends, and she has brought them to me and left them for me to sell. Here is a list of the articles with prices at which they will be sold.

- One ten-inch foundation mill. (second-hand) Root's, (one of recent make) dipping tank, etc. in good order 15.00
 - Three Woodcock foundation fasteners, each,75
 - Thirty-three Simplicity hives, in the flat, sides, ends, covers and tin rabbitets but no frames nor bottom boards, each, 40
- Send all orders to W. Z. HUTCHINSON,
Flint, Mich.

Free

Bee Books and subscriptions to Bee Journals given with orders for Supplies. Sections, Foundation Shipping Cases and Hives.

Send for list; free.
W. D. SOPER, Box 565, Jackson, Mich.

1-99-1f Please mention the Review.

Golden Italian Queens.

Virgins our specialty; 10c each, or 1 for \$1.00.

GARDINER L. ELLIS, Millsboro, Del.

9-99-2f Please mention the Review.

I have several hundred
QUEEN CAGES
of different styles and sizes, made by C. W. Costellow, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking.

3-99-1f

THE JENNIE ATCHLEY CO.,
Beville, Bee Co. Texas.

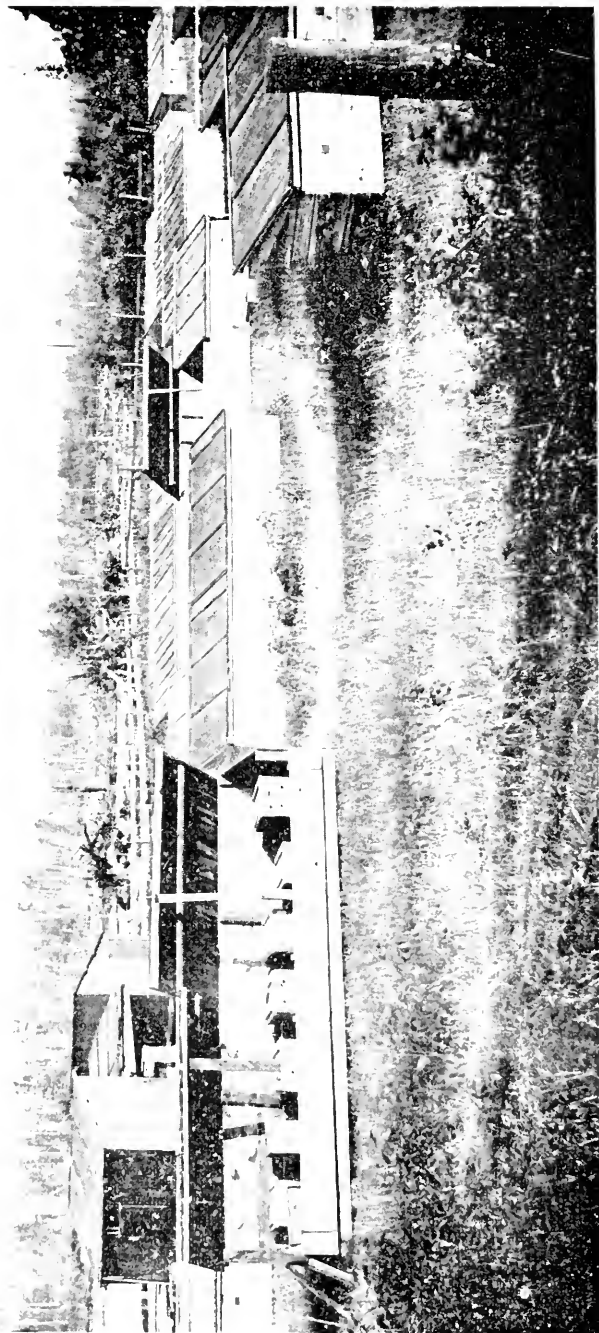
Bee - Supplies.

Root's goods at Root's prices. Ponder's honey jars. Prompt service. Low freight. Catalog free. Walter S. Pouder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

JOHN F. STRATTON'S CELEBRATED GUITARS,



Importer of and
Wholesale Dealer in all kinds of
MUSICAL MERCHANDISE,
811, 813, 815, 817 East 9th St., New York.



Hives Kept in Clamps the Year Around.—O. J. Hetherington's Apiary.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL. XII. FLINT, MICHIGAN, OCTOBER 10, 1899. NO. 10

KEEPING BEES IN CLAMPS.

The Advantages and Disadvantages: both in Summer and in Winter.

W. Z. HUTCHINSON.



THE YEAR ago last summer, when taking a trip through Northern Michigan, I visited the apiary of Mr. O. J. Hetherington, and took two views of it; both of which are presented herewith.

This is the only apiary I have ever seen in which the hives are kept in clamps the year around. The pictures tell the story so completely that little remains for the pen, and what little there is to tell was told so well, several years ago, in *Gleanings*, by the late Dr. L. C. Whiting, that I think it better to copy what he wrote than to attempt to write anything myself. Dr. Whiting said:—

It may interest your readers to know how we pack our bees for the winter, and we may say summer, too, as the bees are

not taken out of the packing when once placed there. When packed, the bees are surrounded on all sides, also top and bottom, with from six to eight inches of planer shavings. The packing boxes are made any length convenient. Those I have are 16 feet long, and hold 8 swarms. Some of Mr. Hetherington's are 14 feet in length, and hold 7 swarms. They are 3 feet wide. The front is 4 feet high, and the back is 3 feet.

The upper board at the back is hung on hinges, and turns down even with the top of the body of the hive. The box is covered with a shed roof, which is fastened with hinges to the front, and is covered with felt paper, which stands the weather better than tarred paper. The roof is divided in the middle, and is raised up when manipulating the bees. The back board is also cut in two, so that half the box can be opened at a time.

Two boards are set up edgewise in the box for the hives to rest upon, and a covered passageway 8 inches wide and half an inch high is made for the bees to pass out and in, on a level with the bottom-board of the hive.

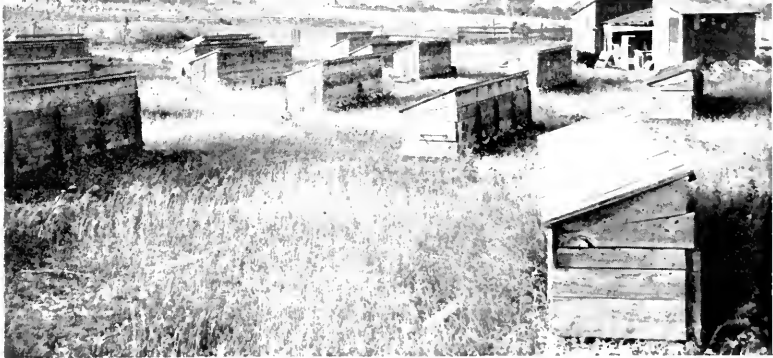
For convenience, the part under the hives is packed before the hives are set. After the hives are set, and the passageway for the bees is adjusted, pack even with the top of the hive. All this packing so far is intended to remain summer and winter. In packing for winter I prefer boards over the frames, with a two-inch opening for ventilation. This opening we cover with wire gauze, to keep out the mice. Without this opening the combs sometimes get damp and

moldy. We cover all with shavings to the depth of six or eight inches, and so adjust the cover that no water can enter. Now if your bees have a supply of good stores, you may confidently expect to find them all right in the spring.

If mice are troublesome, a dish of corned meat with a little Paris green on the top of the packing is advisable. We used to make a temporary box, as recommended by D. A. Jones, and remove it in the spring. Our present method saves all this packing and unpacking in the

of the clamps in summer, there is sufficient ventilation. Bees lie out very little, even in hot weather. In cool nights the bees are not driven out of the supers. Mr. Hetherington says that it is not quite so convenient to handle the hives as when they are set out singly in the yard; and he thinks that more queens are lost in returning from mating.

FLINT, Mich., Oct. 15, 1899.



AN ADDITIONAL VIEW OF THE HETHERINGTON APIARY.

fall and spring. The swarms build up faster in the spring than those unprotected, and they need no shading in the summer. They winter as well as in any place, excepting a good cellar.

This method has been used quite extensively in this vicinity for several years, and we find no more trouble in loss of queens than when the swarms are further apart.

It is a little more work to take off honey than when the hives stand separate; but the advantages of this method more than overbalance this extra labor.

Mr. Hetherington writes me that he likes this plan because the bees are so easily packed for winter, and so easily unpacked in the spring. The packing is left over the hives in the spring until it is time to put on the sections. There is plenty of shade, and, by opening the ends

QUEEN-TRAPS.

Some Most Excellent Reasons why They can be Used to Advantage.

W. E. FLOWER.

(ON page 269, Dr. Mason says he knows of but one reason why traps should be used: and that is that "the presence of a queen in a trap will always reveal the fact that a swarm has issued." There are hundreds, yes thousands, of people who keep from one to half a dozen colonies. These people are lawyers, ministers, doctors, merchants and mechanics, those whose occupations will not permit them to be at home when the bees are

likely to swarm. This class of bee-keepers out-number the specialist ten to one; they swell the subscription list of the different bee periodicals; they buy and use the major portion of all the bee-keepers' supplies that are manufactured. "Many a mickle makes a muckle." It is to this class that the queen trap is especially of value. Few things are more vexations than to come home and poke around in the grass and weeds, looking for a clipped queen that has crawled out with a swarm, and has probably been picked up by a king-bird, cat-bird, robin or hop-toad; or, perchance, has crawled into another hive, and either been killed or has killed another queen equally as valuable as herself. If she has run the gantlet of all these possible mishaps, and you find her all right, then comes the all important question of *where did she come from*, to which hive does she belong?

Dr. Franklin said "*time is money*;" and if we take into account the time necessary for one of the above named persons to find and clip a queen (to say nothing of the danger of maiming or killing her), and add to that the time spent in hunting clipped queens (not counting the value of those that are lost), methinks it were cheaper to buy traps.

I have used the Alley trap for ten years, and have *never* lost a swarm or a queen; and these traps are good for ten years more. I frequently leave the queen in the trap for half a day, or even longer, until such times as it suits me to attend to the matter. What a pleasure to know that when you come home, even if the bees *have* swarmed, you will find the queen in the trap and you will know to a certainty just where she belongs. All you have to do is to move the old hive away, set a new one in its place (with the brood chamber contracted to five L. frames), put on a queen excluding honey board, lift the supers off the old hive, bees and all, set it on the new one, then put an empty body on top of the super, and lift the frames out of the old hive and shake the bees down in front of the new

hive and put the brood in the body on top of the super, clap on the cover, open the trap, and let the queen run in with the swarm, then throw up your hat and say "*Whoopce! Big Injun Me. Take many scalps.*" At the end of seven days—well, if you care to know what I do then, I'll tell you some other time.

ASHBOURNE, Pa., Oct. 6, 1899.

[Yes, we shall be glad to have you tell us what you do at the end of seven days—tell the whole story now that you have started out. By the way, friends, Mr. Flower is the one who entertained us so delightfully with his magic lantern pictures accompanied by humorous, scientific and eloquent remarks—the remarks being well adapted to the pictures—ED.]



HUNTING WILD BEES.

How to Find them in the Winter; and How to Attract them by the Burning of Wax.

HERBERT CLUTE.

IN this locality bee-hunters go through the woods whenever there comes a thaw in winter. When a bee is found on the snow, the hunter circles around the bee until more bees are found. In approaching the tree the bees are found more plentifully. Under the tree they will be found scattered around very thickly. If the wind is blowing, or was blowing when the bees flew, it must be remembered that the bees will be scattered more thickly on the side of the tree that is opposite the wind. A thawing day followed by a freezing night that forms a crust thick enough to hold up a man, furnishes the best conditions for this kind of bee-hunting.

During the hot dry weather of summer, when the bees are breeding, our bee-hunters go along brooks and streams, and "line" the bees as they go home with their loads of water. With a load of

water a bee will fly straighter, and with less circling, than with a load of honey.

In the fall our hunters peel a piece of bark from a birch tree, and set fire to one corner of the bark. As soon as it begins to burn it will begin to curl up, and, as it curls itself up into a roll, they sprinkle pieces of wax upon it. After it is all curled up around the wax it will smolder a long time, giving off an odor of burning wax that will float away on the wind and attract any bee that comes near. This does away with the plan of heating stones, which is somewhat difficult if the timber is all wet. The birch bark will burn even on a wet drizzly day. Such days as this are the best for hunting bees, as they do not go far from home on such days.

The first few times that a bee returns from the tree to the bait, it will come to the bait from the side opposite to the tree. I think that the bee flies past its landmarks, and then drops down on the back-track for the bait.

Some of our bee-hunters use bee-hunting glasses which seem to so change the color of the timber and sky as to give a better background for watching the bees. They are not expensive, and can be bought of J. Lynn, 48 Bond St. New York City.

GREENWOOD, Wis., Oct. 5, 1899.



Good things From Other Journals.

SELECTED BY DR. A. B. MASON.

HAS APIS DORSATA A LONGER TONGUE
THAN HAS APIS MELLIFICA.

Many, if not all, of the readers of the Review are interested in the importation or non-importation of *Apis Dorsata*; and

this interest comes largely from the supposition that it has a longer tongue than other varieties of bees, and will be able to gather the honey from red clover and other honey producing flowers, that can not be reached by the bees we now have; but if further investigation shall prove that *Dorsata's* tongue is but little if any longer than *Mellifica's*, interest in her domestication and importation will be at an end.

In an article in *Gleanings in Bee Culture* for August 1, page 572, a Mr. H. L. Jones of Goodna, Australia, in sending some samples of *Apis Dorsata* to the editor says:—

Now, friend Root, I should like to have you examine these bees minutely, or pass them on to some expert so that the relative length of the tongues of these and *Apis Mellifica* might be ascertained. According to some measurements made by Mr. F. N. L. Sladen, of Riffle Court, England, and reported in *Gleanings*, 1897, page 487, the tongue of *Apis Dorsata* is scarcely any longer than that of our ordinary bee; and if such is really the case it might not be advisable to introduce them, even if they could be domesticated and their migratory instincts overcome. To my unaided eye, however, their tongues seem much longer than those of our common bees.

In reply to Mr. Jones's letter, editor Root says, in part,

I have just been comparing the specimens of *Dorsata* sent by you, and those sent by Mr. W. E. Rambo, of India. Those from the latter look much like very large five and six banded Italian bees; while those you send have less yellow on them, are somewhat of a bluish cast, and are, I should judge, slightly smaller. They are evidently *Dorsata*, however, but may be a different variety, just as we have varieties among the *Apis Mellifica*.

With regard to the tongues of the *Dorsata* bees, as soon as placed in alcohol, they have a fashion of pushing out their tongues to their fullest length; and it is evident that the specimens of *Dorsata* sent us did that very thing. I may be mistaken, but their tongues do not appear to be any longer than those I have seen on red-clover Italians.

I have no reason to doubt the truthfulness of either Mr. Sladen or of editor Root; nor of their ability to judge impartially in this matter, and, if they are right, what can be the possible advantage in importing *Dorsata*, even if it can be domesticated, which has yet to be demonstrated?

Editor Root makes another statement that is of interest. He says:—

Cheshire says something about the wonderful harmony in Nature; that the tongues of bees are adapted to the length of the flower-cells as we find them in the vegetable kingdom. Isn't it possible that the tongues of the different species of honey-bees are of very nearly the same length for that reason? One of the chief things that have been claimed for *Dorsata* is that it would have a longer tongue, and this inference seems to be drawn from the fact that the bees are larger, and therefore the tongues would bear a direct proportion in length. If Sladen's measurements are correct, there would seem to be but little in this."

I don't remember to have seen this statement of Cheshire's, but it is in full accord with what we see all about us in Nature every day. We find that all things that have anything to do with any other thing or element in Nature have been so adapted to those things with which they have to do that all of Nature's laws are in perfect accord. And why should not this be equally true regarding the length of bees' tongues? Unless the flowers that *Dorsata* gathers nectar from are deeper than those *Mellifica* gathers it from, it would hardly seem probable that *Dorsata*'s tongue would be any longer than *Mellifica*'s; and if this is the case it would seem advisable to practically test the matter before importing what might prove a curse instead of a blessing.

THE GOVERNMENT WOULD AID IN IMPORTING APIS DORSATA IF BEE-KEEPERS DESIRED IT.

A few years since there was an impression that a scheme was on foot to induce the department of Agriculture at Washington to attempt the domestication and

importation, or the importation and domestication, of *Dorsata*, so as to give a party, who shall be nameless, a good fat job at Uncle Sam's expense; and for fear that the impression might be true, correspondence was had with the department in regard to the matter, and a few days ago when in Washington I called upon the official that I knew had been corresponded with, and, being personally acquainted with him, we had a very pleasant talk over the matter; and he told me that whenever our association (the U. S. Bee-Keepers' Association) should be satisfied that it was desirable to import *Dorsata*, and would so inform the department, all the aid they could furnish would be gladly given; and if necessary the department would, if possible, aid us, in securing the desired information, so we need have no fear but that desirable aid would be furnished the bee-keepers of the United States whenever they see fit to ask for it.

THE HONEY CROP OF UNITED STATES.

Mr. Segelken, of the firm of Hildreth and Segelken, honey dealers of New York, is reported in *Gleanings* to have said:—

That the New York city market now has no trouble in disposing of about 60,000,000, pounds of honey yearly, about five-sixths of which is extracted honey, and there is a demand for honey the year round. But little if any is now used by brewers and tobacco manufacturers, who prefer glucose and sugar syrup respectively, but there is a growing demand from druggists and confectioners, and for making honey-cakes, of which the Jews consume large quantities; and a large amount of extracted buckwheat honey is exported to be used in making gingerbread. The editor, says, on the authority of a Cincinnati dealer, that bakers prefer honey for cakes because it is more economical than syrup, which requires the addition of glycerine to keep the cake from getting dry.

At the recent convention of the U. S. Bee Keepers' Association, in an instructive address on "Apicultural Statistics," Mr. E. R. Root said:

The average number of sections made each year for the last three years is some

where between 50,000,000 and 60,000,000. We will suppose that the sections, on the average, when filled with honey and placed on the market, will hold something like $\frac{7}{8}$ of a pound. After talking with various members of this convention between sessions, I am inclined to place that as a fair estimate. To make even figures, then, we will estimate that there are 50,000,000 pounds of comb honey produced annually in the United States. *

* * *

While, perhaps, three years is not long enough time to reduce the figures to a good average, yet I should say the last three years, considering that two of them were very poor, would give us a very conservative figure.

After speaking of the value of the comb honey produced, Mr. Root goes on to say, regarding the amount of extracted honey produced, that

It is more difficult to get at the amount. However, I think we can safely estimate that, in view of the fact that extracted is produced much more largely in the South than in the North, and that a good many bee-keepers in the Northern portions of the country produce the liquid article, it will be fair to assume that there would be just about twice as much extracted honey produced as of comb, this would give an aggregate of something like 100,000,000 pounds, of extracted every year.

Now, if the above statement of Mr. Segelken is correct, and we have no reason to doubt its reliability, and if Mr. Root's estimates are approximately true, we find that one half as much extracted honey as is produced in the United States is sold in New York alone, and the same is true of one-fifth of the comb honey.

The above figures are very interesting to those who wish to be posted in regard to the importance of our industry; but I believe the actual facts, or a correct statement, would show a much larger production of honey than Mr. Root estimates. His figures are based on the output of sections for three years, two of which were very poor ones for honey production, and certainly, as he says, his estimate is a very conservative one.

STA. B. TOLEDO, O., Oct. 3, 1899.



Department of criticism

CONDUCTED BY R. L. TAYLOR.

The best critics are they
Who, with what they gainsay,
Offer another and better way.

STENOGRAPHY.—ANOTHER UNPROFITABLE DISCUSSION.

The above writer (*Gleanings*, 495) says "some time ago I asked why hives cannot be discussed as calmly as weather. Mr. Taylor says it is because I said the *Standard dictionary* is the latest and by far the best of its kind ever printed." What I *did* say was "well mainly, I suppose, because such reckless statements as this one for instance, about dictionaries are not made about the weather." Stenog. here doubtless does not quite come up to *Gleanings'* standard of fair dealing. In the same item he does himself like injustice in a remark about the word "boil." Then he goes on to say "But you mustn't say 'some time since *Gleanings* eschewed grammar' why is the word *since* instead of *ago* used in such cases?" Its forests were long since cut away.—*Rossiter Johnson*. How many ages since has *Virgil* writ?—*Roscommon*. Stenog's controversy seems not to be so much with me as with our standard writers.

(This looks to me like the beginning of another dictionary quarrel, similar to the one indulged in by our friends Taylor and Miller. Of course, we wish to use good grammar in our bee journals, and I believe that the attention that has been called to it of late has not been entirely unprofitable, but I think that no good will come from its continuation; especially when conducted in the hair-splitting style and drawn out to great length. The space can be better employed in discussing subjects relating to practical bee-culture.—Ed.)

THE WEIGHT OF TESTIMONY.

In Gleanings, 403, Dr. Miller says "Messrs. Taylor, Hutchinson and Brice say they can't raise good queens by taking away the queen. W. W. Somerford (page 465) says he *has* raised them. The only thing for T., H. and B. is to impeach the character of the witness." Not at all; it is more to the point to impeach the character of your argument. Exceptions prove the rule.

LARGE VS. SMALL COLONIES.

Mr. Getaz says (American Bee Journal, 562) "The question now is: Supposing the large colonies could be wintered equally well, which would be the best—80 colonies of 12 combs and population in proportion, or 120 colonies of 8 combs, the total population to be the same in either case?" This in an article discussing the large and small hive question. Mr. G. appears to assume that the colony reared in a 12-frame hive would be, as a rule, 50 per cent. stronger than one reared in an 8-frame hive. In that I think he is in error. My experience, such as it is, teaches me that the smaller the hive, within reasonable bounds, the stronger the colony in proportion to the amount of room. A colony in a section of the Heddon hive is more than $\frac{5}{8}$ as strong as one in an 8-frame L. hive, and, *a fortiori*, one in an 8-frame stronger in proportion than one in a 10-frame hive. Mr. Getaz's answer to the question is that "the difference might not be very great; but it would undoubtedly be in favor of the large colonies." He gives, as points of advantage, fewer guards against robbers required; greater conservation of heat; fewer hives to open; and probably less swarming. For myself, I cannot at all agree with Mr. Getaz. He may be entirely right for his latitude, but for my latitude and flora the 120 in 8 frames would be so far ahead that there would be no comparison. As I have said, the assumption that they would be strong in proportion to the size of the hive is wrong to start with. Then the loss of heat,

owing to the larger space to be warmed in the case of those in the large hive, would more than offset the advantage gained by the greater population. Ordinarily, here, those in the smaller hives would gain more rapidly in population to their numbers; and, although they would not generally quite overtake the others by the opening of the honey season, their less inclination to waste time in swarming would generally offset that, and make their profits hive for hive not very wide apart. I am especially surprised at Mr. Getaz's opinion that with the colonies in the larger hives there would probably be less swarming. The principal factor in the production of swarms is a large population. If, as Mr. Getaz assumes, the larger colonies gain in numbers in proportion to the size of their hives, then not only will their hives be as closely packed with bees but their numbers will be 50 per cent. greater. On what grounds, then, can he assume that the swarming will be less? It seems to me that it must be greater, inevitably.

LARGE HIVES AGAIN.

Mr. Harris in Gleanings, 538, gives some results in wintering in hives of different sizes. For protection they had chaff in the upper stories and a tight board fence about the yards. The results tabulated are as follows:

No. of colonies.	Size of hive.	Winter loss	Average brood Apr. 25.
37	8-frame	8	3 frames
16	10 "	0	3 $\frac{3}{4}$ "
156	12 "	9	5 "
32	16 "	13	2 $\frac{1}{2}$ "

He says he had the best success in wintering in 12-frame hives, while his figures show that the 10-frame hive wintered best. The editor, commenting, says it is facts like these that should have some weight; but it strikes me the facts are too naked. We need more particulars to warrant us in forming any judgment. Mr. H. indeed says that "the most of the eight-frame, and all of the ten-frame hives were in the yard where the bees

wintered best." What other ones were there? What ones in the other yards? How did the localities differ as to the lay of the land as well as to the character of the fall honey flow? And what did the bees die of? Dysentery, starvation or freezing?

SULPHURIC ACID FOR CLEANSING BEESWAX.

In *Gleanings*, 543, the editor says, for the purpose of cleansing beeswax, the acid should be reduced in water from 50 to 500 times. To allow for a latitude of from 1 to 10 seems altogether too wide, to make the advice of any value. Then, even the smaller amount must be egregiously great. Try two or three table spoonfuls in ten gallons of wax and water—dropping it in carefully when the wax is all melted and boiling, and remove from the fire at once. I have found this course entirely satisfactory.

" RAYS OF DARK " AND KING-BIRDS.

Mr. Wright, he of the rays-of-dark fame, returns to the subject in *Gleanings*, 531. His article has this caption, for which I suppose *Gleanings* is responsible: "The importance of careful accurate observation." In a foot-note the editor says "some of his notions have been severely criticized by the Review critic . . . but if Mr. Taylor will conduct his experiments as Mr. Wright has his he may get his eyes opened to more 'rays of light.' I don't say that Mr. Wright's ideas on how nocturnal animals see are correct; but they should hardly be classed as so much 'nonsense.' One who is so close an observer as Mr. Wright should receive at least candid consideration." And more of the same kind in relation to Mr. Wright's discoveries concerning the King-bird. Mr. Wright says he has spent many nights in fields and forest in the haunts of the owl, fox, etc. and has "become convinced that many animals can see perfectly only in total darkness." "Total darkness" is indeed "rayless gloom," and that's pretty dark. I can not help wondering if Mr.

Wright ever discovered it in his nightly wanderings. Mr. Wright should remember that the eyes of animals become atrophied in caves where I suppose the darkness lacks something of being total. Mr. Wright has also investigated the king bird and his doings. With knife and gun he lies in wait for the bird. When he discovers a pair he watches one till he has apparently caught six bees, when he is brought down and a post-mortem examination is made but not a trace of bees was found. Then the other was given a chance to catch a dozen or more, when she shares the fate of her mate. Investigation discovers one drone but no trace of another bee. But Mr. W. pursues the quest and discovers that one bird at least extracts the juices of the bees and rejects the skeleton. This moves the editor to say "This illustrates how unscientific are some of the experiments and observations of even scientific men." It may interest him to know that I also have been "gunning" among the king birds in a small way and have had no difficulty in finding the recognizable remains of workers in their crops—but then localities differ.

THE COLOR OF HONEYS.

Prof. Hunter, according to *Gleanings*, 530, gives photographs of six samples of honey. They range in shade thus: 1, alfalfa and melon; 2, white clover; 3, alfalfa; 4, basswood; 5, sweet clover; 6, knot weed. Dr. Miller asks whether basswood is usually darker than white clover. The editor answers that it is generally a little darker but only slightly so. In this locality it is always decidedly lighter.

THE PROPER PLACE FOR QUEEN CELLS.

Dr. Miller suspects that having the cells [Doolittle cells] between two combs with young larvae is an important point. The editor (*Gleanings*, 529) answers that it is quite important. I wish to ask why? That is, why, if the colony is strong enough to rear good queens?

LAPER, Mich., Oct. 3, 1899.



EDITORIAL offerings.

MRS. HUTCHINSON has been home about six weeks. I mention this that our friends may rejoice with us.

FOUL BROOD and pickled brood are giving the bee-keepers of York State a little uneasiness in some parts of the State.

F. L. THOMPSON, who writes "Notes From Foreign Bee Journals" for the Review is taking a trip among the bee-keepers of Utah.

HONEY is being used more and more by bakers; and the beauty of it is that they can not use adulterated goods. The least amount of glucose "spoils the cake."

W. L. COGGSHALL puts locality first, the man second, and the hive last, and I agree with him, but this does not necessarily imply that the hive is of little importance.

"A BAD LEAK" is what comrade E. E. Hasty calls the loss of swarms that come out and abscond when the bee-keeper is not on the watch—thinking it is too early or too late in the day. Bro. Hasty asks how to stop the leak. That's easy. Alley's queen-trap will stop it.

LOUIS SCHOLL, Secretary of the Central Texas Bee-keepers' Association, has my thanks for a copy of the report of the proceedings of their last convention; but there is not room in a monthly, conducted on the lines followed by the Review, to publish convention reports in detail.

BRO. HOLTERMAN has severed his connection with the Canadian Bee Journal, and is engaged in evangelical work. Mr. W. J. Craig has taken his place for the present.

SULPHURIC ACID was once condemned by the Dadants for use in refining beeswax, on the ground that it destroyed the agreeable, natural odor of the wax. The editor of Gleanings says that this was because too much acid was used in the past. The amount used at present is sufficient, yet the wax retains its well known, delightful honey-smell.

"TOO MUCH HONEY for winter is just enough," is the way that the elder France put it when I was out there last summer. Mr. Dadant, in the American Bee Journal, quotes this expression from an article of Mr. France, and then adds that it does not pay to let bees starve, and that it is still less profitable to feed them so stingily that they starve. Twenty-five pounds of honey is considered a good, middle average for wintering one colony—so says Mr. Dadant.

COLORADO BEE-KEEPERS' CONVENTION.

That "irrepressible" Colorado State Bee-keepers' Association, will hold its annual convention Nov. 27th, 28th and 29th, in the State House at Denver, Colorado, beginning at 10 A. M. As usual, the State Agricultural College will assist. Every one should come loaded with ideas and subjects for discussion. Those who cannot come should write soon to the Secretary or the President and tell what are the particular needs of their locality. The members will be the program. We know from experience that you will make a very lively convention. Come every body—there is sure to be a "hot time in the old town."

R. C. Aikin, President, Loveland, Col.
F. Rauchfuss, Sec., box 378, Denver, Col.

THE QUESTION BOX is approved by Stenog., in *Gleanings*, even if the answers are contradictory. He says that "even the divergence in answers is often a source of new knowledge." Upon those questions about which there is a "divergence" of opinion, "yes" and "no" answers convey very little information. It is among the *reasons* given for the various beliefs that we must look for information.

THE RAUCHFUSS solar wax extractor is illustrated and described in *Gleanings*. Its most striking peculiarity is that the wax does not drip down from the middle of the wax-chute, but is diverted to one side where it drips into one of three pans. When the first pan is full it overflows into the adjoining pan. When the second pan is full it overflows from that into the third pan. It will be seen that the first pan catches all of the dirt and sediment. What overflows into the last two pans is free from dirt, and is ready for the market.

PUSHING NEW THINGS.

In a late issue of *Gleanings*, my old friend, E. D. Ochsner, of Wisconsin, opposes the adoption of the tall sections. He also intimates that manufacturers are too much given to the pushing of new things for the sake of making money; that is, regardless of whether the new things are better. Among other things, Mr. Root says, in reply, that manufacturers would make more money if bee-keepers would stick to one style of section or hive. In one sense this is true, but there is another point: If some manufacturer can bring out something that is superior, he gets the lion's share of the trade; and this is one factor that makes each manufacturer always on the alert for something newer and better; and having adopted something that he believes to be superior, it is the most natural thing in the world that the manufacturer should "push it." Don't construe this item to be one

written in opposition to tall sections, for I think their proportions are more artistic than those of a square section. I wouldn't change my fixtures, however, simply that I might adopt them.

SELECTION IN BREEDING.

Dr. Miller, in *Gleanings*, suggests that when taking off honey we mark the number of the hive on each super taken off. Then when we find a greasy-looking lot of sections we will know where to replace a queen next spring. The editor says it is a good scheme, and an argument in favor of numbering hives. There are other points besides this that might be looked after with advantage. The late Dr. Whiting once told me that he found that one of his colonies built scarcely any brace-combs. He requeened his apiary with queens bred from the mother of this colony, and continued for two or three years to destroy and replace the queens that showed a disposition to build brace-combs. In this way he practically rid his apiary of the brace-comb nuisance. This is the kind of work that may be done by the amateur, the queen breeder, or the man with at least a medium sized apiary. The Coggsalls, the Hetheringtons and the Elwoods scarcely have time for such work. It might pay them, but there are probably other things that pay them better.

CAGED QUEENS AND HOW BEES CARE FOR THEM.

Commenting upon the report in the Review that bees will care for a caged queen laid at the entrance of a hive, Dr. Miller reports that he once threw an old caged queen at the foot of an apple-tree in the middle of the apiary. A few bees came and clustered on the cage, as they often will. Then he threw another old queen there, and kept up the practice until there were a dozen or so of queens in the pile. They stayed there for weeks,

through rain or shine. He says that the amusing feature was that while the cluster of attending bees was never as big as his fist, it swarmed very frequently, sometimes several times a day, but always returned. Doctor, the man who tells the first story stands no chance of coming out ahead. Seriously, however, while I have no doubt that queens would be cared for, usually, in this hap hazard manner, especially in a large apiary, I would prefer to take more pains with a queen that I cared very much about.

TESTING IS NOT ADOPTING.

Dr. Miller is testing a few Danzy hives, also a few large hives which some one has graphically called "barns." He re-resents the accusation that because he is doing this, he is "pressing barns to the front." Mr. Root is also trying these hives, and says that because he is doing this he is also accused of "pressing them to the front." Because a man is giving a thing a trial is no reason why it should be assumed that he will adopt it. It simply shows that he is willing to lay aside his prejudices long enough to have his doubts removed or confirmed by actual, personal experience.

THE NECESSITY FOR KEEPING A LARGE NUMBER OF COLONIES.

In my Philadelphia essay, published in the Extracted Department of this issue, I touch upon the necessity for keeping a large number of colonies if one is dependent upon bees alone for a livelihood. Since that article was put into type, my attention has been again called to the matter in a peculiarly forcible manner. A correspondent asked me to give the names and addresses of a dozen or more bee-keepers who had been eminently successful—"those who had made some money at the business." I was very forcibly struck by the fact that each one whom I could fairly class under this heading had kept a large number of colo-

nies—so many that it was necessary to keep them in several apiaries. While it is probably true that the highest financial success cannot be attained in bee-keeping without keeping a large number of colonies, it must not be taken for granted that the converse is true—that a large number of colonies will insure success. There must be the right kind of locality and management.

J. N. COLWICK, of Norse, Texas, has sent me some balls taken from the live oak. His bees are gathering honey dew from these balls. He says that this dark sweet substance exudes very freely from the balls on some trees, while on other trees near by they furnish nothing. He once tried to make three barrels of vinegar from this kind of honey dew. Fermentation was begun, but it simply "died," if that is the proper expression, and there was no vinegar. Mr. Colwick had never failed in making vinegar from honey.

CAPT. J. E. HETHERINGTON.

Gleanings gives a most excellent, very life-like, nearly full-page, half-tone portrait of Capt. J. E. Hetherington, of Cherry Valley, N. Y. The editor of Gleanings also gives nearly a page of interesting items regarding the Captain and his bee-keeping life. There seems to be little doubt that he is the most extensive bee-keeper in the world. For at least the last ten or fifteen years he has managed as many as 3,000 colonies of bees. Mr. Hetherington is the originator of the no-drip shipping case; and is also entitled to the credit of having introduced the tall section. Mr. Root also says that the Captain was the first to conceive of the idea of incorporation of fine wire into foundation to prevent it from sagging. Notwithstanding the fact that he produces large crops of honey, it is always high-grade, put up with the most scrupulous care, neat and clean, in the no-drip

cases; and certain buyers who are acquainted with his goods will take it every year at an advance of one or two cents above the market. With all of his other qualities the Captain is exceedingly modest—never given to courting notoriety, yet always willing to assist others in the pursuit. He has repeatedly declined to furnish articles for the bee-journals, as the publication of his views brings down upon him such a mass of correspondence that, with his other duties, he is unable to attend to it.



WARMING BEE-CELLARS WITH OIL-STOVES.

In reply to a correspondent's inquiry, the editor of *Gleanings* says: "If the oil-stove was turned down too low it might possibly have been an indirect cause of the death of the bees. We would not advise putting a stove of that kind in the cellar and keeping it there more than two or three days at most." Oil-stoves are as good as any stoves for warming bee-cellars, providing there is some way of carrying off the gases of combustion. Any fire uses up the oxygen of the air. Of course, more air finds its way in to replace the oxygen burned, but the air that comes in is not all oxygen, and, by the continual burning of the oxygen, a point is finally reached where the air is very deficient in this life-giving fluid. In the case of bees, however, I think that this condition of the air is not so harmful as the gases of combustion that are thrown into the air by the ordinary use of an oil-stove. One or two years I used an oil-stove for heating my office before the weather was cold enough to need a coal-stove; but I was obliged to discontinue its use, as it almost invariably brought on a headache.

Two or three years, when I had only a few colonies in the cellar, and there came some unusually cold "snaps," I kept up the temperature by means of a large oil-stove; but I had it arranged especially to avoid the undesirable features that I

have mentioned. I had a tin hood made to fit over the top of the stove, and this hood was connected with the stove-pipe in the room above by the means of a two and one half inch tin pipe that passed up through the floor. With this arrangement I could not discover that the air in the cellar was vitiated in the least by the use of the oil-stove.



ALFALFA AND ITS FUTURE.

R. Wilkin, of California, in an article in *Gleanings*, tells how he moved his bees, in a dry season, to a valley that was favored by a flow of water from the snows on the Sierra Nevada mountains. The cold prevented a flow of water until in June, but even the meager growth of alfalfa that resulted impressed Mr. Wilkin with the fact that alfalfa, which yields such an extraordinary amount of food for animals, will, in the near future, be cultivated wherever conditions favor its growth; and the alfalfa will be followed by the bee-keeper, that he may profit by its wonderful yields of honey. Somewhere, during the last few days, I have read that the most promising field for extensive, commercial bee-keeping was, at present, in the alfalfa fields of the West—Colorado, for instance. I think that I read this in *Gleanings*.



PROMPTNESS VERSUS INFORMATION.

My trip to the fairs prevented me from catching up any on this issue of the *Review*; and this reminds me that there is an occasional complaint because the *Review* is not always out on time. One man once suggested that if "I would stay at home, instead of gadding around the country, I could probably get the *Review* out on time;" and he described the situation exactly. If I should stay in my office every day, it is quite likely that the *Review* could be mailed exactly the same day of the month, each month. But would it come with the same sparkle and vim? Would it have that crisp freshness?

I think not. It could not give all of those little interesting and valuable items that can be picked up only by a visit to the apiaries and their owners. These visits, besides furnishing valuable information for a journal, also most clearly show its editor what is needed by his readers. The closer an editor can get to his readers, the better acquainted he is with them, the more good can he do them. I have not one word to say against promptness, it is a commendable feature, but it is not so important in a class journal, which is read for the sake of learning how to do certain things, as it is in a newspaper. We read the latter to learn the news, and we wish to read it before it becomes a matter of history. We take the bee-journals for the information they contain, and we prefer to have them come overflowing with good things, even if a few days late, rather than promptly on time but "stale, flat and unprofitable."

A B C OF BEE CULTURE.

If there is any book on bee-keeping of which bee-keepers have reason to be proud, it is Root's A B C of Bee Culture. I am reminded of this by the receipt of a copy of the latest edition, which is just out. There is probably no firm in the whole wide world possessing the facilities and advantages of the A. I. Root Co. for getting out a work of this kind. It has plenty of capital and a thoroughly equipped printing office. More than this, there is an experience of more than a quarter of a century in actual, practical bee-keeping, and in publishing a thoroughly progressive, up-to-date bee-journal. More than any one else, an editor has an opportunity for being fully informed regarding the actual state of the industry which his journal represents. Thousands of letters from all parts of the country pass under his eyes each year. In order that the best possible advantage might be taken of the knowledge thus secured, the Root Co. has been to the expense of keeping the book standing in

type. As often as new discoveries or changes are made, a corresponding change is made in the subject matter of the A B C. By this method the last issue of the book is up to date. It can not be otherwise than that the edition just out is decidedly the superior of any previous editions. I might go into details, but the advertisement on the back cover of the Review has saved me that trouble. I can as thoroughly endorse that advertisement as though I had written it myself as an editorial notice. When a beginner writes and asks me what book he better buy, I unhesitatingly tell him, "Root's A B C of Bee Culture,"—and I have a book of my own to sell.

CLEANING UP UNFINISHED SECTIONS.

Dr. Miller tells, in Gleanings, how he piled up 46 supers of unfinished sections in his cellar, and then opened the door Oct. 1. The supers were piled crosswise so that the bees could gain ready access to them. The weather was fine, and the bees cleaned them out in two days. The combs were gnawed a little, but not seriously. The doctor says that he has tried putting unfinished sections over colonies of bees to have them carry down the honey, and while he has tried all sorts of inducements to get the bees to carry down the honey, he has never succeeded. Editor Root says that he has had success in this line to the extent of getting a super emptied in two months. I do not know as I have ever had partly finished sections emptied by placing them over colonies of bees, but I have had sections cleaned from which the honey had been extracted. There seems to be a difference, in the estimation of a bee, between honey that has never been capped, and that that has been uncapped by a knife. Sections, or any kind of combs from which the honey has been extracted, are almost surely cleaned by simply setting them over a colony of bees. Editor Root says that nearly all of the largest comb-honey producers have their unfinished sections

cleaned up in the fall by placing them in the cellar, as Dr. Miller did, where the darkness makes the bees a little slow in finding them, that is, not only slow in finding them the first time, but in each subsequent visit, or else they stack them up out of doors, and allow only a small entrance. The point is that if the bees gain access to them in large numbers, they quarrel, and push, and crowd, and break down the walls of the combs.



INTRODUCING QUEENS BY CAGING THEM AGAINST THE SIDE OF A COMB.

Mr. R. A. Lapsley writes quite graphically to Gleanings in regard to his failure by caging the queen against the side of a comb, as described and illustrated in the June Review and in other journals. He says this plan might do very well in the hands of the veterans, but thinks that some other plan better for the inexperienced. Mr. Root thinks that I was putting it a little strong when I called it a certain method of introduction. I do not know how many queens I have sold this summer; I have not figured it up, but I know that it is several hundred, and to each purchaser has been sent instructions for this style of introduction. In each case when a queen was lost I have sent another free of charge. There were quite a number of failures, but, almost without exception, the trouble was similar to that reported by Mr. Lapsley; the bees dug under and liberated the queen before they were ready to accept her. I think that some of us who attempt to tell others how to manage, sometimes take too much for granted. I do not know how the others felt who described this method, but it never occurred to me that any one would cage the queen against a *new* comb of *honey*; but that was what several of my customers did the past season, to their sorrow—and mine. The comb selected should be old, tough, brood-comb, and filled with just hatching brood instead of sealed honey. If a few of the cells contain unsealed honey, no

harm is done—in fact, it seems to me better. If I remember correctly, the only failures, aside from those that came from the bees eating under the cage, were those in which the bee-keeper hunted up the queen in a day or two after she was released, “to see if she was all right.” He found her all “right,” but the disturbance caused the bees to attack her; and then there was trouble. I am satisfied that this plan of introduction is correct in principle, and about the only detail that needs more attention is that of the selection of proper comb upon which to cage the queen.



WHAT DETERMINES THE SEX IN EGGS?

What has been called the Dzierzon theory has been almost universally accepted among bee-keepers. Briefly stated, it is that the eggs of an unfertilized queen produce drones, and that after she is fertilized, drones are produced by her laying eggs that are not brought in contact with, or under the influence of, the fertilizing fluid. I think that any one who has read the little pamphlet called the Dzierzon Theory, will admit that there is good ground for such belief. Recently, however, there has been started another theory, called the Dickel theory, in which it is asserted that the power of determining the sex lies with the workers, and not with the queen. Mr. Thompson referred to it in his notes last month, and gave a brief account of some experiments. I may say, also, that I have had some correspondence on this subject with Mr. C. Thielmann, of Thielmann, Minn. He made five swarms queenless at the time of hiving, then gave each a new comb containing only worker eggs. There was not a drone cell on one of the combs, yet every swarm reared workers, drones and queens from the eggs given them. Mr. Thielmann has sent me a photograph of one of the combs, taken eleven days after it was given to the swarm, and it shows conclusively that he is correct in his statements.

It may be true, in fact, it seems as though these experiments prove that it *is* true, that bees are able to rear drones from worker eggs, but they do not seem to be able to rear workers from the eggs of a *drone laying* queen. I was about to say that perhaps the explanation was that the bees were able to destroy the fertilizing principle of the egg, thus producing a drone, but I see that Mr. Dickel says that he has transferred drone eggs to worker cells, and from these eggs produced both workers and queens, which rather goes against my proposed explanation. The question is a difficult one to decide positively in all of its bearings; but there is the comfort that the success of practical bee-keeping is not very largely dependent upon its solution.

ROBBER BEES.

In another place in this issue of the Review is mentioned the plan of having bees clean up unfinished sections in the fall by placing them in the cellar, or in a pile of supers out of doors, by allowing the bees to have access through a small entrance. There is one other point in connection with this matter, and that is, will this practice teach the bees to become robbers? This point was quite thoroughly discussed at the Philadelphia convention. There was a mention of the Coggshall plan of setting out hives containing combs of honey, and allowing the bees to carry in the honey. After they were all emptied, full combs were taken from the hives and set out and the bees allowed to carry in the honey again. This acted as a stimulant to the bees. At once there sprung up the most animated discussion of the convention. The plan was most vigorously opposed on the ground that it taught the bees to become robbers. That old saw "Once a robber, always a robber," was made the watchword. There is no question but what bees can learn things, and one of the things is that of watching for and bringing home honey from a comb that is ex-

posed, or even to fight for the possession of a hive that is already occupied. They will learn that they can gain access to open hives by following a bee-keeper about the yard. Such bees are particularly annoying to a queen breeder, who must often be busy most of the day opening nuclei. At such times I have gone to one side of the apiary and opened a hive in which I kept my smoker fuel, and it was really amusing to see the crowd of bees that would follow me and "pounce" down into the planer shavings the moment that I raised the cover. This shows what bees can learn. But that bees can become so addicted to the habit of robbing as to cling to that habit during a good flow of honey, as some have asserted, is something that I have never believed. I have seen no evidence of it. I have done a great deal of feeding of bees, both inside the hive and in the open air, and when done for the purpose of stimulation, I see no objection to the open air feeding. This is supposing, of course, that there are no other bees, aside from your own, to share in the spoils. I have fed bees by setting out combs of honey, *a la* Coggshall, by making a syrup and feeding it in fruit jars inverted on grooved boards. One summer, when rearing queens, and producing extracted honey, I took the cappings, after the harvest was over, and put out a few at a time in large tin cans. The bees came in crowds and actually tore the cappings into fragments, carrying home every particle of honey. Each day I put out a "batch" until all were cleaned up. The bees soon learned where the cappings were placed. Within a few minutes after the cappings were put out a few bees would be seen flitting about the cans, then, almost as by magic, the cans would be "roaring full" of bees. They would grub away for an hour or more, and then gradually dwindle down to a few dozen. Even while they were at work at their busiest, I could go out in the apiary and open hives with no more trouble than usual. I suppose the point was that the bees had learned

where to find honey, and, when a forager came in with a load, they all started for the cans. It was just the same when feeding syrup with the fruit jars and grooved boards. As soon as the cans were filled up, and a few bees had found the syrup and gone home with a load, there would be a perfect swarm around the feeders, but I could go on and open nuclei with very little annoyance. My feeding of syrup in this manner was to start young queens to laying in nuclei during a honey dearth. It accomplished its object, but I found that I was feeding a lot of full colonies ten times the amount that went into the nuclei, and stimulating breeding at a place where I did not care for it at that season, so I dropped this plan, and made some little boxes, and filled them nearly full of sugar candy, then inverted one over each nucleus having a queen nearly old enough to lay. This accomplished the purpose at one-tenth the expense. Perhaps some one might object to open air feeding on the ground that the colonies that needed it most would secure the least honey. If you are feeding bees that are short of stores for winter, then out door feeding is not the thing. In this case I would feed each colony separate. In this way the correct amount can be given to each colony. Awhile ago I said that for the purposes of *stimulation* I saw no objection to open air feeding. In this case the weak colony would bring in only a little, and could care for only a little additional brood. The populous colony can bring large quantities of feed, and can care for large quantities of brood. Feeding in the open air has an effect that is very similar to a natural honey flow. In all of this I have seen no trouble from robbers. Too many have gotten a wrong impression of the matter from improper management. A bee-keeper goes out into his apiary and finds the bees robbing some colony. The first thing he does is to close the entrance or carry the hive into the cellar. All the bees that have been at work upon this colony are disappoint-

ed in finding it gone. They are enraged. They are like a tiger robbed of its prey. They attack the nearest colonies; then others. Every colony in the yard is tried. Woe unto a weak or queenless colony. Sometimes it is woe unto chickens, dogs and children. Had that hive been left and the bees allowed to "clean it out," they would have been kept busy grubbing and digging away at it long after the honey was gone. They would have found out *gradually* that there was no more honey to be gotten. I would not for the world give advice that would be likely to get bee-keepers into trouble. I know that bees are sometimes aroused by the exposure of honey—just after the close of basswood bloom for instance—and with terrible results, but I also know from repeated trials, year after year, that bees can be fed in the open air with no disastrous results whatever.

Harry Howe has an article in *Gleanings*, written since he went to Cuba, and he says he has never seen robbers thicker or more aggressive than he found them there, yet a walk through the fields will show a share of the black, shiny bees that many call "professional robbers." Going on, Mr. Howe says that one day the bees will follow one around the yard by the hundred, pitching into every hive that is opened; in a day or two, basswood is out, or some other source of honey opens up, and where are the robbers? Honey may be left exposed in the yard, and not a bee will look at it.

EXTRACTED.

ORIGIN OF HONEY DEW.

Prof. Cook says there is no Doubt of its Insect Origin.

Some months ago, in the Review, Mr. McKnight of Canada, opposed the idea that honey dew is of insect origin. In

reply to Mr. McKnight Prof. Cook has the following to say in the American Bee Journal.

I am surprised at Mr. McKnight's article critique in the Bee-Keepers' Review, of my position regarding honey-dew. I did not suppose that I needed to prove that honey-dew was generally from plant-lice (aphides) or scale (not scab) insects (coccids). We have only to observe to see the exudation and fall of the nectar from the insects. Whatever may be the ultimate truth, this is certainly true: Nearly all such honey-dew is from insects, as any one will see upon superficial examination. Very little, if any, is secreted by the plants, and none at all falls from the sky. Mr. M's suggestion that the plant forms the honey-dew, and the insects (plant lice and scale insects) sip it up, can be refuted by a very close observation. We see the nectar coming from these insects, but we never see them sipping it up, for the very good reason that they do not do it, no more than do bees pierce sound fruit.

I wish any one who finds what they think is plant-secreted honey-dew would send me a sample of the plant with the honey-dew on it.

My own *opinion* of the matter, formed by reading the experience and observations of others, is that honey-dew may come from more than one source—that in most instances it comes from insects, but that in some instances it comes from the plants themselves.



HONEY AS A FOOD.

Its Advantages as a Food for Those Whose Digestion is Impaired.

Very many bee-keepers know of the healthfulness of honey as a food; but many of them do not fully realize its value as an actual medicine, or as a special article of diet for those who, for any reason, have difficulty in digesting their food. Prof. Cook, several years ago, brought down upon his head some quite hard scoldings because he used the words "digested nectar," as descriptive of honey. Nevertheless, he was correct. Those

who objected to the term did not base their objection upon its incorrectness, but they objected to how it sounded—to its association. I am reminded of all this by reading an extract from a foreign bee-journal, *Revue Eclectique*, translated by Stenog, and published in *Gleanings*. Don't think that because your digestion is all right, that you have no interest in this matter. Read the following extract, and then I will show you how the point that it brings up might be used to even the financial advantage of bee-keepers.

Honey is a healthful, concentrated, easily assimilated food, offered to man by nature, all prepared, extracted drop by drop from myriads of flowers. Our ancestors made of it their favorite food. They knew no other sweet. The introduction of beet sugar has lessened the use of honey, so the latter is hardly ever found now except in the home of the bee-keeper or in certain medicines, or on the table of a few who know its virtues. We should go back to honey, for it is well known that this food, without rendering necessary any insalvation or digestive work on the part of the stomach, excites nervous energy, gives mental force and tone to the vital functions, and is very beneficial to persons of sedentary habits or those doing much headwork. All those who suffer from disorders of the stomach, and who have difficult or bad digestion, or those subject to constipation, should use honey daily; and after several months they will find the digestive organs restored to their normal condition. But the use of it must be daily and prolonged.

To live long, one should take, every morning, some hot milk, sweetened with a spoonful of honey, and dip bread in it. Taken at night, honey favors digestion and wards off sleeplessness. When Julius Caesar dined with P. Rutilius, to celebrate the 100th birthday of the latter, Caesar asked him by what means he had preserved his strength of mind and body. "By eating honey," replied the old Roman.

But honey is not only a good food but a good medicine, curing, without drugs, disorders of the stomach, chest, and of the voice, such as gastritis, bronchitis, colds, asthma, and grip. The formic acid with which it is impregnated by the bees makes of it an antiseptic, purifying the disordered mouth and breath. Rheumatism is practically unknown among those who eat much honey. But the honey

must be pure; and one buying it should be sure of the standing of the house selling it.

To my mind, the above fact is one of the strongest and best points that it is possible to put into a honey leaflet. A large number of people, especially in cities, and those whose occupations are sedentary, or in-doors, have poor digestion; and if they really knew of the benefit that would come to them from the eating of honey, its sale would be largely increased. I would suggest that those who get up honey leaflets make this *the* point of the leaflet. The fact should be told briefly, clearly, and in a pleasing but convincing manner. A most important point will be *in the telling*.

CANDIED HONEY.

A Novel Method of Bringing it Before the Public.

The exhibition of a barrel of granulated honey, minus the barrel, in a grocery-window, would be likely to attract attention and comment. That it not only does this but greatly increases the sale of honey in this condition is shown by the following that was contributed to the American Bee Journal by Mr. Herbert Clute of Wisconsin. Mr. Clute says:—

Grocerymen claim their customers like our honey flavor better than any other. One of the grocerymen lets the honey candy in the barrel, then he sets the barrel of honey on a table in the front part of the store, and cuts all of the hoops from the barrel, then pulls the staves off. In that way it leaves one big lump of candied honey on the table right in the show-window; the customers come in and inquire what that big chunk of sugar is. He tells them that it is honey, and then they wish to buy a few pounds, and he takes a large knife that he has lying beside it, and slices off on the top edge as you would cheese. In this way he sold a barrel of honey a week, at a profit of 4 cents a pound, while the two adjoining groceries sold but a barrel or two all winter, of the same kind of honey,

as it was shipped from me at the same time. But the others kept it in the barrel. They had the barrel up at the front of the store, but there was not enough curiosity excited in that way to create an appetite, as was the case with the large cake.

Honey is one of the things that must be in sight if it is to be sold. There is another point in this matter: Many people find the taste of granulated honey very agreeable. At fairs I have sold a great many bottles of granulated honey to people who did not know what it was until I explained it to them and allowed them to taste of it. Honey of a mild flavor, candied with a nice, smooth grain, is really almost as palatable as confectionery.

WINTERING BEES IN THE CELLAR.

When to put them in; How to Pile them up. Ventilation of Hives and Cellar.

A large part of our success turns upon the successful wintering of our bees; and, as preparations for winter are now in order, I will copy from the American Bee Journal part of an article on cellar wintering, written by that veteran, C. Davenport. Among other things, he says:—

The time to put bees into the cellar depends, of course, upon the locality. For the last few years I have left mine out until the latter part of November; but, last fall, about the 20th of that month, there was a severe storm, with extreme cold, and I think I lost, at a low estimate, \$100, because my bees were out in it; and, after this, the majority of mine, at least, will be put under ground by the middle of November.

Some recommend placing long scantling, or 2 x 4's, in the cellar to set the hives on. I used to practice this plan, but I have found that a much better way is to put an empty hive or stout box under each tier of hives. When this is done, only the colonies in that one tier are disturbed when a hive is put on or taken off. When long pieces are used, unless great care is taken, the bees in all the hives on them are more or less

disturbed when a hive is set on, or removed in the spring.

For the past two winters I have left the bottom-boards on, and for reasons I will not here take space to explain, I consider it better to leave them on and raise the body of the hive up so as to leave an open space all around under it. Before commencing to carry the hives in, I set empty hives about a foot apart in rows through the cellar, and level them up sidewise, but raise one end so that it is about an inch higher than the other. I use a spirit-level for leveling these stands, for it is an important matter to have them about level, if the hives are to be tiered six or seven high, as mine are; for if they are not they may lean over so far that in a cellar that has no floor but the ground, one tier may topple over, and its fall throw other tiers over, like a set of nine pins.

For carrying the hives from the yard to the cellar, I use a carrier that is made so that two hives, or even three, if they are not too heavy, can be carried at once by means of handles similar to those of a wheel-barrow, that project out at each end. It requires two men to carry them in this way, but if the hives are some distance from the cellar it is, I think, much better to use something of this kind instead of a wheel-barrow, as with a carrier the bees hardly seem to know that they are being moved.

On a cloudy day, with the temperature at 40 degrees or lower, I seldom find it necessary to close a hive-entrance. After a hive has been put on its stand in the cellar, I raise it from the bottom-board, which has been loosened a day or so before, and a short piece about $\frac{1}{2}$ an inch thick is put under at each corner; and from some pretty extensive experiments I have made in this line, I am convinced that a colony will winter fully as well with the hive raised half an inch from the bottom-board all around as it will if it is raised an inch, or as it will with the bottom-board left off entirely; in fact, many of my hives that have strips on the bottom-boards I only raise the thickness of a lath all around, and have decided that with me it is better than to have them raised higher. I try, though, to keep the air in the cellar pure, and the rows of hives are far enough apart so that one can walk between them and remove the dead bees on the bottom-boards, if they accumulate so as to make it necessary.

I consider it better to give ventilation enough to keep the air pure, even if doing so does, to some extent, cause an un-

even temperature. A few colonies in a cellar of considerable size will, in most cases, obtain plenty of air without any special means being taken to give ventilation, but in a cellar that is well filled up with bees, some means should be taken to admit fresh air at will.

Of the numerous methods I have tried for giving ventilation, I prefer a pipe or tube running from the cellar up through the roof, independent of any other pipe or chimney, with a suitable hood over the top to prevent rain or snow from running down, and with a damper on the same principle as a damper in a stove-pipe, where it can be most easily reached, so that it can be regulated as the weather demands.



BEE-KEEPING AS A PROFESSION.

The Views of the Editor of the Review.

Many beginners are looking forward to the time when they can depend upon their bees for their living; and some who are now depending upon bee-keeping for their livelihood are finding that livelihood a very precarious one. These classes may be interested in the short paper that I read at the Philadelphia convention. It reads as follows:—

The time was when many industries were represented in one family. Flax and wool were grown, spun, and worked up into cloth and made into clothing. Cows were kept, and cheese as well as butter made for home use. Poultry and a few colonies of bees added to the comforts of the household. But there is no need of going into detail; every one knows how people lived 100 years ago. Cheap and rapid transportation has encouraged the invention of machinery, the building of factories, and the classification of labor. This has brought about *specialty*. No one disputes that this condition of things is better; by it our comforts are more than trebled.

Some industries crunched out as specialties much sooner than others. Bee-keeping was among the later ones. At last, however, it has been recognized as an industry of itself. How does it compare with other professions? What are its advantages and disadvantages? Can it be depended upon as a means of livelihood? These are questions that have

come to all of us, and will continue to come to all who enter our ranks.

I believe it is well understood that bee-keeping is not an occupation in which we can easily become wealthy. In the very nature of things it cannot be otherwise. Like the keeping of poultry, the raising of small fruits, gardening, and other minor branches of agriculture, the keeping of bees in localities adapted to the business can be depended upon to furnish their owner a comfortable living; but such fortunes as are amassed in merchandising and manufacturing can never be hoped for by the bee-keeper.

Fortunately, however, the perfection of a man's happiness bears but little relation to the size of his fortune. Many a man with the hum of bees over his head, finds happiness sweeter and deeper than ever comes to the merchant prince with his cares and his thousands. Bee-keeping is an ennobling pursuit. It keeps a man close to Nature's heart. It brings out the best that is in him. But can it be depended upon, year after year, as a means of supporting one's family? In some localities it can; in others it cannot. Where there is only one source of honey, and that an unreliable one, a man learns, sooner or later, that he cannot depend upon bees alone. If a man is to adopt bee-keeping as a profession he must choose a location possessing at least one unfailling source of honey, or else several sources, some one or more of which will be quite likely to furnish a crop.

Many who attempt bee-keeping as a specialty, are lacking in business methods. They attempt too many make-shifts in the way of hives, implements, buildings, and the like. To become a successful, professional bee-keeper a man must first find a proper locality, as I have just explained, then he must secure the best stock procurable, put up suitable buildings, wintering cellars, if necessary, have the best of hives and implements, and *keep a large number of colonies*. I think many fail in this point. They keep only bees enough to bring in an income during a good year, or, possibly in an average year, and when one poor year follows another, two or three times in succession, want stares them in the face. Keep bees enough so that when there is a good year or two, enough money may be made to tide over the poor seasons that are sure to come. The very fact that the bees are scattered about in out-apiaries, several miles apart, adds to the certainty of a crop; as one locality often yields a fair crop while another a few miles away yields nothing.

With a man adapted to the business, a suitable locality, and the adoption of sound business methods, bee-keeping will compare favorably with other rural pursuits.

— • • —

UNCERTAINTIES OF BEE-KEEPING.

—

They, as well as the Certainties, can be Fairly Judged only from the Experience of Several Years.

—

Right in line with the preceding address is an article, by Harry Lathrop of Wisconsin, that appeared recently in *Gleanings*; and, as we get a more perfect idea of anything by looking at it from different points of view, I copy Mr. Lathrop's article. It is as follows:—

There is no branch of agriculture so apt to mislead a beginner, and inflate him with the belief that a fortune for him is just ahead, as that of bee-keeping. He figures from results that he has secured on a small scale, and argues that all he has to do in order to bring about the same results on a larger scale is to increase the business. So argues the novice; but sooner or later he strikes an adverse season, and, lo! his bubble is burst, and he begins to realize some of the uncertainties in this line of business. Then he may go to the other extreme of discouragement, and dispose of his few remaining colonies for about what the bare hives cost him in the first place. He should not do so, however, but take care of his hives and combs; do the best he can, and wait for better conditions. Other branches are subject to failures. The farmer is never certain of a crop when he puts in the seed, but on the whole his occupation is as certain to bring results as any other, and more so than many. So it is with bee-keeping. We can form a correct estimate of the relative value of the industry, as compared with others, only by taking a number of years together. For my locality I have records of each season dating back to 1885, during which season we had a very small crop of honey; still, it could not be called a failure.

The season of 1886 was an ideal one. White clover was abundant, and lasted a long time; basswood could not be better than it was then. I remember how one

could literally see and taste the clear shining nectar in the blossoms. The season of 1887 was a failure on account of extreme drouth. The season of 1888 was phenomenal in honey-production. Bees came out rather weak in spring, but built up on white clover, getting in shape for basswood, which lasted three full weeks. When basswood closed, the bees began working on the large wild sun-flowers and other autumn flowers, which continued to yield honey until frost came. During that season I had colonies that produced over 200 pounds of comb honey in one-pound boxes; others did nearly as well. One hundred colonies of bees in good condition to begin the season, and properly handled, ought to have made the owner \$2000 clear, as honey brought a better price than than it does now. I received 18 cts. per pound in job lots for part of my comb honey.

For the years 1889, '90, '91, and '92, the honey crops were light to fair, but there were no total failures. The year 1893 was a great white-clover year, and gave us a splendid crop of honey. In 1894 there was no white clover, but basswood was a full crop, and lasted as long as it was ever known to in this region. The bees worked on it 25 days. Just after the close of the basswood flow, Ernest Root visited us and found the bees storing quite rapidly a very light amber honey, the source of which I never fully learned. The year 1895 scored another total failure, bees getting just enough honey to winter on. In 1896 we had a fair crop, mostly from basswood. In 1897 we had another great white-clover year. The pastures in this country were covered as with a white sheet. In 1898 there was no honey at all from clover, but basswood gave a fairly good yield.

Thus we see that, during the years 1885 to 1898 inclusive, or fourteen years, we have recorded five full crops, seven light to fair, and two total failures. Taking it for granted, for convenience' sake, that the present season of 1899 will score another failure (which I do not think will be the case), we have, as a result, one total failure for every five years; five heavy crops out of fifteen, or one in three years, and seven medium crops in fifteen years. This gives us a basis on which to estimate the probable results in the future, and is very valuable to the one who expects to make bee-keeping his principal means of support. Some localities can show a better record than this, but there are a greater number that can not show as good.

One can see from this record how important it is to have a location with a diversity of honey-producing plants. In my location the fact that the field produces both white clover and basswood prevented me from having several more failures of crop during the time recorded.

Some may ask what I consider a full crop on my field. I will state it in round numbers easily remembered: 100 lbs. of comb honey per colony, spring count, for a full crop; 50 lbs. half crop, and so on. From this it would not be difficult to figure out just about what a good bee-keeper *could* have done in those past 15 years.

Location is a great factor; but management, I believe, is the most important of all. How many Doolittles have we among bee-keepers? Very few. I know that I am not one, for, as I once said to a friend, "I get well paid for neglecting my bees." That means that I have other business that prevents me from taking the nice care of the bees that they deserve. But there are some keeping bees in Wisconsin who are so ignorant and negligent that they will tell you that they expect their bees to do well when the basswood comes in bloom, whereas basswood has come and gone, and the poor bees had no surplus-arrangement provided in which to store the honey, so they just plugged their brood-combs what they could, and then loafed, or in some cases built a piece of comb on the outside of the hive.

SIZE OF HIVES.

Some Fair Considerations of the Subject. A System in which a Small hive is a Factor.

Awhile ago I said in the Review that I thought about enough had been said upon the subject of the size of hives, but I recently came across something in the American Bee Journal, written by Adrian Getaz, that is so sensible and fair that I must lay it before the readers of the Review. Here is what Mr. Getaz says:—

During the past few months quite a discussion on large or small hives has been going on in several of our bee-papers. Probably all that could be said on the subject has been said, perhaps not in

every paper put in some one or other. Yet a few points need some explanation.

In the first place, it must be understood that the question is between large or small brood-nests, as it is supposed that all the supers needed to accommodate the honey-flow will be given in either case.

Next, a large brood-nest implies a colony of sufficient size to occupy it. This seems evident, and should not have to be mentioned, but, nevertheless, I was astonished to see some of our best writers fail to grasp the situation and insist that it was useless to have a large brood-nest which would never be filled. Of course, it is useless to have a larger brood-nest than needed, but it is necessary to have it large enough to secure all the brood that can be reared.

How much is necessary? That's the question. All the partisans of small hives say that eight frames are all that an average queen can fill before the honey-flow. After the honey flow has begun, they want the honey to go into the supers instead of being used in the brood-nest.

Right here those in favor of large hives say that their queens can fill from ten to twelve or even sixteen frames, and have a correspondingly large number of field-bees when the flow opens.

Why is it so? We cannot admit that small-brood-nest men (let us call them "small broodists") have inferior queens.

Men like Doolittle, Hutchinson, and R. L. Taylor, know what a good queen is, and would have changed their stock long ago if it were so. In fact, Mr. Doolittle's queens, if they had a chance, would fill the biggest brood-nest ever dreamed of by the Dadants.

Perhaps their queens do not fill more than 8 frames because they have only that number. I don't think so. If their queens were able to fill more, they would give more. Men of their experience do not make such a mistake, and in fact they have tried and found 8 to be about the right number.

But the question remains. Why is it that the large broodist's queens can fill 10, 12 and 16 frames instead of only 8?

After reading all that I could find on the subject; after thinking a good deal and comparing their experience with mine, I say, unhesitatingly, that it is because the small broodist's colonies are too small in the spring, or rather at the end of the winter.

The prolificness of the queen is not the only thing to be considered. No matter how many eggs a queen can lay, no more brood is going to be reared than the bees can take care of. This is especially true

in the early part of the season, when the weather is cool yet, and the brood has to be well covered by the bees to get the necessary warmth. No brood will hatch, or rather emerge, until three or four weeks after the opening of the season, and during that period the strength of the colony will decrease all the time. After that, the amount of brood will increase at first, then faster and faster until the honey-flow comes.

Now, it seems evident to me, and my experience has been in accordance with it, that the amount of brood secured at the opening of the honey-flow depends chiefly upon the strength of the colony at the opening of the season. With such colonies as the small broodists have at the opening of the season, only enough brood can be reared to fill the 8 combs by the opening of the honey-flow. With a colony 50 percent stronger in population, 50 percent more brood could be reared—12 combs occupied instead of 8, and with a population 20 percent larger, 20 percent more of surplus could be secured.

It seems to me that I see somebody bobbing up with the question; How do you know that the small broodists winter only small colonies?

Well, I know it by their own writings. It is only two months ago that Mr. Hutchinson said in the Bee-Keeper's Review that in Michigan a large colony would be almost sure to rear brood in the winter, and be worthless in the spring. Mr. Doolittle has said, time and again, that small colonies (he calls them medium) winter better than larger ones. Mr. Davenport, in a late number of *Gleanings in Bee-Culture*, wrote that whatever was the strength of the colony in the fall, the spring would find them very nearly alike, and it was therefore useless to winter too large colonies. Mr. Heddon contracts his brood-nest in the summer, and winters only what can occupy one section in his hive. R. L. Taylor also says the small colonies winter the best.

The question is now: Supposing the large colonies could be wintered equally well, which would be the best—80 colonies of 12 combs and population in proportion, or 120 colonies of 8 combs, the total population to be the same in either case?

The difference may depend upon the nature of the honey-flow, and might not be very great; but it would undoubtedly be in favor of the large colonies. There would be only 80 entrances to guard against robbers instead of 120. It would take less bees to keep up the heat necessary for 80 brood-nests than 120 smaller

ones, on the same principle that it takes less fencing to enclose one field of two acres than to enclose two fields of one acre each. When supers are to be put on or taken off, there would be only 80 hives to open and smoke, instead of 120, and therefore a saving of time; and probably less swarming and less danger of starving in case of a dearth of honey in spring, or inadequate provisions in the winter.

Whether large colonies can be wintered as well as small ones in the North, and in the cellar, I cannot say. In my latitude, wintering outside, the large colonies winter far better than the small ones.

As usual, Mr. Getaz is very fair. He wishes to get at the truth regardless of *who* is correct. In substance, he asks, other things being equal, are not large hives more desirable than small hives? *If* we can secure just as much honey per *comb* from bees kept in large hives, are not the large hives more desirable; are they not more profitable, as a less number of covers and bottom boards are needed, and there is a less number of hives to open and close and manipulate? In reply I will say that if such a style of hive is used that large hives can be made of narrow lumber, and the bees are wintered out of doors, and the system of management is such that there is little or no handling of hives, then the large hive would be preferable if just as much honey per *comb* could be secured as with the small hive. Here at the North, however, many of us follow a system of management in which a small, light, readily movable hive is an important factor for other reasons than simply because we can get more honey per *comb* in the sections. We aim to handle hives instead of combs. The Heddon method of preventing after-swarming is an illustration. We winter our bees in the cellar; and prefer small hives for that reason. This system as we follow it is consistent in all of its parts. A large hive would be an inconsistent factor in several different ways.

On the other hand I am willing to admit that in other localities, and with other systems, a small hive may be an inconsistency.

THE BEST SHOOTING.

The shooting in Iowa, Minnesota and South Dakota this year promises to be very good as the rainfall in all these states was abundant. The best localities for chicken and duck shooting are on and tributary to the lines of the Chicago, Milwaukee & St. Paul Railway. A copy of recent publication issued by the passenger department of that road can be had on application to Harry Mercer, Michigan Passenger agent, 7 Fort street, W. Detroit, Mich. and enclosing three cents in stamps for postage.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee-Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," "No. 1, dark," etc.

KANSAS CITY.—We quote as follows: No. 1, white, 14; fancy amber, 13½; No. 1 amber 13; fancy dark, 12½; white extracted, 7 to 7½; amber, 6; dark, 4 to 4½; beeswax, 22 to 15.

C. C. CLEMONS CO.,
Oct. 17. 423 Walnut St., Kansas City, Mo.

NEW YORK.—Honey of the better grades in good demand. Beeswax quiet. We quote as follows: Fancy white, 14 to 15; No. 1 white, 12 to 13; fancy amber 11; fancy dark, 10 to 11; No. 1 dark, 10; white extracted, 8 to 8½; amber, 7 to 7½; dark, 6 to 6½; beeswax, 26 to 27.

HILDRETH & SEGELKEN,
Oct. 16. 120 West Broadway, New York.

BUFFALO, N. Y.—There is a steady, liberal demand with apparently an excellent prospect for best grades. Receipts and stocks in Buffalo are very light. Of common grades, also, there is a very light supply. We quote as follows: Fancy white, 14 to 15; No. 1 white, 13 to 14; fancy amber, 12½ to 13; No. 1 amber, 11 to 12; fancy dark, 10 to 12; No. 1 dark, 8 to 9; white, extracted, 8; amber, 6 to 7; dark, 5 to 5½; beeswax, 28 to 30. Liberal advances made on consignments.

BATTERSON & CO.
Oct. 16. 167 & 169 Scott St., Buffalo, N. Y.

CLEVELAND, O.—We quote as follows: Fancy white, 15; No. 1 white, 14; fancy amber, 12; No. 1 amber, 11; fancy dark, 9; white, extracted, 8; amber, 6½ to 7.

A. B. WILLIAMS & CO.

Aug. 26, 86 & 82 Broadway, Cleveland, Ohio.

BUFFALO, N. Y.—There is very little new honey in the market, and the demand is very good. We quote as follows: Fancy white, 13½ to 14; No. 1 white, 12½ to 13; fancy amber, 11 to 12; No. 1 amber, 10 to 11; fancy dark, 9 to 10; No. 1 dark, 8 to 9; white extracted, 7 to 7½; amber, 6 to 6½; dark, 5½ to 6; beeswax, 28 to 30.

W. C. TOWNSEND,

Oct. 18, 86 West Market St., Buffalo, N. Y.

CHICAGO, ILL.—At the present time we are having a large demand for all kinds of honey and selling at advanced prices. We anticipate higher prices than we quote to day, but we give to day's as follows: Fancy white comb, 15; No. 1 white, 13 to 14; amber, 11 to 13; dark, 10; white extracted, 8 to 9; amber, 7 to 8; dark, 6 to 7; beeswax, 26 to 30. We are always willing to make advances on consignments, or if customers prefer, will buy and pay cash.

S. T. FISH & CO.,

Oct. 16, 189 So. Water St., Chicago, Ills.

CHICAGO, ILL.—The market is active, and full quotations are obtained. A little fancy white sold at 16 cents, but sales are chiefly at 15 for the best grades; white not strictly fancy brings 13, 14, and 15 cents; amber grades range from 10 to 12, and dark 9 to 10. Extracted, 7 to 8 cents for white, according to body, flavor and package; amber, 7 to 7½, and dark grades 6 to 7 cents. Beeswax 26 to 27 cents.

R. A. BURNETT & Co.,

Oct. 18, 163 So. Water St., Chicago, Ill.


NEW YORK, N. Y.—Demand good for new comb honey with light stocks on hand. We suggest shipping right away, as honey received by us now, will have preference over later shipments. We quote as follows: Fancy white, 14 to 15; No. 1 white, 12 to 13; No. 2 white, 10 to 11; fancy amber, 11 to 12; No. 1 amber, 9 to 10; fancy mixed, 10 to 11; No. 1 mixed, 8 to 9; fancy buckwheat, 9 to 10; No. 1 buckwheat, 8 to 9; New York state extracted, white, 7 to 8; light amber, 6½ to 7½; buckwheat, 5½ to 6½; Florida extracted, white, 7 to 7½; light amber, 6½ to 7; amber, 5½ to 6½; Extracted honey, from other Southern States, 60 to 80 cents per gallon, according to quality, flavor, color, etc.

FRANCIS H. LEGGETT & CO

Sept. 21 W Broadway, Franklin & Varick Sts.

**THE
A. I. ROOT CO.,
10 VINE ST., PHILADELPHIA, PA
BEE-SUPPLIES.**

Direct steamboat and railroad lines to all points. We want to save you freight.

**Dark
Italian**  **Golden
Italian**
QUEENS.

Reared by the best methods known.

Untested, single queen, 75 cts.; six for \$4.00; one dozen, \$7.50. Tested queens, just double these prices. Choice breeding queens, from \$3.00 to \$5.00. Circular telling how to *introduce any kind of a queen, free.*

E. R. JONES.

3-98-121

Milano, Texas

If You Wish Neat, Artistic

PRINTING,

Have it Done at the Review.

Bee keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.

J. H. M COOK, 62 Cortland St., N Y. City

Please mention the Review.

**THE MONITOR
PAPER FILE**

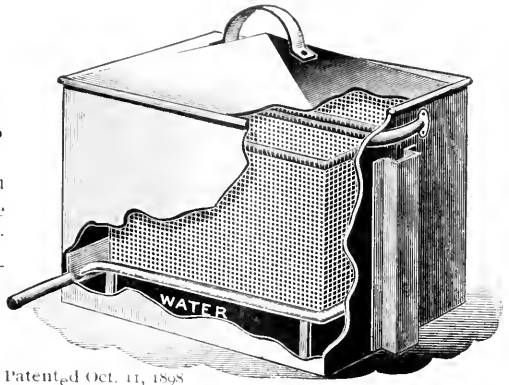
Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music &c., by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome. **PRICE.**—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper.

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1898

— If you are going to —

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Here is the thing you were looking for last winter. *The New Champion Winter Case*, which does away with all unnecessary work, and in which the bees will not die in the coldest winter. Send for special prices on quantities wanted.

R. H. SCHMIDT & CO.,
4-99-1f. Sheboygan, Wis.

Please mention the Review.

— If you wish the best, low-priced —

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

Please mention the Review.

1899 Queens 1899

For Business—Queens for Strong Colonies—Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list. 12-97-11

J. P. H. BROWN, Augusta, Ga.

Please mention the Review.

JOHN F. STRATTON'S CELEBRATED



Birmingham Steel Strings

for Violin, Guitar, Mandolin, Banjo
Finest Made. Extra Plated.

TRADE MARK Warranted not to rust. Send for Catalog

JOHN F. STRATTON,
Importer, Manufacturer and Wholesale Dealer
811, 813, 815, 817 E. 9th St., N. Y.

Please mention the Review.

To stick things, use MAJOR'S CEMENT.
Beware!!! Take no substitute. 2-98-121

Please mention the Review.

Best on Earth. 19 Years Without a Complaint.



	largest smoker made	4 inch stove	Dozen	Each
Smoke Engine			\$13.00—mail,	\$1.50
Doctor	3 1/2	"	9.00	1.10
Conqueror	3	"	6.50	1.00
Large	2 1/2	"	5.00	.90
Plain	2	"	4.75	.70
Little Wonder (wt. 10 oz.)	2	"	4.50	.60
Honey Knife			6.00	.80

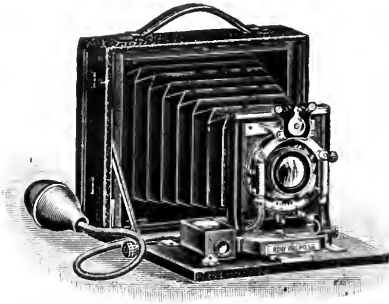
For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

Amateur Photography

...

Anyone, without any experience, and with no instruction other than that contained in the manual furnished, can make beautiful photographs with the



PREMO CAMERA

Catalogue sent free upon application. For five cents we will enclose sample photograph.

Rochester Optical Co., Rochester, N. Y.

Orrin P. Safford, agent at Flint, Mich.

Say!

Did you know the WESTERN BEE KEEPER has changed hands? C. H. GORDON is now Editor and Pub.

Wanted

Every bee-keeper large or small to send 15c for four months trial.—sample copy free.

47 Good Block, Denver, Colorado.

The Time has Arrived

for you to buy your shipping cases, those five-gallon cans, and a few hundred of the new Danz. cartons (send for sample) to harvest that crop of honey in proper shape. We can furnish you with these and all other supplies. Cash paid for beeswax. Send for catalog.

M. H. HUNT & SON,
Bell Branch, Mich.

Please mention the Review.

QUEENS,

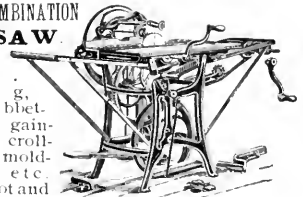
Untested, 75 c; 6 for \$1.00; tested, \$1.00; 6 for \$5.00; breeders, \$2.00. The best stock,

imported or golden. W. H. LAWS, Lavaca, Ark.

Please mention the Review

UNION COMBINATION SAW.

For ripping cross-cut, mitering, beblating, grooving, gaging, boring, cross-sawing, edge molding, beading etc. Full line of foot and hand power machinery. Send for catalogue A.



Seneca Falls Mfg. Co.

48 Water St., Seneca Falls N. Y.

1-99-121

Please mention the Review.

Superior Stock.



Every bee-keeper who has had experience with several strains of bees knows that some are far superior to others—that there is scrub stock among bees, just as there are scrub horses, cattle, sheep and poultry. Let me give my own experience. Years ago, while living at Rogersville, I made a specialty of rearing queens for sale. Before engaging in this work I bought Italian queens and Italianized, not only my own bees, but all within three miles of my apiary. In buying those queens I think that I patronized nearly every breeder in the United States; and even in those years of inexperience I was not long in noting the great difference in the different strains of bees. The queens from one particular breeder produced bees that delighted me greatly. They were just plain, dark, three-banded Italians, but as workers I have never seen them equaled. They seemed possessed of a steady, quiet determination that enabled them to lay up surplus ahead of the others. Easier bees to handle I have never seen. It sometimes seemed as though they were too busy attending to their own business to bother with anything else. Their honey was capped with a snowy whiteness rivaling that of the blacks. In addition to these desirable traits must be added that of wintering well. If any bees came through the winter it was the colonies of this strain. They came as near being ideal bees as any I have possessed. All this was twenty years ago; and several times since then I have bought queens of this same breeder, and I have always found this strain of bees possessed of those same good qualities—industry, gentleness, and hardiness. In addition to this they cap their honey as the blacks do theirs. I have frequently corresponded with this breeder, and with those who have bought queens of him, and I am thoroughly convinced that he has a strain of bees that are far superior to the general run of stock. If I were starting an apiary, for the production of honey, I should unhesitatingly stock it with this strain of bees.

This breeder has always advertised in a modest, quiet sort of way, nothing in proportion to what his stock would have warranted, and I have decided that I can help him, and benefit my readers at a profit to myself, by advertising these bees in a manner befittingly energetic.

The price of these queens will be \$1.50 each. This may seem like a high price, but the man

who pays it will make dollars where this breeder and myself make cents; and when you come to read the conditions under which they are sold, it will not seem so high. The queens sent out will all be young queens, just beginning to lay, but, as there are no black bees in the vicinity, it is not likely that any will prove impurely mated. If any queen SHOULD prove to be impurely mated, another will be sent free of charge. Safe arrival in first-class condition will be guaranteed. Instructions for introducing will be sent to every purchaser, and if these instructions are followed, and the queen is lost, another will be sent free of charge. This is not all; if, at any time within two years, a purchaser, for any reason **WHATEVER**, is not satisfied with his bargain, he can return the queen, and his money will be refunded, and 50 cents extra sent to pay him for his trouble. It will be seen that the purchaser runs **NO RISK WHATEVER**. If a queen does not arrive in good condition, another is sent. If he loses her in introducing, another is sent. If she should prove impurely mated, another is sent. If the queen proves a poor layer, or the stock does not come up to the expectations, or there is **ANY** reason why the bargain is not satisfactory, the queen can be returned and the money will be refunded, and the customer fairly well paid for his trouble. I could not make this last promise if I did not know that the stock is **REALLY SUPERIOR**.

I said that the price would be \$1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the Review. Any one who has already paid me, or who will pay me, \$1.00 for the Review for 1900, can have a queen for \$1.00. That is, you can have the Review for 1900 and a queen for \$2.00. Of course, all arrearages previous to 1900 must be paid up before this offer will hold good. This special offer is made with a view to the getting of new subscribers, and as an inducement to old subscribers to pay up all arrearages and to pay in advance to the end of next year.

Of course it is now too late to send out queens, but they can be ordered, either alone, or in connection with a subscription to the Review, and the orders will be booked and the queens sent next spring.

W. Z. Hutchinson, Flint, Mich.

BEEES!

If you keep bees, subscribe for THE PROGRESSIVE BEE-KEEPER, a journal devoted to bees and honey. Fifty cents a year. Sample copy free. Also illustrated catalogue of bee-keepers' supplies.

Address LEAHY MFG. Co.,
Higginsville, Mo.; or at 1730
South 13th St., Omaha, Neb.;
or at 404 Broadway, East St.
Louis, Illinois.

300 Selected

Golden, Italian Queens, large and yellow all over, warranted purely mated, reared by Doolittle's method, queens by return mail, safe delivery and satisfaction guaranteed. Have 11 year's experience. Queens 75 cts. each; 6 for \$4., or \$7. per doz. Order quick, as above queens are young and will soon be taken. Real testimonial.

Romeo, Mich., July 10, 1890.

Mr. Quirin: Dear Sir:—The queens you sent me have turned out the yellowest bees in my apiary; are gentle to handle large, and well marked
C C Chamberlain.

H. G. QUIRIN,
Parkertown, Ohio.

6-99-01 M. O. Office, Bellevue.

Page & Lyon,

Mfg. Co.

New London, Wis.

— * * * —

Nearness to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

Latest Improvements Perfect Goods Reasonable Prices.

Hives, shipping cases, sections, extractors, etc., everything a bee-keeper needs. Catalogue and copy of the American Bee Keeper free.

The American Bee Keeper is a live monthly and has been published by us for the past ten years—50 cts. per year.

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wired*.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y.

Now is the time to requeen. Hyde & Son have the queens, either

GOLDEN

Italian, or the Holy Lands. Nothing but the best of stock. They have had years of experience and rear queens by the best known methods. *Special attention* is called to the Holy Lands. They are excelled by none for hardiness, prolificness and honey gathering. Try them. Untested queens, either race, 75 cts. each. Tested \$1.00. Discounts on quantities. Prompt service. Root's goods in stock. The Hyde - Scholl separators. 36-page catalog free.

O. P. HYDE & SON,

6-99-41

Hutto, Texas.

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tons and tons of the very finest

FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered ere. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

18



99

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.65; 1,000 for \$2.75; 3,000 for \$7.50; 5,000 for \$11.00; 10,000 for \$19.25.

No. 2 sections are not made to order, but when in stock are sold at \$1.65 per M.

J. FORNCROOK,

Watertown,

Wisconsin.

WINTER

Losses are not always the result of the same cause. They may come from starvation; from poor food; from improper preparations; from imperfect protection; from a cold, wet, or possibly, a poorly ventilated cellar, etc. Successful wintering comes from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "ADVANCED BEE CULTURE." Five of its thirty-two chapters treat as many different phases of the wintering problem.

Price of the book, 50 cts.; the REVIEW one year and the book for \$1.25. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,

Flint, Mich.

Violin for Sale.

I am advertising for the well-known manufacturers of musical instruments, Jno. F. Stratton & Son, of New York, and taking my pay in musical merchandise. I have now on hand a fine violin outfit consisting of violin, bow and case. The violin is a "Stradiuarius," Red, French finish, high polish, and real ebony trimmings, price \$14.00. The bow is of the finest snakewood, ebony frog, lined, inlaid (pearl lined dot) pearl lined slide, German silver shield, ebony screw-head, German silver ferules, and pearl dot in the end, price \$2.50. The case is wood with curved top, varnished, full-lined, with pockets, and furnished with brass hooks, and handles and lock, price \$3.50. This makes the entire outfit worth an even \$20.00. It is exactly the same kind of an outfit that my daughter has been using the past year with the best of satisfaction to herself and teachers. Her violin has a more powerful, rich tone than some instruments here that cost several times as much. I wish to sell this outfit, and would accept one-half nice, white extracted honey in payment, the balance cash. It will be sent on a five days' trial, and if not entirely satisfactory can be returned and the purchase money will be refunded.

W. Z. HUTCHINSON, Flint, Mich.

G. M. LONG, Cedar Mines, Iowa, manufacturer of and dealer in Apian Supplies. Send for circular. 1-96-6

Please mention the Review

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS Reared from imported mothers, warranted purely mated, 75 cents each. Breeders, \$1.25 each. No better stock to be had at any price. Send for catalogue of queens and bees. DEANES & MINER; Ronda, N. C.

Make Your Own Hives.

Bee-Keepers

Will save money by using our Foot Power Saw in making their hives, sections and boxes.

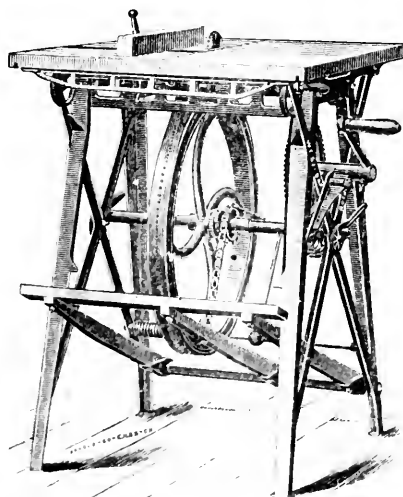
Machines on trial. Send for Catalogue.

W. F. & JNO. BARNES CO.,

384 Ruby St.,

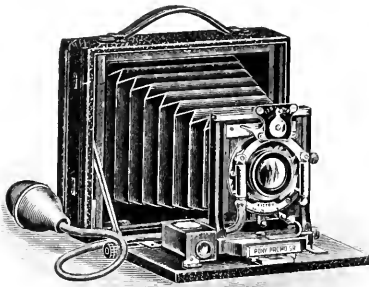
Rockford, Ills.

11-98 121



Amateur Photography

Anyone, without any experience, and with no instruction other than that contained in the manual furnished, can make beautiful photographs with the



PREMO CAMERA

Catalogue sent free upon application. For five cents we will enclose sample photograph.

Rochester Optical Co., Rochester, N. Y.

Orrin P. Safford, agent at Flint, Mich.

Say! Did you know the WESTERN BEE-KEEPER has changed hands? C. F. GORDON is now Editor and Pub.
Wanted Every bee-keeper large or small to send 15c for four months trial.—sample copy free.
47 Good Block, Denver, Colorado.

The Time has Arrived

for you to buy your shipping cases, those five-gallon cans, and a few hundred of the new Danz. cartons (send for sample) to harvest that crop of honey in proper shape. We can furnish you with these and all other supplies. Cash paid for beeswax. Send for catalog.

M. H. HUNT & SON,
Bell Branch, Mich.

Please mention the Review.

QUEENS, Untested, 75 c; 6 for \$4.00; tested, \$1.00; 6 for \$5.00; breeders \$2.00. The best stock, imported or golden. W. H. LAWS, Lavaca, Ark.

Please mention the Review

UNION COMBINATION SAW.

For ripping, cross-cutting, mitering, grooving, boring, cranking, sawing, edge molding, beading etc. Full line of foot and hand power machinery. Send for catalogue A.

Seneca Falls Mfg. Co.

48 Water St., Seneca Falls N. Y.

Please mention the Review.



A WISCONSIN BEE-CELLAR OF LOGS AND EARTH.

The Bee-Keepers' Review

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL. XII. FLINT, MICHIGAN, NOVEMBER 10, 1899. NO II.

BEE CELLARS.

Their Construction and Management.

W. Z. HUTCHINSON.



IN my Wisconsin trip last summer I visited a large number of extensive bee-keepers, and, with two exceptions, they wintered their bees in cellars or special repositories. Mr.

R. H. Schmidt, of

Sheboygan, winters his bees quite successfully in his Champion, double walled, chaff-packed hives, in which the walls are filled with three inches of packing. Mr. N. E. France winters his bees in quadruple, or tenement hives, the outside walls of which are chaff-packed. For the wintering of bees out of doors this seems to me an excellent arrangement, as there is the benefit of the combined warmth of four colonies. I presume, of course, that there are other bee-keepers in Wisconsin, aside from these two, who winter their bees in the open air; in fact, I received a

letter yesterday from a Mr. H. P. Miner of that State who says that he has 300 colonies in chaff hives. In my talks with the members of the Ontario bee-keepers' association, when I go over to their convention, I find that most of them winter their bees in cellars. I won't take the space to discuss the merits of in-door wintering as compared with wintering in the open air, as the hard logic of facts has proved to the majority of bee-keepers in Northern climates, where the cold may hold the bees close prisoners four or five months, that the most successful method of wintering them is by the cellar method. Instead of surrounding each individual colony by some material that is a poor conductor of heat, it is cheaper to gather the hives close together and surround all of them by one great chaff-hive, or its equivalent, walls of earth, by means of which a higher and more even temperature can be secured. Of course, the use of a cellar is to be able to control the temperature. Of itself, a cellar does not *create* warmth. If we build a cellar above ground, it makes no difference how thick the walls, nor of what material they are constructed, it is only a question of time when the inside will be of the same temperature as that outside. Such a cellar would be a poor place in which to try to

winter a single colony of bees. A cellar below the surface of the earth receives warmth from the earth; and, if the cellar is covered in such a manner as to sufficiently retard the escape of the heat, the temperature in the cellar will remain above that of the outside air. The reason is that the heat is constantly replenished from the earth, the same as the warmth in a room is kept up by the fire in the stove. A cellar above ground will, of course, receive some warmth from that part of the earth's surface that is covered by the cellar, but not nearly so much as when the cellar is below the surface of the ground. In the latter case there is no chance for the heat to escape except at the top.

A repository above ground can be made a success only when a large number of colonies are placed in it. A large number of colonies generate considerable heat; and, if they are packed closely together, and closely surrounded by walls of some material that is a poor conductor of heat, the temperature in the cellar will be sufficiently high—it may even go too high unless there is some provision to carry off the heat by means of ventilation. This whole question of cellar wintering is one of temperature. Don't understand me as saying that temperature is the only thing to be considered in the matter of successful wintering, as there are several others; among which is that most important of all—food. What I mean is that ventilation and moisture have but little bearing only as they effect temperature, or the results of temperature. In a dry atmosphere bees can endure a much lower temperature than they can in a damp atmosphere. If a large number of bees are closely packed in a small space and surrounded by non-conducting walls, the heat will sometimes accumulate until the temperature is too high. If the cellar is well ventilated, this extra heat is carried off. This is the bearing that ventilation has on the subject. I doubt the necessity of ventilation for the sake of furnishing the bees with fresh air. Bees, in winter,

are in a state bordering on hibernation, as that word is popularly understood, and the amount of air necessary for their maintenance is very slight. I have several times wintered bees successfully in clamps where they were buried two feet deep under frozen earth. When bees settle down into that quiescent state that accompanies successful wintering, their need of air is very slight indeed. When their winter nap is ended, and spring arouses them to activity and to brood rearing, more air may be needed. It is then, if ever, that special ventilation is a benefit; but, as all that is needed can be secured by the occasional opening of doors or windows at night, if it ever becomes really necessary, it scarcely seems necessary to go to the expense of laying sub-earth pipes. I should not do it, nor advise it. I found none in the cellars of Wisconsin. All of them had upper ventilators, or openings, to allow the hot air to escape. The cool air can find its way in at the cracks and crevices; and, as the ventilation is to reduce the temperature, this answers every purpose.

In this issue of the Review is an interesting article by Mr. Ira Barber on the subject of temperature in bee cellars. I have no doubt whatever that he did winter his bees with most excellent success in a much higher temperature than is usually found in bee-cellars. It certainly was so high as to drive the bees from their hives. Mr. Barber thinks that it is possible that the bees sipped up water from the cellar bottom; and that this helped them to endure the heat. I certainly should not advise any one to try the experiment of raising the temperature of their bee-cellar to such a degree as Mr. Barber has reported. I don't understand Mr. Barber as recommending it. He reports it more as an interesting experience that goes to show that it has been *possible* to winter bees as these high temperatures, rather than to advise such attempts. At least, that is the way I understand him. When he found that he was wintering his bees successfully at a lower tempera-

ture, he was, as he says, satisfied "to let well enough alone." If there is any time of the year when the bees will bear a high temperature, I think it is towards spring. Some have found it a great advantage to heat up the cellar for a day or two at a time toward spring. Mr. H. R. Boardman of Ohio is notable as a man who follows this practice. In the fore part of the season, when the bees have settled down into a quiet state, I think it better not to disturb them by a high temperature; or by a low temperature, either.

The most convenient place for a beecellar is, of course, on a side hill. Then there is no carrying of the bees up and down cellar stairs. Stone is the most substantial material for the walls; and a honey-house is a most excellent covering. In Wisconsin I found a large number of cellars covered with earth. The front-piece this month shows a cellar walled up with pine logs, instead of stone, and covered with earth. I once built a cellar similar to this, but I used green beech and maple logs instead of pine, and covered it with heavy, seasoned, oak rails. Over the rails I spread a little straw, and then covered it with three feet of earth. It answered very well for several years, and then began to show so many signs of decay that I did not dare to use it. The next year after it was discarded, the timbers gave way and it all fell in. I did not use the materials that I did from choice, but because the house over the cellar that I usually used burned in November, and I was compelled to prepare some kind of shelter for the bees on very short notice, and had to take any material that I could get. I presume that pine logs would last a long time. My experience with this cellar was long enough to show me that it was entirely satisfactory with the exception that the water dripped in too much to suit me when it rained. I saw several such cellars in Wisconsin that had roofs over them. After we go to the expense of a foundation and a roof it seems as though we might as well add the walls and have a building.

A cellar that can not be kept warm enough is a very poor place in which to winter bees. As I have already said, a large number of colonies may warm up what would otherwise be a cold cellar; but a small or moderate number of colonies must have a cellar below the ground, or else depend on artificial heat. As Mr. Heddon once remarked: "Cold is a giant in the cellar." Out in the open air there will come occasional respites. The sun on some pleasant afternoon will occasionally warm up the bees enough to allow them to spread out a little or change the form of their cluster. The cold in a cellar may not be very severe, but it is *continuous*—there is no "let up." I would not use artificial heat unless compelled to do so. I would have the cellar under ground where the warmth of the earth will keep it at the proper temperature. As I mentioned last month, I have used artificial heat with good results, and I know of nothing better than at oil-stove; but there must be a hood and a pipe to carry off the gases of combustion. I believe that Mr. Boardman uses an ordinary stove, but the stove is kept in an ante-room; and then the warmed air from this room is admitted to the bee-department of the cellar.

FLINT, Mich., Nov. 1, 1899.



TEMPERATURE OF BEE CELLARS.

Successful Wintering When the Heat Drives
the Bees from the Hives.

IRA BARBER.

EARLY in the eighties I had, for several years, an unusual experience; that of wintering bees in an exceedingly high temperature. The facts, exactly as they occurred, were given to the public at the time; yet I see, from time to time; assertions in the different bee journals that no thermometer was used—that all was guess work, with nothing reliable, about

it. How such statements came to be made is more than I know.

The highest temperature that was found when a thermometer was used, was 90°; and all of the colonies were clustered on the outside of the hives, but not in one mass altogether. In the seven winters that I had bees in this particular cellar, tests were made two or three times each winter until the last winter; when I did not go there until March. Then I was sent for to "see what ailed the bees." Upon going there, I found the bees, 225 colonies, *all in a solid mass on the hives*—there was no part of a hive to be seen; yet all the bees were as quiet as though clustered upon the outside of their hives on a damp, muggy morning in August. I did not take the temperature at this time, as the opening and closing of the doors would have admitted fresh air and aroused the bees to such an extent as to set them to running, which would have been very likely to have caused the loss of the whole lot. As it was, this lot of bees came through in the best condition of any lot that I ever wintered in my 47 years of experience with hundreds of colonies. The only loss was that of one queen. This lot of bees, with the help of a half interest in another lot of about 100 colonies, stored 22,000 pounds of comb honey the next season.

The first winter that I used this cellar, nothing unusual occurred, as only 100 colonies were placed in it. The highest temperature found that winter was 65°. The next winter, 150 colonies were put into the cellar. There was no ventilation; and a large part of the bees were found on the outside of the hives. The next winter more bees were put in and the cellar was ventilated to carry off the heat, yet I found the bees lying out at every visit. In all of these visits the temperature was taken both in the cellar and out doors. Instead of having no thermometer, as has been reported, I had *two*.

This cellar was a damp one; although no water stood in it. When I found the bees in a mass outside the hives, the cel-

lar bottom, near the hives, was covered with bees; and the bees *appeared* to be getting water; and I have no doubt that this had much to do with their coming through the winter all right.

When wintering my bees in this high temperature, I learned one thing to a *certainly*; and that is, if there is any discharge from their bowels under these conditions it is in a dry state. There was not a speck to be seen on the hives or combs; and no litter to be found in the hives any more than in mid summer.

The reason why I have not continued to winter my bees in such a high temperature is because I moved them home where I have a large cellar in which they have always wintered fairly well; and, as I feared that I might not get the right conditions in a reconstructed cellar, I let well enough alone. I have heard of only one man who made a success of wintering bees successfully in a high temperature. I have no file of bee papers to which to refer, as I give away my papers as soon as I have read them, so I can not say positively who he is, but I think that his name is Dayton.

DE KALB JUNCTION, N. Y. Oct. 25, 1899.



SELLING HONEY.

Commission Men and Some of Their Tricks—
How to Deal with Them.

W. O. VICTOR.

FRIEND H., I have been sick for some two weeks, and am just able to sit around the house, so decided to write an article which I would offer you for your journal.

In addition to our former acquaintance, I will introduce myself further by saying: I have kept bees since 1883, having kept as many as 600 colonies at once, have sold as high as 56,000 lbs. of honey in a single season, shipped one solid carload, made one sale of 15,000 lbs. direct to con-

sumers, have bought two carloads of bee-keepers' supplies, killed two bears in one of my apiaries, been President of two local bee-keepers' societies; and if this article appears in print it will be the first from my pen ever printed in a bee-journal.

I have just read your editorial, in the September Review, on commission men; and that is what has aroused me to say a few words on the subject of marketing honey.

I think that, for the beginner, the commission man is a necessity. When my honey crop first went beyond the local demand, I found it very convenient to send my surplus to a commission house; as I was not known as a honey producer, and was not acquainted, so as to be able to submit samples and sell in that way.

I first wrote to some well established and trustworthy firm, saying: I have some honey for sale, can you handle it for me? If not, will you kindly refer me to some reliable dealer who will? (We have no honey specialists among our Southern dealers.)

I would get the address of a general produce firm that would get nearly its entire stock from various points in the morning, and be almost sold out at night; and when I shipped my honey it was soon sold at a good price, and I got my money.

I have had my losses; but they generally came at a time when I was busy and not looking closely after my shipments.

In the fifteen years that I have been selling honey, the whole aggregating hundreds of tons, selling in a single season 27½ tons, I think \$150.00 will cover my losses.

My experience has been quite varied; amusing at times; at others aggravating. I once shipped a small lot of beautiful sections to a commission house and they sent me quick returns at \$1.00 per case of 12 sections; saying "We can handle more at the same price." I promptly replied that I had no more to sell at that price.

In a short time I went to their city to sell honey, my crop having increased by this time so that it payed me to take samples and make selling trips, and on my round I found the man that had bought this lot of honey; and he told me he had paid \$1.50 per case for it; wanted more at same price, but was told "the shipper has no more."

The expense on this shipment was, express, 10 c. per case; commission, 10 c.; *stealage*, 50 c.; total, 70 c.; net to me, 80 c.; grand total, \$1.50.

Did I quit these people? No sir; for they were good sellers. I went around and told them that I would not have any more honey sacrificed in that way; and in the future I would name the price, and they could sell at that price or hold goods subject to my order; and they have since sold hundreds of dollars worth for me in this way.

On another occasion I shipped 60 buckets of chunk honey to a firm; and, in a few days, taking my wife and child with me, I went to their city to look after my interests. The depot was near this firm's place of business; and I went there before taking my family to a hotel. When we got near the place I could see the buckets stacked up conspicuously on the pavement, with a sign, "fresh honey," over them.

I said to my wife, "Let's have some fun by wanting to buy." We stopped and curiously looked at the honey. A young man stepped out and asked if we would like some honey; and opened a bucket. I asked where it was raised. He promptly replied, "California."

"What is the price?"

"15 c. per lb. for the small buckets, 12½ for the large ones."

I asked if that was not very high. He replied:

"No sir; it sells readily here at that price. We got in 500 buckets last week and have only 50 left."

I then felt the weight of some of the buckets, and said:

"These buckets seem very small for the weight you have marked on them."

(They were all marked from 1½ to 4 lbs. more than the actual weight, which was 5 to 22 lbs.)

"The weight is correct sir, we weighed carefully."

We talked on; soon reaching the point where I had to buy at the weights and prices named, or make myself known, and, in self defense, I drew on him the letter acknowledging receipt of this very honey.

"A—h—Mr. A—h—. Victor of Wharton. Come in, Mr. Victor, and let me make you acquainted with Mr. —, head of our firm."

Whereupon my dear young friend hide him to parts unknown; and, although I was there several times during my stay in the city, I saw very little of this pushing salesman; and could see he made it a special point not to come around the office.

For several years past I have not been forced to the necessity of selling through commission houses, but have kept up my acquaintance with them to some extent as a matter of convenience for the present, and possible necessity in the future.

For instance, I may have a great need for a small amount of money; I take one, or two, or more barrels of honey to the depot, ship it to a reliable house, go from the depot to the bank and draw for the amount wanted. I now enclose bill of lading, with notice of draft, to the house; and, in due time, I get acct. sales and check for the balance of my money.

Had I not occasionally renewed my acquaintance with this house, I would have had to wait until the honey was received before I could get this money that was wanted immediately; and was probably worth 25 per cent. more, to me, then, than it would have been two or three weeks later.

Now, I do not wish to create the impression that I advocate depending upon the commission men to dispose of our honey; for I do not. We should all keep

well posted, as to prices and prospects; and in offering what we have for sale be sure that the sample submitted does not flatter what we have for sale. Then place the price as high as the market will stand, and should we make a sale we have a permanent customer; as the comparison of the sample and goods are favorable.

However, my best outlet for honey is through the small dealers with whom I have become acquainted on my trips with honey; and by references from acquaintances.

These small dealers send their orders to me, and I ship them the goods, and in this way save the freight and the commission; besides, they feel better satisfied than when buying from a commission house, as they can say "I know this honey is all right; as I bought it of the producer, and I know he does not sell any thing but pure honey."

Taking it all together, I want two strings to my bow; the commission men, and the direct trade, so I can pull the one that gives the best tune.

WHARTON, Texas, Oct. 17, 1899.



THE ROYAL PALM OF CUBA.

Also a few Words about Destroying Foul Brood by Heat.

HARRY S. HOWE.



A GREAT deal has been written of the royal palm as a honey plant in Cuba; but, until I came here and saw it for myself, my ideas were rather vague as to many of the details.

This led to the thought that perhaps others were equally in the dark.

The tree itself is one of the most handsome products of nature. It also has a property not so common in beautiful things, that of being one of the most useful of trees.



THE ROYAL PALM OF CUBA.

It is used here for almost everything. From its trunk they make the sides and frames of the houses; while the leaves furnish material for the roofs. In fact, there are many houses here made *entirely* of the palm, for they even use cords made of the base of the leaves, in place of nails, to fasten the parts together. The wood is so hard that a nail can not be driven into it. The thick stems of the leaves make good fuel. The pig, too, comes in for a share of the benefit; for he is fed mainly upon the palm fruit. This fruit is a berry about like a small cherry, mostly pit, and is borne in great abundance. The palm is a slow growing tree; and is very long lived. In the picture you will see a cluster of ripe fruit and a

great bunch of flowers. These are borne at the base of the leaves; or, rather, at the base of the long sheath by which the leaves are fastened to the trunk. It is from this sheath that very stout ropes are made. The tree in the foreground is only about fifty feet tall; many are much higher.

To get the leaves for thatches, and the fruit to feed the stock, the Cubans climb the tree and cut them off; using a rope harness to get up by.

The buds are in large, tough pods which enclose a large bunch of flowers. These buds open with a sharp cracking noise, and drop off, exposing the spray of flowers, which is three or four feet long and has hundreds of small blossoms, already in full bloom. The tree has no regular time of flowering, but seems to open at random. There are usually about four different ages of fruit on the tree at a time.

The palm yields honey in the morning only; but yields equally well all times of the year.

It is not usual to get any surplus from palm; although, once in a while, a strong colony will store a little. I have one or two that are storing perhaps a pound a day; but generally they get rather less from this source than they need to keep in good shape. Still, it is a very valuable honey plant for it yields during the summer when there is no other honey. In some few locations, where there are very many palms, it may even give a small amount of honey for the market; but the honey is not very good. It is a light amber, very thin, and has a strong flavor which I do not like. There are many places where there are not enough palms to give any honey; in fact, good honey locations are not much more plentiful here than they are in the States.

In regard to Taylor's remarks concerning foul brood, I would refer him to Stearnburg's Manual of Bacteriology, or any other standard work, where he will find that the thermal death point of near-

ly all bacteria has been very carefully worked out.

Bacillus alvei seems to be closely related to the colon group; and among that group he will find none that stand any such temperature as Prof. Harrison reports. This is a sort of negative proof that there has been some mistake made somewhere.

My experiments, which were made under the eye of Dr. Moore, of Cornell, formerly of the United States Department of Animal Pathology, and one of the world's best authorities upon the colon group, show, as I said at Philadelphia, that between ten and fifteen minutes of actual boiling kills the spores as well as the vegetation stage of *Bacillus alvei*.

I also found that a temperature of 150°, F., for several hours, would kill them.

This will explain why the honey from the solar extractor did not infect the bees.

It is also well known that bacteria subjected for a long time to a temperature above the normal, for that species, lose their virulence. This, however, may be restored by passing through a succession of susceptible animals. So Mr. Taylor may find that, even after a long time, his colony may come down with foul brood; providing the temperature was not quite high enough to destroy the germs.

By making a bacteriological examination of the dead brood he mentions, he could determine the point.

I do not think, however, that he would find any foul brood; for sunlight is almost surely fatal to all bacteria that do not normally live in it.

It seems to me that if the writers on foul brood would read the chapters upon the thermal death point of bacteria, in any good text book, there would be much less controversy upon the subject.

SAN FRANCISCO DE PAULA,

Cuba, Oct. 21, 1899.

BEES IN CLAMPS.

How to Manage the Swarming Feature.
Using Drone-Comb for Queen-Cell-
Cups.

O. J. HETHERINGTON.



FRIEND H., To your description of my clamp method of bee-keeping, I might add a little in regard to management during the swarming season. When the swarming season has

come, I drive the bees from the hive, and hive them in a new hive on the old stand; putting on the supers at the time of hiving. The old hive is placed upon a new stand and given a mature queen cell, or, preferably, a laying queen. About the middle of last June I got five queens (through Mr. Bingham) from Mrs. Atchley, and gave them to as many old colonies from which a swarm had been driven, and from one of the five to which queens were given I got 90 lbs. of comb honey; from another I got 60 lbs. The others did not do quite so well. Each of the colonies driven out furnished 30 lbs. of early honey and as much of fall honey.

After the honey season is over I put a queen-excluder on the old hive, and set the hive containing the driven swarm over it, and leave it a day or two. Then, with smoke, I drive most of the bees down into the lower hive, when there will be little difficulty in finding and killing the queen of the upper hive. This plan saves watching for swarms, secures a good yield of honey, and results in good colonies, with young queens, for wintering.

Last summer I prepared a colony for rearing queen-cells on the Doolittle plan, and, every three days, I could get from seven to ten cups accepted out of sixteen.

I had much better success in using drone-comb instead of the molded cups. I took a piece of drone-comb in which the cells were about $\frac{3}{8}$ to $\frac{1}{2}$ inch in depth, cut it into strips one row of cells in width, and stuck each row on a stick. I then put a young larva and some royal jelly in each alternate cell, and got a nice cell for every one.

SAGINAW, Mich., Oct. 18, 1899.



Good things From Other Journals.

SELECTED BY DR. A. B. MASON.

THE PHONETIC SPELLING.

It may be a question with some, but for one I am pleased to see the steady but sure advance there is being in what is known as "Reformed Spelling," and glad to note that our bee journals are not behind in this matter. The American Bee Journal has for some time been changing "d" or "ed" final to "t" when so pronounced, and it lookt very od for sun time, but we can becum ust to almost eny thing in a very brief period ny time, and I thoroly enjoy it now, altho it still looks od, and if I were to try this new faugld way I'm sure I'd mak a failur of it.

In Gleanings for October 15, page 761, E. B. Thornton calls the editor's attention to the matter, and points out some words, such as "catalog" "neighbor," "wagon," "color" and others that are very properly used by the editor, instead of in the od way, and goes on to say that "The more ancient the book or manuscript you compare it with, the more does modern English depart from what was once considered correct."

A few months since one of our leading Baptist papers had an article (editorial) on this subject, and came to the conclusion

that it would be impossible to reform our spelling in the lines indicated, but in the same issue there were two examples, or quotations, from an old English bible to show how much difference there is between the former and present English method of spelling. That knocked the editorial in the head. Any one at all acquainted with the old method knows how difficult it is to read it, owing to the outlandish spelling.

Among other things, Mr. Thornton further says, "The only advance that has ever been made on this line has been made by the step-by-step method—a word or a class of words at a time. The old system is not, as Mr. Hutchinson says, radically wrong. It is the details that need tinkering with."

To what Mr. Thornton says, editor Root says, in part,

Personally, we (the Root Co.) approve of the changes suggested by the National Educational Association; but we do not know whether our readers would sanction it or not. For an experiment we will lay the matter before them; that is, we would like postal cards votes on the matter. All those who fail to vote, we shall assume have no preferences one way or the other, so that a majority of those who do vote either for or against may decide.

These changes are very moderate, and are not such as would shock the average reader. I have always felt, however, that to spell the word *past* for *passed*, and carry out this rule all through, was perhaps going a little too far, because it includes such a very large class of words; but when, for instance, we can omit *ugh* from the words *though*, *although*, *through*, *throughfare*, etc.; then we are taking a step in advance.

We have already begun it by spelling *programme* *program*, *catalogue* *catalog*, and none of our readers have interposed or objected. Now will they if we go one step farther? I feel that we can hardly be in sympathy with the movement for shorter spelling without at least putting that sympathy into tangible form."

There doesn't that last sentence of editor Root settle the matter without "our readers" voting at all? I believe, and hope he'll *stay* in sympathy with the

movement, and I've no doubt he will, and then he'll be pretty sure to put "that sympathy into tangible form," but I'm going to vote, even if it does cost a cent, and still I've a sort of feeling that a postal card is hardly large enough for my emphatic "go ahead, and among other improvements in Gleanings, *improve your spelling.*" And now I'm wondering when the staid and methodical Review will fall in line.

IMPROVEMENT IN SOLAR WAX EXTRACTORS.

In the same number of Gleanings from which the above quotations have been made, I find an illustration of a solar wax extractor as improved by Mr. Frank Rauchfuss, of Elyria, Colo. If, in practical use, it proves as valuable as it seems to be, I for one shall feel very grateful to Mr. Rauchfuss for his improvement; for such I believe it to be.

With me, a great drawback has been the sediment that has almost always been on the bottom of the cakes of wax made in the solar extractor; necessitating scraping, or melting the wax to get it nice and clean. Editor Root says:—

The Rauchfuss machine is a good deal like the Doolittle, with the exception that the wax is diverted to the right side into one of the three pans shown. This pan catches all the refuse and sediment; the same settling to the bottom. The pure, free wax rises to the top, and overflows into the other two pans. The result is, when the wax is all melted, the wax in two of the pans, at least, is in marketable shape, while that in the first pan mentioned, after scraping off the sediment from the bottom of the cake, may be rendered again or sent to market. * * * From all I can learn they are giving good satisfaction, because the wax, as soon as it leaves the extractor, is all ready for market without further melting up."

These extractors are made by the L. A. Watkins Co., and, in so far as I can see, the same principle may be used in *any* extractor. My own, home-made, extractor has a flat bottom and the lower end of the galvanized iron sheet of which it is made is so turned up at each corner,

that the melted wax runs out at the center of the lower end, and is caught in a pan placed there for that purpose; but I can have two partitions put in my pans, letting the melted wax, with the sediment, run into the middle part of the pan, and the pure wax run over into the end ones.

APIS DORSATA UNTAMABLE AND UNDESIRABLE.

I'm very much interested in the efforts being made to domesticate Apis Dorsata; but, so far, have heard of nothing that would indicate final success; and, in the American Bee Journal for October, 19, I find this, taken from Wurerzburger Wegwerer.

A Hollander by the name of Verholen, for several years, with the most tenacious pertinacity, tried in Java to domesticate the big Indian bee, but all in vain. Eighty-seven different colonies were captured and lived, but every single colony deserted its brood and honey, and took its departure.

If this is true, and I don't know of any reason for doubting it, it looks as though we are doomed to disappointment in the matter of securing Dorsata for use in this country.

And in the American Bee Journal for Oct. 5th I find the following editorial comment that is still more discouraging, if possible, than the above.

Apis Dorsata was discussed in convention by Australian bee-keepers. H. L. Jones read a paper moderately favoring their introduction. Mr. Pender thought they might be valuable for wax-production. Mr. Bradley said he had lived long years in India, and the man who would bring them into Australia should be prosecuted. They were migratory, as bad as wasps, with stronger colonies. Mr. Abram told of a gentleman who had gone to expense and travel and then decided to let them alone. Mr. Jones said a gentleman in Singapore was trying to domesticate them.

It begins to look as if a good deal of time and valuable space had been taken up in talking and writing about Apis Dorsata. The Italian bee will likely "hold the fort" for some time yet.

According to these two statements, and they seem reliable, it looks rather bad

for Dorsata; but probably much time and money will yet be spent in the effort to secure her—him—or it, for use in this country.

CRIMSON CLOVER.

It is a matter of congratulation when a honey producing plant is found that may be very profitably raised by farmers, aside from its value as a honey producer.

In the October 5th American Bee-Journal (W. Z. please leave that hyphen in there) the editor says that in a recent bulletin issued by the Department of Agriculture at Washington it has the following to say about Crimson Clover.

The use of crimson clover (*Trifolium incarnatum*) has increased to such an extent that it is now a standard crop in many parts of the Southern and Middle States. It is distinguished by its long head of brilliant scarlet blossoms and by the great depth to which its roots make their way. Wherever the winters are not too severe it thrives and is a valuable plant for soiling or for hay. It is a winter annual, the seed being sown any time from the middle of July to late in the fall in Southern States. It grows throughout the milder weather in winter, and quickly makes a dense cover to the ground in the spring. This can be pastured, cut for hay, or turned under for green manure, or all three depending upon conditions.

The fresh seed is of a bright reddish-yellow color, and has a high polish. As it becomes older the color changes to a dark brown color. Such seed should never be purchased, as it is too old to grow well.

In general the seed is less liable to contain many weed seeds than the seed of other clovers. It is harvested before most of the weeds have matured their seed, and being planted in late summer or fall it tends to choke out what weeds may come up with the young plants.

From what I have seen of crimson clover growing in this locality, I should think the statement of the Agricultural Department as to its value for soiling, hay, or pasture is correct. I have made no inquiries among farmers regarding it, but where I have examined it it has been of a dense growth and yielding fully as well as red clover.

Since writing the above this morning I have been out on the street "interviewing" some of the many farmers as they are on their way into the city with their loads of potatoes, apples, pork, beef, poultry, hay, and all sorts of country produce, and there was not a single one of the many I asked about crimson clover but either raised it or knew about it, and with one exception spoke highly of it, and some of them, knowing that I am a bee-keeper, said "the bee like it too." The exception referred to is one of the "slip shod" kind of farmers, and he said "it didn't amount to anything for the ducks and geese had run all over it all summer and kept it close to the ground, and it didn't amount to anything, but one of my boys had a nice crop of it, and several of my neighbors had nice fields of it, but mine didn't amount to any thing." I asked him if the ducks and geese seemed to get much from it? He said, "yes, but it didn't grow tall like the neighbor's but it is still green."

ALFALFA.

About four weeks ago, while Mrs. Mason and myself were on our way home from the Philadelphia convention, I spent nine days on the old farm, 25 miles from Buffalo, N. Y., where I was born and lived for twenty-five years, visiting a brother and his family, and during that time I several times passed a field of about two acres of alfalfa, and never having seen any before, it was quite a curiosity to me. It was then partially in bloom, and I was told that either three or five good crops of hay had been taken from it this season, and this notwithstanding the season was the driest in that region for many years. It was on bottom land right by the side of Buffalo creek.

I told a man who was riding by while I was looking at the field, that I had seen a root of Alfalfa that was over four feet long, and I was told that half of the root was gone, had been broken off. He said he believed the root would grow sixteen feet or even more to find water.



Department of Criticism

CONDUCTED BY R. L. TAYLOR.

The best critics are they
Who, with what they gainsay,
Offer another and better way.

VIRGIN QUEENS AND THE BUILDING OF DRONE-COMB. COMPROMISE- DECISIONS NOT DE- SIRABLE.

Hasty (American Bee Journal, 663), referring to my questioning the correctness of Dadant's assertion that swarms with virgin queens do not build worker comb until the queens begin to lay, dignifies the matter by calling it that puzzle of Dr. Dadant vs. Dr. Taylor, and says he would solve it thus: "If the bees merely *spare* the virgin queen, but in their hearts do not accept her, then they will build drone-comb or none. If she is heartily accepted they will build no drone-comb unless they want some for other reasons." The solution is not satisfactory. The swarms are supposed to have their own queens, and they are seldom dissatisfied with them; so seldom that the proposed solution does not meet the case. The solution looks to me like a sample of that sort of writing of which we see so much in one or two of our journals, evincing a disposition to prevent the decision of a question from having any decided features—to so manipulate it that neither side will appear to be in the wrong and no one's dignity lowered. This is most pernicious. Truth is everything; the individual nothing. Over the latter the waves of time will soon close with not a ripple to mark the place where he disappeared, but truth, though crushed to earth, remains immortal; and one can have no higher duty than to assist it to its feet and to dispel the mists that hang about it.

[While I believe that comrade Hasty was honest in his view of the matter, and had no disposition to try and patch up the matter so that both would appear to be right, I agree with our Critic as to the folly of trying to smooth things over and make it appear that both parties to a controversy are correct—unless they are. We must not forget the old story of the shield, one side of which was red and the other blue.—ED.]

WORKER-CELL JELLY VS. ROYAL JELLY.

Dr. Miller and Editor Root are incubating the fact that worker-cell jelly and royal jelly for a certain time are the same; and the editor is worrying because Doolittle and others recommend royal jelly for artificial queen-cells in preference to other food; and wonders if it is because "Doolittle and the others have not yet discovered that the food of three-days-old larvæ is the same as that for the larvæ of queens." (Gleanings, 638). Doolittle has good reasons, no doubt, for his preference, without suspecting him of ignorance of the facts. One reason that is all-prevailing with me is that with a little foresight the royal jelly can be had in so much more generous quantities and convenient form.

OUTWARD SIGNS OF QUEENLESSNESS.

F. W. H. (Gleanings, 724), having found a queen in one of 15 supers removed, wants to learn how one can best find out from which colony the queen came. The editor suggests no better way than to go over the colonies till it can be determined which one begins the building of queen-cells. This may sometimes be necessary, but, as a rule, if the removal of the queen is known within a day or two, the bereft colony may be discovered by taking a look at the bees at the fronts of the hives. On the loss of a queen a *very* few—at the entrance show the greatest concern, which appears from the rapid racing of individual bees. One runs across the bottom board and looks around the corner of the hive; then others

run in other directions—two or three sometimes going at the same time. From this phenomenon I have first discovered the accidental removal of a queen. Concern is often shown in the same way when a queen is on her wedding trip. Then, if the queen is caged and placed near the entrance of the hive from which she came, many bees will rush about the cage showing the greatest joy; while, if placed near the entrance of any other hive, very little notice will be taken of her.

NEW-PROCESS FOUNDATION VS THE OLD.

In an article, with illustrations, taken from the C. B. J., *Gleanings*, 712, attempts a comparison of the readiness with which bees work the new-process and the old-process foundations. The illustrations are somewhat confusing. The labels they contain are abundant, but are made out with some difficulty by poor eyes; then each of the three illustrations is put upon the page according to a somewhat different plan; and in one case either the label or the explanatory figure below is erroneous. But the chief defect lies in the experiment itself. The "ordinary" foundation with which the comparison is made has no pedigree whatever. The maker is not disclosed; and we have no knowledge of his skill or success in the manufacture of foundation. The new-process foundation may be decidedly preferable to any other made, but it would be ridiculous to claim that the experiment develops any proof of it.

ARE THE LATER METHODS OF INTRODUCING QUEENS ANY SAFER THAN THE OLD PLANS?

From the many changes in the cages and in the methods of procedure and the many failures I am led to wonder whether introducing cages are the boon they have been represented to be. For instance, Mr. Lapsley (*Gleanings*, 762), having a valuable queen for introduction, uses extra caution, and procures one of the cages for the sake of a "certain method." He loses his queen. Again, Mr.

Wardell (*Gleanings*, 768) has been successful in introducing with the cages by first tacking a piece of card board over the candy, thus compelling the bees to cut through the card board as well as the candy to release the queen. The change was made on account of previous losses. So I am led to query whether the old way isn't the best one, after all. One great advantage of it is on account of the great difference in the length of time required for introducing queens to different colonies. Not infrequently a colony requires more than 48 hours; and such probably release the queens more quickly than those that harbor milder feelings. Of course, in such cases, the queens are destroyed. Again, in the spring, queenless colonies are so desirous of a queen that no formal introduction is required—they are glad to take them at once—and at such a time, when eggs are so important, it would be folly to keep the queen caged for two days. Then, a swarm will always take a laying queen; so that when there are swarms there is the best possible opportunity for introducing valuable queens safely. Altogether, may not the subject be properly reconsidered?

[Last month I touched upon this subject, but the publication of Mr. Taylor's views calls up some more thoughts. The point that he brings up in regard to the fact that some colonies are ready to accept a queen much quicker than is the case with other colonies is an important matter. I thought of this when I first read about Mr. Wardell's plan of covering the candy with card board—that is, it simply makes the time of caging *longer* than it otherwise would be. Sometimes this is needed—sometimes not. I think it is possible that with the novice the plan of allowing the bees to eat out the candy and release the queen from the mailing cage may be as good as any; but for one who has the experience and ability to manage the details, the plan of caging the queen against the side of a comb from which young bees are emerging can be made a *sure thing*. As I explained last

month, care must be taken to choose an old, tough comb; and with this the bee-keeper can choose his own time for releasing the queen—that is, within an ordinary limit of time—[E.D.]

“BOOMING” A POOR ARTICLE FOR SELF-INTEREST WOULD BE SUICIDAL. SUCCESSFUL BUSINESS REQUIRES A KEEN PROPHETIC VISION.

The editor of *Gleanings* (p. p. 753, 755, *et al.*) seems to be very sensitive to the innuendoes and charges frequently made that his company takes up and booms new things, like plain sections, tall sections, fences, etc., with the sole purpose, regardless of the interests of customers, to make money out of them. Indeed, one is led to wonder whether the editor, judging from his anxiety and protestations, does not ignorantly feel in some degree guilty. But those who are making the insinuations referred to ought to know better than to do it. Such a course would be suicidal on the part of the company. Successful trade depends upon a profit to each party to it. The A. I. Root company is not without commercial sagacity; and it is not going to run counter to that principle, knowingly. On the other hand, the editor is evidently not quite close to the mark when he makes the broad statement that “I think I can show you that dollars and cents in the case of the A. I. Root Co. was not the motive for putting out these sections.” Perhaps not, directly, nor exclusively. It was to minister to honorable success; and that means dollars and cents. It would not be possible for the editor to lead his many admirers to believe that that was all purely missionary work. Successful business in these times requires the prophetic vision—the clearer and more constant that is, the greater the profit to customers and company. The A. I. Root Co., in order to keep well up in the race, has been testing that vision; and the clearness of the view obtained, time alone can disclose.

LAPER, Mich., Nov. 3, 1899.



EDITORIAL Offerings.

ONTARIO bee-keepers will hold their annual convention in Toronto on the 5th, 6th and 7th of December.

CELLAR, or in-door, wintering of bees receives so much attention in this issue of the *Review* that it might almost be called a special topic number.

MICHIGAN bee-keepers will hold their annual convention this year at Thompsonville. The exact date has not been fixed, but I presume it will be about the 1st of January, in order to take advantage of the holiday rates on the railroads.

S. P. CULLEY is Missouri's largest individual bee-keeper; so says the *Progressive Bee-Keeper*, for which Mr. Culley is writing a series of articles. His crop this year was twenty tons, mostly extracted, for which he expects to realize \$3,500.

THE AUSTRALIAN BEE-KEEPER is the name of a new, neat monthly published by the Pender Bros., of West Maitland, New South Wales. From glancing through the copies that have come to this office, I see that the question of exportation, of securing a foreign market, is a very important one with the bee-keepers of Australia.

MICE in the bee-cellar, from the presence of which our friend Dadant says he could not sleep if he knew that they were racing about among the bees, can be cleaned out by the use of poison. Mix equal quantities of flour, sugar and arsenic, and place in shallow dishes and set

around in different places in the cellar. Mice will not do much damage in a cellar furnished in this manner.

ERNEST WYNNE BOYDEN is the name of a new little boy that came November 2nd (the 21st birthday of our twins) to gladden the home of Mr. and Mrs. A. L. Boyden, of Medina, Ohio. Mr. Boyden is the Michigan young man who went down to Medina a few years ago, became one of the business managers for the A. I. Root Co., won the heart and hand of Constance Root, or "Blue Eyes," as Mr. Root used to call her in Gleanings, has since become one of the partners in the company—and now has a boy, as well as the rest of them. Congratulations, Arthur.

DON'T WAIT too long about putting the bees in the cellar. After the breeding season is over, and the bees have settled down for winter, I doubt if the leaving of them out of doors is of any great benefit to them. They are consuming very little honey, and there is no over-loaded condition to be relieved by a flight. Leaving the bees out until there is severe weather is far from desirable. For several years I have put my bees in the cellar about the 20th of November. This year I put eight colonies in a clamp on the 2nd of November. I'll tell you about them next spring.

HOW TO GET THE BEST QUEEN-CELLS.

Mr. W. H. Pridgen writes to Gleanings that much better queen-cells may be secured by giving the prepared cups (*a la* Doolittle) to queenless bees, those that have been shaken from the combs and left without queen or brood for several hours, until the work is well under way; then put the cells in the upper story of an ordinary colony, with a queen-excluder below the upper story. He says that hopelessly queenless bees will work with great vim for the first day or two, giving

the larvæ abundance of food, and a good send-off, and shaping up the cells. Then their anxiety wears off, and bees of an ordinary colony, above an excluder, will "beat the others all hollow on the home stretch."

WM. A. SELSER, wife and little girl, of Philadelphia, are pictured in a late issue of the American Bee Journal; and the editor gives a very interesting, accompanying sketch. Mr. Selser probably sells more honey at retail, or furnishes it to retail dealers in shape for retailing, than any other man. His honey is heated and bottled in Muth jars, all the work of bottling being done in the month of August. This year he had 24 hands working for him at one time bottling honey. The bottles are sealed with a special kind of wax, then a tin foil cap put on, and a dark label with gilt letters completes the job. His wagons for delivering are the finest I have ever seen—plate glass and gilt letters playing no small part.

THE BEST PLACE FOR HAVING QUEEN-CELLS BUILT.

Dr. Miller and the editor of Gleanings both have expressed themselves as believing that it is important to have queen-cells built between combs having unsealed larvæ—that is, when those cell-cups are used *a la* Doolittle. Mr. R. L. Taylor, in the last Review, asks why, if the colony is strong enough to rear queens. I have a letter from Mr. W. H. Pridgen, in which he expresses the belief that between sealed brood is a better place for the building of queen-cells. He says he finds more bees clustered over sealed brood than over unsealed brood; and calls attention to the fact that natural cells are not always built among unsealed brood. Continuing, he says: "If two cows give milk, and one has been recently milked, and the other has not, I would go to the one that had not, if I wanted milk. See the point?"

BEE-ESCAPES—DOES THEIR USE AFTER
THE HARVEST CAUSE THE BEES
TO BITE THE CAPPINGS?

F. Greiner, in the American Bee-Keeper, objects to the use of the bee-escape when removing surplus comb honey after the harvest is over; on account of the bees biting holes in the cappings. He says that when bees leave the super, each bee will take with it a full load of honey. During the honey-flow their sacs are always full of honey, and no precautions are needed. After the flow is over, the conditions are reversed, and the bees must be forced out of the supers very quickly, or the cappings will suffer; so says Mr. Greiner. He then goes on to describe how to get them out very quickly by the Coggsball method of putting a quilt on top and flapping it up and down to suck the smoke down among the combs. In one particular respect, my experience has been the opposite of that given by Mr. Greiner. I well know the difficulty of getting off supers of finished honey after the flow has closed, without having the cappings mutilated by the bees. If they are greatly alarmed, or smoke is used to any great extent, the bees must be hustled out of the supers at once, just as Mr. Greiner says, but the escape-board can be put in place without alarming the bees very much, not enough to set them to biting the cappings, and, once the board is in place, without the bees being greatly frightened, they will leave the super without biting the cappings—at least, that has been my experience. If supers of finished honey are to be removed after the flow is over, I choose the middle of a warm afternoon to put the escape-boards in place. The propolis is then soft, and the supers can be raised without that snapping, cracking accompaniment that so arouses the bees. I first puff a little smoke in at the entrance, just enough to drive in the guards, then quietly, quickly, yet carefully, raise the super, set it upon the escape-board, and then set both back upon the hive. With

a strong, thin screwdriver, or a heavy pocket-knife, a super can be raised with almost no jar, if the propolis is soft. First insert the point of the knife, or screwdriver, give it a twist, and the super can be picked right off without the least jar. After I have given the knife the twist, which raises the super perhaps $\frac{1}{4}$ of an inch, I puff in a little smoke—not much, but just enough to prevent the bees from coming out with a rush.

The claim has been made for bee-escapes that their use enables the bee-keeper to remove honey without this trouble of the bees biting the cappings; and I think that the claim is a fair one if the matter is rightly managed.



DON'T BOIL DEAD BEES.

The American Bee Journal tells, or allows Mr. Thos. Elliott of Illinois to tell, how he boiled down the combs from 150 colonies of bees that had starved out in California. From that time his health failed him. Within one year he felt as though he was forty years older. Every sense, feeling, or organ, in the human body, that can be affected came under the influence of the poison. He was, in a manner, paralyzed; and the doctors told him that he could live only a short time. He finally found a physician in Chicago who understood his case, and who cured him.

This reminds me of a case that occurred in our own State a year ago last summer. Mr. H. S. Wheeler, who lives near Mt. Pleasant, sent some bees to an out-apiary. Through the mismanagement of the help who had the bees in charge, the bees were not liberated, and succumbed to the heat. Many of the combs were melted down. The dead bees and ruined combs made a sorry looking mess in most of the hives. Mr. Wheeler's wife and the hired girl tried melting up this mixture of bees and honey to get the wax, often using their bare hands to handle the bees and combs, and both of

them were seriously ill as the result. Their arms swelled up, and broke out in running sores. Whether all this trouble comes from the poison of the bees, that is, from the poison contained in the poison-sacs, or from a poison that develops in the early stages of decomposition, is more than I know; but it certainly seems that great care ought to be exercised in rendering combs containing large quantities of dead bees.

PUBLISHING UNSEASONABLE MATTER.

As I look through the bee-journals I am struck with the large amount of unseasonable matter that is published. Yes, I know that the Review is not wholly free from this fault. I know it is difficult to have everything seasonable that appears in our bee-journals. Some discussions are started when the subject is seasonable, and then the debate runs on until the subject is six months "off." Another thing, when a man has had some interesting experience he is inclined to tell of it right then, or not at all. By the time that he has written it out, and sent it to his favorite paper, and the editor makes room for it, and the printed article greets the eye of the reader, the time for profiting by that particular knowledge has passed for that year. By the time that another year brings the proper season for utilizing that particular knowledge, it has been forgotten—unless it happens to be of an unusually important character. I have often admired the seasonability of Mr. Doolittle's contributions. I often keep excellent articles for months in order that they may be published at a seasonable time. I have practiced having a large envelope for each month, and when I come across an article in some of my exchanges that will be particularly seasonable in May, for instance, I clip it out and put it in the envelope marked "May." If some man writes in June and tells of some plan that he used in April most successfully, instead of publishing it in July, I write and explain to

him, and slip it into the envelope for April. When April and May come around, I find myself provided with a lot of excellent matter that is seasonable. Of course, this matter can be carried too far. In mid-winter there is really little to be done with bees; there is a leisure then that allows of considerable latitude in the choosing of subjects; but, other things being equal, preference ought to be given to those subjects that will first occupy the bee-keeper upon the approach of spring. Then, in the early spring months, early summer topics should be given preference. This plan ought to be carried on throughout the year—giving advice and instruction a short time before the season for putting it into practice. I know, of course, that there is nothing particularly new in what I am writing about, but couldn't correspondents and editors work together in trying to make the journals more seasonable in character than they are?

WHAT CAUSES THE INKY DROPS THAT COME FROM THE SMOKER.

The smoker season is about over for this season, but when a subject has been brought up it is probably better to finish the discussion, even if it is a little past the season. Sometime last summer, some one complained because inky drops fell from the nozzle of his smoker and daubed the white sections. Some one, I think it was Dr. Miller, advised cleaning out the smoker. F. L. Thompson reported that *he* had just cleaned his smoker when he read that advice, and he noticed that there was more trouble than usual from these drops. Mr. Taylor in the Review for September says that the trouble comes from damp fuel. In Gleanings for November 1st, Dr. Miller agrees, and says, "Simple enough! There can't be any drops of dirty water unless the water comes out of the fuel. But I was never bright enough to think of it."

Now comes a correspondent of the Review, a Mr. R. B. Chipman, of Riverton,

N. J., who, in commenting upon the foregoing views says: "Of course drier fuel will evaporate less water than fuel more moist, but, my dear sir, the products of combustion are pyroligenous substances and water. The hydrogen of the wood, combining with the oxygen of the air, produces water as one of the products of combustion; and, if the nozzle of the smoker is *cool* enough, the steam thus produced will unite with the pyroligneous acid, creosote, etc., and leave the smoker in the form of inky drops. The moisture produced by damp fuel is a trivial matter compared with the amount of steam produced by combustion. In lighting a lamp, immediately a cloud of moisture is deposited on the chimney. This is because the chimney is *cold*. As soon as the chimney becomes heated the moisture evaporates; but the production of moisture is going on just the same. Hold a cold spoon over the top of the chimney, and the moisture will appear on it just the same as it did on the chimney. So, the simple solution is, have the smoker sufficiently hot to evaporate the water and the pyroligneous products."

This explains why Mr. Thompson had more trouble after he had cleaned his smoker; the nozzle was robbed of its non-conducting lining of soot, and the moisture, being brought in close contact with the tin that was kept cool by the outer air, was condensed and ran out in the forms of drops.

PACKAGES FOR SHIPPING EXTRACTED HONEY.

My experience in the shipping of extracted honey has not been very extensive. I have made a few shipments, and I have received a few. In each case there has been a variety of packages, viz., kegs, barrels and jacketed tin cans. In no case has there been any leakage. To be of any value, the experience must be more extensive than mine. Barrels are heavier than the tin cans; but the greatest

objection that has been brought against them is that they sometimes leak. Right here let me say that there are barrels and barrels, and ways and ways of handling them. When I was at the France-home last summer, in Wisconsin, I had a long talk with the elder France out in the room where they store their barrels of honey. There was a big stack of empty barrels there that had been there for months, in waiting for the big crop that did not come. Mr. France appeared just a trifle indignant at the charge that barrels leaked. If they did leak it was because they were improperly managed. Their barrels were made a long time in advance of the time in which they were to be used. This allowed them to become thoroughly seasoned. Before using, the hoops were driven down good and hard. The point is this, that honey has a great affinity for water; and if there is the least water in the staves the honey will absorb it and cause the wood to shrink; when, of course, there will be leakage. Mr. France said that with their management there was no trouble from leakage. Then, when it comes to handling, Mr. France pointed to the door of the honey house and said: "Don't you see that the floor is just the right height so that when a wagon is backed up there, the floor and the bottom of the wagon are on a level. All you have to do is simply to *roll* the barrel into the wagon. Tin cans you can't roll nor shove; you have got to pick them up and *carry* them. When you get to the railroad station, all you have to do is to back the wagon up to the platform and roll out the barrel." You see, don't you, friends, that from Mr. France's point of view, barrels are all right. The trouble is that all bee-keepers are not Frances. In my trip through Wisconsin I found that all the extensive producers of extracted honey used barrels. Buyers who go through that State expect to find the honey in barrels. They prefer it that way. They would not care to buy and pay for more expensive packages. Only one man did I find using anything

else than barrels, and he put up part of his crop in wooden pails having a cover put in in the same way that the bottom is put in, and a hole in the cover to put in the honey. I think that these pails are made for putting apple butter on the market. The honey that he put up in this way was to be sold direct to the consumers. Bakers and other manufacturers who use honey in large quantities prefer to buy it in barrels—other packages are too expensive. The objection to barrels comes from dealers in honey; and I have no doubt, whatever, that they are often disgusted with leaky kegs and barrels; and that they find the tin cans more convenient, less likely to leak, and more convenient in their business. To say that cans *never* leak would not be true; as several have told me of unhappy experiences by the leaking of cans, or by the bottom of a can coming loose and letting the honey run out. There is no doubt whatever that the men who buy honey from every class of producers, and then re-sell it again to a varied class of customers, such men as Mr. G. W. York, or the Roots of Medina, find the tin can a more desirable package. They have had a lot of experience, and ought to know what suits *them*, but they must not forget that "there are others." I once visited the Grand Rapids, Michigan, branch of the United States Baking Co., and I asked the manager in what kind of package he bought his honey. "Oh, barrels, every time!" he replied. "We couldn't afford to buy in small tins, and see no advantage in it. We have everything arranged to handle it in barrels, and prefer it that way." I think this is the case with all bakers and manufacturers. So long as the greater part of the extracted honey produced is used by bakers and manufacturers it is likely that barrels will be used for shipping the honey; and, instead of condemning the barrels, let's recognize their fitness in their proper sphere, and urge upon producers the necessity of having thoroughly seasoned barrels, the hoops properly driven when the honey is put

in, and again when it is shipped. Teach what kind of barrels to use and how to use them. All this can be done, and yet the desirability of the tin can upheld for a certain class of trade.

Wood-fiber, or paper, has been suggested for shipping-packages, but either costs more than barrels or tin.

EXTRACTED.

INDOOR WINTERING OF BEES.

The Necessity of Keeping the Temperature at the Right Point.

As the winter season draws near, the question of the successful wintering of the bees is uppermost. The man who has no cellar may be thinking of building one, and the one who has one may not be possessed of all the knowledge possible in regard to its best management; hence, both may find something of interest in the following written by C. P. Dadt and published in the American Bee Journal.

Please allow a stranger to ask your opinion or advice in relation to a wintering place or house for my bees. I have in mind to build a house with double walls, 6, 8 or 10 inches between the outside siding and inside ceiling, and fill the space with dry sawdust, have a double floor filled in the same way. Seven feet between lower and upper floors. I can carpet or cover the upper floor with sawdust. I will be very glad to have your opinion in the matter. Also how much space does it require to place 75 to 100 hives with bees, and the best and most proper way to ventilate the room? Any suggestions will be thankfully received. Yours truly,

R. R. JACKSON, Allamakee Co., Iowa.

We have often heard of bee-houses being used similar to the one mentioned in the above inquiry, but have never seen or tried them ourselves. Any repository in which the bees may be kept at an even temperature slightly above the freezing-point may be considered as a safe place to keep bees over winter if the place is also dry and quiet, though the latter consideration is of less importance, as it is evident that bees do get used to noise and the trepidation which is common in noisy sports.

The question of proper temperature is by far the most important in this connec-

tion. It often happens that misinformed people try to winter their bees in empty rooms where the changes of temperature, although less sudden and extreme than out-of-doors, are still quite great. These attempts have almost invariably proven failures. This is very easily explained. When the temperature is low, say below the freezing-point, the bees have to consume a quantity of honey proportionate to the rigor of the weather, in order to keep up the bodily heat, which, in a healthy colony, should never get below the temperature of the blood. This consumption of stores necessarily causes their bowels to become more or less distended with fecal matter according to the quality of the food—less if the food be of best quality, more if of dark honey or honey loaded with pollen.

In a natural outdoor wintering the bees will, at the first warm day, have the necessary opportunity to unload their bowels, but if they are confined in a room they will become restless and will suffer, and eventually die. On the other hand, in the same repository, when the temperature is higher than necessary, they feel the natural instinct to rear brood, and this adds the necessity of securing water, which adds to their discomfort when in confinement.

If one had but two or three colonies and plenty of leisure, and was so interested in the bees that he would be sure not to forget them, they might be confined in any dark room, so it was sufficiently sheltered, and take them out on warm days. This would of course be much better than outdoor wintering, but it is not possible with a large number of colonies, owing to the work it would entail, and the fact that some winter days are warm for a few short hours only, so the colonies that were taken out last, out of a lot of 75, might not have a fair opportunity to take flight.

In years past we were in the habit of wintering two of our apiaries indoors; in our home we have a portion of our cellar partitioned off from the main part purposely for the bees. We have not used it of late because the winters have not proven injurious. When our bees were in the cellar, my father, who has a great taste for experiments, used to go to the bees several times in a week, and at different hours, to ascertain their condition. He invariably found that they were quiet at a temperature between 40 and 45 degrees, Fahr. Below this point they would show by their hum that a little warmth was needed. Above it they were

also restless, and an occasional bee would stray out of its hive and fly up to the light brought in.

I remember that an old York State bee-keeper had publicly stated that the bees could stand a very high temperature when in the cellar, provided the moisture in the air of the cellar was adequate to the rise of temperature. This he so strenuously maintained in public arguments that I took pains to interview him at a convention, and found out, to my great surprise, that he had no thermometer in his cellar, and was only "guessing" at the temperature mentioned by him.

A thermometer costs but a trifle—from 25 to 40 cents—and I strongly urge all who wish to winter their bees in a repository to place one of these instruments in the room.

It matters but little whether the room used is above or below the surface of the ground, if the temperature may be retained at the point I have mentioned. But it seems to me much more difficult to retain sufficient heat for the purpose in a room above ground, even in a repository lined with sawdust in a climate like that of northern Iowa. In a very hard winter, unless the room contains enough bees to keep up the heat inside, we all know that the cold will, after awhile, penetrate a very thick lining of non-conducting material. How nearly the temperature may be kept to the proper degree cannot be assured except by such as have tried it.

But to my mind, in a hilly country, it would be cheaper and much safer to make the repository partly, if not altogether, in the ground. The natural temperature of cellars is higher than that required by the bees, and it is much easier to bring in cold air than warm air, unless we fuss with a stove, which would lead to trouble without end. So very probably a cellar would be best.

I have in mind a cave owned by Mr. Parent, of Benton Co. Minn., which seems to me to be about as cheap a building as may be had. I understand that in those cold regions there is but little to fear from dampness during the winter, because the ground being frozen to a great depth there is no possible chance for surface water to infiltrate. Thus they are perfectly safe from a danger against which we must carefully guard in our latitude.

The cave is dug in a gentle slope, closed with a double door, with a good bed of

There is evidently some mistake here. See article by Ira Barber on another page.

straw between the doors. Its walls and roof are entirely of ground boarded up, and the bee-house is placed above it. This kind of a repository is certainly better than a house-cellar, which is often enough out of the ground to become very cold, and in which one places all sorts of vegetables that are apt to more or less vitiate the air. The bee-cave is made only for the bees, and they are there in perfect quiet.

— — —

A WISCONSIN BEE-CELLAR.

Some of the Details of its Construction.

There are some men who not only wish to know of the principles in regard to the making and management of things, but they also like to be furnished with exact details. It is for the benefit of such that I copy the following article from the American Bee Journal. It was contributed by Mr. M. Barnes, of Wisconsin.

My cellar for wintering bees is 16 x 20 feet, and 6½ feet deep. It has a stone wall one foot thick and 3 feet high, then from where the wall rests the cellar is dug out 3½ feet deep in yellow clay, and is smaller all around by one foot than the inside of the wall, thus leaving an offset of one foot all around the cellar. The sides of the cellar are left sloping, so that there is no danger of the dirt caving off.

There are two outside doors made of matched pine, being two thicknesses of lumber, with a parting strip of oak one inch thick all around the doors and between the two thicknesses of lumber, thus making a dead-air space in the doors. One door shuts even with the inside of the wall, and swings into the cellar, and the other door swings outward, and is 3 feet from the inside door. The wall at the door extends down as far as the bottom of the cellar. The opening at the top of the doors and between them is covered with a trap-door, which is covered with galvanized iron. This trap-door can be raised when the other doors are closed, and secured, and the space packed full of straw or planer-shavings, if necessary.

From the outside door there is an entrance-way dug, and in this there is a ventilator, 30 feet long, 8 x 10 inches inside measure, made of 2-inch oak plank.

The outside end is wide open; the inside end extending inside of the cellar 3 feet, and the opening is closed with a register.

The upward ventilation is secured by a common 6-inch stove-pipe, the upper end coming down within 4 feet of the bottom of the cellar, the upper end extending through the roof of the building used for a shop over the cellar, making the pipe 22 feet long, thus causing plenty of draft.

I now have the wall outside graded with dirt to the top of the wall, then 10 inches of old sawdust as banking around the building.

I moved my bees into this cellar Nov. 28, 1898, and kept a thermometer there. Up to Dec. 14 I found that the temperature was 41 degrees above zero—a little too cool, still the bees were quiet, and I thought the temperature might rise as the cellar dried out, as it was quite new. I had 96 colonies in the cellar, and could have put in 50 more without crowding.

I wish the older ones in the bee-business would show me my errors, and where my cellar may fail.

This issue of the Review is devoted quite extensively to bee-cellars and their management, and, for that reason, as well as because it contains criticisms of the foregoing, I append the following, which is also taken from the American Bee Journal. It is really, in one sense, a continuation of, or sequel to, the other article by C. P. Dadant that appears in this Department this month.

— — —

BEE-REPOSITORIES.

It is Better to Build them Substantial and Mouse-Proof.

I was just preparing to write an additional article concerning bee-repositories for winter, when I noticed, on page 626, the article by Wm. M. Barnes, whom I know to be a practical bee-keeper, and I would suggest that those readers who are interested in this matter re-read his statement. I do not believe that I would build exactly as he has done, and as he kindly invites criticism, I will state where I would suggest changes, but I take notice that he reports success, and this is sufficient to give his cellar a good point.

As I said before, the proper temperature is the main need, though a moderate

ventilation and good, dry quarters are also important.

Mr. Barnes very probably had good reasons for building his stone wall only part of the way down. But if I were building I would build the entire wall of stone, or all of dirt. If the spot is dry, and there is no danger of any leak, a dry earth wall boarded up and left slanting outward to prevent caving in would certainly be the most economical and the quickest built. But if there is danger of any moisture, the earthen wall will prove annoying after a few years. My experience with a cellar-wall placed like that of Mr. Barnes, above the level of the cellar, is that it will, in the course of a few years, cause the dirt to settle, and will eventually be deteriorated thereby. So I would say, make all stone or no stone.

His cellar entrance is good. Double doors, when connecting with the outside, are a necessity.

Mr. B. does not say how the ceiling above is made. It is probably a double floor with sawdust between the joists. If the cellar is all made of earth, it would probably be cheapest also to make the ceiling of earth in a method similar to that used in most of the Western storm-caves, and commonly used for keeping milk and vegetables. If the frost can be kept out it will not be difficult to cool the atmosphere of the cave by a little extra ventilation when needed.

A window or two might be made, with double window-frames a foot or more apart, and the space between the two filled with straw. It is necessary that the cellar be fixed so one may readily enter it without disturbing the bees or causing much change in the temperature. This is only so that the bee-keeper may be enabled to ascertain the exact conditions.

As a rule, our bee-keepers are not over-supplied with ready cash, and it will very often happen that the cheaper cellar will be decided upon. But if I were to advise, I would rather recommend the stone-wall cellar, for two or three reasons, the most important of which is its durability. Then a stone wall is more easily made rat and mouse proof. A cellar, dug in clay, will probably be free from vermin for a year or two, but in the course of time it will become more and more unsafe in this respect.

I could not sleep well, winter nights, if I knew that my bees were housed in a cave or a room in which either mice or rats congregated in any quantity. Their depredations might not do much harm to the bees directly, but they would be sure to disturb them more or less, and by this

means cause a greater or less number to become restless and wander away from the cluster. Combs that were not covered by the bees would be more or less gnawed by them, especially if they contained honey, of which mice are very fond. With a good stone wall, and a well-made double floor above, it is not difficult to have a rat and mouse proof cellar if the sills have been carefully laid in a bed of cement. Such a cellar would last a lifetime.

The cellar or cave need not be large. The hives may be piled four or five in a tier. We usually take them without bottom or cap. Our hives are all supplied with straw mats over the frames. In the summer we have an oilcloth or enamel-cloth between the brood-combs and the straw mat. In the winter the enamel-cloth is removed, and the straw mat is quite sufficient to separate the hives that are piled upon one another.

We set the first hive on the floor, or on timbers, for support, a little above the floor. This first hive has its own bottom-board, but is slightly raised, or if the bottom board is nailed fast, as much ventilation is given as the entrance will allow. The other hives are then piled on top of this with only the mats between the different brood-chambers. In this way a hundred hives may be placed in a very small compass.

The time best suited for removing the bees to the cellar can not be given exactly, but only approximately. It must vary according to the latitude and the weather. In this latitude the first cold spell, after a warm day, towards the middle or latter part of November, has always proven the best. We want a cold day because the bees are less apt to fly about and worry the operator; and we want this to be as nearly following a warm day as possible, because on that warm day the bees have had a chance to empty their bowels and feel fresh and yet quiet. The longer you wait after the weather has turned cold the more chance there will be of the bees having begun to eat and load their abdomens with food. When they are once confined in the proper repository, their consumption is exceedingly limited, and they can stay month after month without stirring, if the food that they do consume is of good quality.

The entire winter problem may thus be summed in a very few words: Have good, healthy food, an even temperature, quietness, and a fair amount of ventilation, and your bees will come through in good order in the most rigorous climate.

TO LOS ANGELES AND SOUTHERN CALIFORNIA.

Every Friday night, at 10.35 p. m., a through Tourist Car for Los Angeles and Southern California, leaves the Chicago, Milwaukee & St. Paul Railway Union Passenger Station, Chicago, via Omaha, Colorado Springs and Salt Lake City, for all points in Colorado, Utah, Nevada and California.

In addition to the regular Pullman porter, each car is accompanied by an intelligent, competent and courteous "courier," who will attend to the wants of passengers en route. This is an entirely new feature of tourist car service, and will be appreciated by families or by ladies traveling alone. Particular attention is paid to the care of children, who usually get weary on a long journey.

These tourist cars are sleeping cars supplied with all the accessories necessary to make the journey comfortable and pleasant, and the berth rate (each berth will accommodate two persons) is only \$6.00 from Chicago to California. Ask the nearest ticket agent for a tourist car folder, or address Harry Mercer, Michigan Pass. Agent, 22 Campus Martius, Detroit, Mich.



THE COMPANION'S NEW CALENDER.

THE YOUTH'S COMPANION Calendar for 1900 is unique in form and beautiful in design. The oval centerpiece, in high colors and enclosed in a border of flowers, represents "A Dream of Summer" and is supported on either side by an admirably executed figure piece in delicate tints. The whole is delightful in sentiment and in general effect. Larger than any of The Companion's previous Calendars, it is equally acceptable as a work of art. As an ornament to the home it will take a pre-eminent place.

The Calendar is published exclusively by THE COMPANION. It cannot be obtained elsewhere. It will be given to all new subscribers for 1900, who will also receive, in addition to the fifty-two issues of the new volume, all the issues for the remaining weeks of 1899, free from the time of subscription. Illustrated Announcement Number, containing a full prospectus of the volume for 1900, will be sent free to any address.

THE YOUTH'S COMPANION,
203 Columbus Ave. BOSTON, MASS.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee-keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

CHICAGO, Ill.—Good demand. Always remember, neat packages sell best. We quote as follows: Fancy white, 15; amber, 12 to 13; dark, 10 to 12; white, extracted, 8 to 9; amber, 7 to 8; dark, 6 to 7; beeswax, 26 to 30.

S. T. FISH & CO.,
Nov. 3. 189 So. Water St., Chicago, Ills.

KANSAS CITY.—We quote as follows: No. 1, white, 14; fancy amber, 13; No. 1, amber 12½; fancy dark, 12½; white extracted, 7 to 7½; amber, 6; dark, 4 to 4½; beeswax, 20 to 22.

C. C. CLEMONS CO.,
Nov. 4. 423 Walnut St., Kansas City, Mo.

NEW YORK.—Honey of the better grades in good demand. Beeswax quiet. We quote as follows: Fancy white, 14 to 15; No. 1 white, 12 to 13; fancy amber 14; fancy dark, 10 to 11; No. 1 dark, 10; white extracted, 8 to 8½; amber, 7 to 7½; dark, 6 to 6½; beeswax, 26 to 27.

HILDRETH & SEGELKEN,
Oct. 19. 126 West Broadway, New York.

BUFFALO, N. Y.—There is very little new honey in the market, and the demand is very good. We quote as follows: Fancy white, 13½ to 14; No. 1 white, 12½ to 13; fancy amber, 11 to 12; No. 1 amber, 10 to 11; fancy dark, 9 to 10; No. 1 dark, 8 to 9; white extracted, 7 to 7½; amber, 6 to 6½; dark, 5½ to 6; beeswax, 28 to 30.

W. C. TOWNSEND,
Oct. 18. 56 West Market St., Buffalo, N. Y.

BUFFALO, N. Y.—Very light receipts of all kinds; hence light stocks of all kinds; especially of fancy. It looks as though Buffalo would continue one of the best outlets for honey this season. We quote as follows: Fancy white, 14 to 15; No. 1 white, 11 to 12; fancy amber, 10 to 11; No. 1 amber, 9 to 10; fancy dark, 8 to 9; No. 1 dark, 8 to 9; white, extracted, 7 to 7½; amber, 5 to 5½; dark, 4½ to 5; beeswax, 28 to 30.

BATTERSON & CO.,
Nov. 4. 167 & 169 Scott St., Buffalo, N. Y.

CLEVELAND, O.—We quote as follows: Fancy white, 16; No. 1 white, 15; fancy amber, 12; No. 1 amber, 11; fancy dark, 9; white, extracted, 8; amber, 7 to 7½.

A. B. WILLIAMS & CO.
Nov. 6. So & 82 Broadway, Cleveland, Ohio.

CHICAGO, ILL.—There is a firm tone in all kinds of honey, even buckwheat sells easier than of yore. For the best white comb, such as we class as fancy, 16 cts. is easily obtainable; and 15 for No. 1. Stained or off-grades of white bring 13 to 14; amber, 10 to 12; dark, 9 to 10. Extracted, white, 8 to 9; amber, 7 to 8; dark, 6 to 7. Beeswax, 27. All of the foregoing are wanted on arrival.

R. A. BURNETT & Co.,
163 So. Water St., Chicago, Ill.
Nov. 7.

NEW YORK, N. Y.—Market strong on all grades of honey, although prices hold steady and about the same as for the past two weeks. We quote as follows: Fancy white, 15; No. 1 white, 13 to 14; fancy amber, 12 to 13; No. 1 amber, 10 to 11; fancy buckwheat, 11 to 12; No. 1, buckwheat, 9 to 10; white, extracted, 7½ to 8; light amber, 7 to 7½; buckwheat, 6 to 6½; bees wax, 26 to 27; market quiet.

FRANCIS H. LEGGETT & CO.
Oct. 25. W. Broadway, Franklin & Varick Sts.

**THE
A. I. ROOT CO.,
10 VINE ST., PHILADELPHIA, PA
BEE-SUPPLIES.**

Direct steamboat and railroad lines to all points. We want to save you freight.


Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking. 3-99-11

THE JENNIE ATCHLEY CO.,
Beville, Bee Co. Texas.

Bee - Supplies.

Root's goods at Root's prices. Ponder's honey jars. Prompt service. Low freight. Catalog free. Walter S. Ponder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

**Dark
Italian**  **Golden
Italian**
QUEENS.

Reared by the best methods known.

Untested, single queen, 75 cts.; six for \$4.00; one dozen, \$7.50. Tested queens, just double these prices. Choice breeding queens, from \$3.00 to \$5.00. Circular telling how to *introduce any kind of a queen, free.*

E. R. JONES.

3-98-121

Milano, Texas

If You Wish Neat, Artistic

PRINTING,

Have it Done at the Review.

Bee keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.

J. H. M. COOK, 62 Cortland St., N. Y. City

Please mention the Review.

THE MONITOR PAPER FILE

Binds securely and neatly all periodicals. Preserve your papers, magazines, pamphlets, bulletins, music &c., by binding them together as you get them. Each new number filed quickly and easily. Will bind 52 numbers of any periodical aggregating 1000 or fewer pages. All lengths from 6 to 28 inches. Light and handsome.

PRICE.—All sizes 12 inches and under 12 cents; over 12 inches one cent per inch. When wanted by mail add one cent for each 5 inches or fraction thereof.

For sale by the Publisher of this paper.

Superior Stock.



Every bee-keeper who has had experience with several strains of bees knows that some are far superior to others—that there is scrub stock among bees, just as there are scrub horses, cattle, sheep and poultry. Let me give my own experience. Years ago, while living at Rogersville, I made a specialty of rearing queens for sale. Before engaging in this work I bought Italian queens and Italianized, not only my own bees, but all within three miles of my apiary. In buying those queens I think that I patronized nearly every breeder in the United States; and even in those years of inexperience I was not long in noting the great difference in the different strains of bees. The queens from one particular breeder produced bees that delighted me greatly. They were just plain, dark, three-banded Italians, but as workers I have never seen them equaled. They seemed possessed of a steady, quiet determination that enabled them to lay up surplus ahead of the others. Easier bees to handle I have never seen. It sometimes seemed as though they were too busy attending to their own business to bother with anything else. Their honey was capped with a snowy whiteness rivaling that of the blacks. In addition to these desirable traits must be added that of wintering well. If any bees came through the winter it was the colonies of this strain. They came as near being ideal bees as any I have possessed. All this was twenty years ago, and several times since then I have bought queens of this same breeder, and I have always found this strain of bees possessed of those same good qualities—industry, gentleness, and hardness. In addition to this they cap their honey as the blacks do theirs. I have frequently corresponded with this breeder, and with those who have bought queens of him, and I am thoroughly convinced that he has a strain of bees that are far superior to the general run of stock. If I were starting an apiary, for the production of honey, I should unhesitatingly stock it with this strain of bees.

This breeder has always advertised in a modest, quiet sort of way, nothing in proportion to what his stock would have warranted, and I have decided that I can help him, and benefit my readers, at a profit to myself, by advertising these bees in a manner befittingly energetic.

The price of these queens will be \$1.50 each. This may seem like a high price, but the man

who pays it will make dollars where this breeder and myself make cents; and when you come to read the conditions under which they are sold, it will not seem so high. The queens sent out will all be young queens, just beginning to lay, but, as there are no black bees in the vicinity, it is not likely that any will prove impurely mated. If any queen SHOULD prove to be impurely mated, another will be sent free of charge. Safe arrival in first-class condition will be guaranteed. Instructions for introducing will be sent to every purchaser, and if these instructions are followed, and the queen is lost, another will be sent free of charge. This is not all; if, at any time within two years, a purchaser, for any reason WHATEVER, is not satisfied with his bargain, he can return the queen, and his money will be refunded, and 50 cents extra sent to pay him for his trouble. It will be seen that the purchaser RUNS NO RISK WHATEVER. If a queen does not arrive in good condition, another is sent. If he loses her in introducing, another is sent. If she should prove impurely mated, another is sent. If the queen proves a poor layer, or the stock does not come up to the expectations, or there is ANY reason why the bargain is not satisfactory, the queen can be returned and the money will be refunded, and the customer fairly well paid for his trouble. I could not make this last promise if I did not KNOW that the stock is REALLY SUPERIOR.

I said that the price would be \$1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the Review. Any one who has already paid me, or who will pay me, \$1.00 for the Review for 1900, can have a queen for \$1.00. That is, you can have the Review for 1900 and a queen for \$2.00. Of course, all arrearsages previous to 1900 must be paid up before this offer will hold good. This special offer is made with a view to the getting of new subscribers, and as an inducement to old subscribers to pay up all arrearsages and to pay in advance to the end of next year.

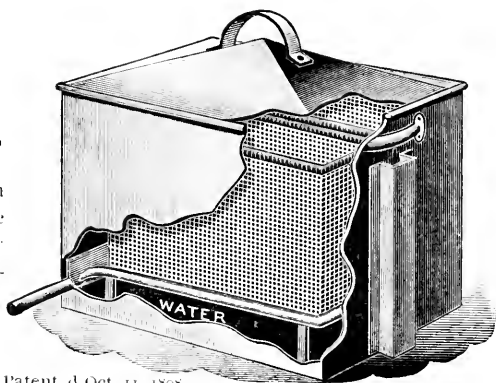
Of course it is now too late to send out queens, but they can be ordered either alone, or in connection with a subscription to the Review, and the orders will be booked and the queens sent next spring.

W. Z. Hutchinson, Flint, Mich.

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1895

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costello, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.



Here is the thing you were looking for last winter. *The New Champion Winter Case*, which does away with all unnecessary work, and in which the bees will not die in the coldest winter. Send for special prices on quantities wanted.

R. H. SCHMIDT & CO.,

9-99-11.

Sheboygan, Wis.

Please mention the Review.

— If you wish the best, low-priced —

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odele, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

Please mention the Review.

1899 Queens 1899

For Business—Queens for Strong Colonies—Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list. 12-97-11

J. P. H. BROWN, Augusta, Ga.

Please mention the Review.

JOHN F. STRATTON'S CELEBRATED



Birmingham Steel Strings

for Violin, Guitar, Mandolin, Banjo
Finest Made. Extra Plated.
TRADE MARK Warranted not to rust. Send for Catalog

JOHN F. STRATTON,
Importer, Manufacturer and Wholesale Dealer
811, 813, 815, 817 E. 9th St., N. Y.

Please mention the Review.

To stick things, use **MAJOR'S CEMENT.**
Beware!!! Take no substitute. 2-98-121

Please mention the Review.

Best on Earth. 19 Years Without a Complaint.



	Dozen	Each
Smoke Engine largest smoker made	4 inch stove	\$13.00—mail. \$1.50
Doctor	3 1/2	9.00— " 1.10
Conqueror	3	6.50— " 1.00
Large	2 1/2	5.00— " 90
Plain	2	4.75— " 70
Little Wonder (wt. 10 oz)	2	4.50— " 60
Honey Knife		6.00— " 80

For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.

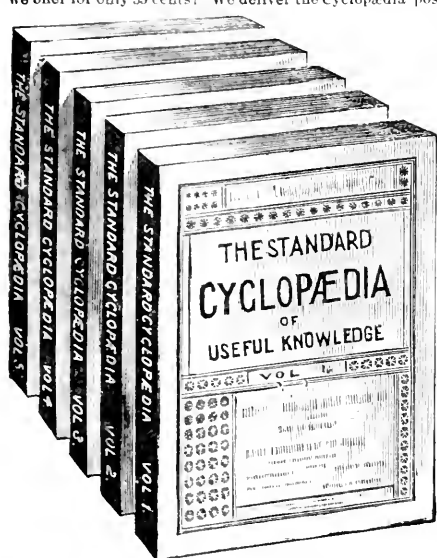
The Standard Cyclopædia of Useful Knowledge,

IN FIVE VOLUMES.

1268 Pages! 643 Handsome Illustrations!

REGULAR PRICE, \$1.25. OUR PRICE, 35 CENTS.

A five-volume Cyclopædia, the regular price of which is 25 cents per volume, or \$1.25 for the set, but which we offer for only 35 cents! We deliver the Cyclopædia post-paid to any address in the United States or Canada.



A five-volume Cyclopædia for 35 cents (seven cents per volume) is a revolution in book-making, and something never before attempted. The Standard Cyclopædia of Useful Knowledge is published in five handsome volumes, well printed from clear, bold, readable type on good paper, and neatly bound in handsome colored paper covers. It contains a total of 1268 pages and no less than 643 handsome illustrations. The scope of the work is remarkable, embracing almost all subjects that are of interest and value to the masses of the people. Among the topics treated are: History, Biography, Natural History, Travels, Manners and Customs, Wonders of the World, Manufactures, Invention and Discovery, Wonders of the Sea, Law, Mining, Foreign Products, Familiar Science, Statistics, Agriculture, Horticulture, Stock Raising, Poultry Keeping, Architecture, Cookery, Floriculture, Ladies' Fancy Work, Home Decoration, Etiquette, Lace Making, Painting, Home Amusements, The Nursery, The Sick Room, etc., etc. It describes the most famous battles and wonderful events of history; it contains portraits and biographies of the greatest statesmen, authors, poets, generals, clergymen, etc., of this and the preceding century; it describes, illustrates and gives interesting information concerning numerous animals, birds, reptiles, fishes and insects; it illustrates and describes the life, habits, manners, customs, forms, rites and ceremonies of the people and tribes of every part of the world; it illustrates and describes all the great natural and other wonders of the world; it tells all about the process of manufacture of all the common and familiar things that we see every day about us; it tells the history of all the great inventions and discoveries of modern times; it describes and illustrates the many wonderful and beautiful things found at the bottom of the sea; it contains much valuable information concerning law and legal matters; it describes and illustrates the mining of all the various metals and other substances; it tells all about the growth and culture of tropical and other fruits, plants, trees and foreign products of every description; it contains interesting information concerning the earth and the solar system, also regarding sound, light, heat, electricity, air, water, wind, rain, hail, snow, etc.; it contains facts, figures and statistics of great value upon hundreds of interesting subjects; it gives important hints and suggestions to farmers concerning crops, fertilizers, manure and machinery, stock raising, dairy farming, poultry keeping, bee keeping, etc.; it contains, also, much useful information concerning fruit raising and gardening; it gives designs and plans for houses, cottages, barns and other outbuildings; it contains hundreds of valuable cooking recipes and hints and helps for house-keepers; it tells how to cure all common ailments by the use of simple home remedies, contains numerous toilet recipes, etc.; it gives important information upon the subject of floriculture, telling how to successfully grow all kinds of flowers and plants; it tells how to decorate and make the home beautiful, contains explicit directions for embroidery and painting, and numerous patterns for laces and crochet work; it contains a valuable treatise on etiquette, giving the rules of correct deportment for all occasions; it gives valuable advice to mothers upon the care and rearing of young children; and it contains a great fund of games and other amusements for social gatherings and evenings at home. The contents of the Standard Cyclopædia of Useful Knowledge are so extensive and so varied that we could not possibly, within the space at our command, enumerate more than the smallest fraction of them. It is a vast storehouse of useful and entertaining knowledge, containing the cream or substance of twenty ordinary volumes. It is a work for everybody—man, woman and child—and contains information, instruction, hints, helps and suggestions that will be found of the utmost value and usefulness to all. No home should be without this great and valuable work. We will send THE STANDARD CYCLOPÆDIA OF USEFUL KNOWLEDGE by mail post-paid to any address upon receipt of only

Thirty-five Cents!

Special Premium Offer.

I will send *The Standard Cyclopædia of Useful Knowledge*, as above described, by mail, postpaid, also the *Review* for one year, upon receipt of \$1.25; which is only 25 cts. in addition to my regular subscription price, so that you practically get this great work for only 25 cts.

W. Z. HUTCHINSON, Flint, Mich.

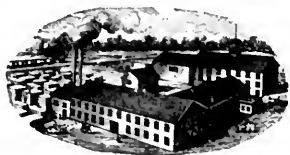
If you are going to *Buy a Buzz-Saw*, write to the editor of the *Review*. He has a new Barnes saw to sell, and would be glad to make you a specially low price upon it.



BEEES!

If you keep bees, subscribe for THE PROGRESSIVE BEE-KEEPER, a journal devoted to bees and honey. Fifty cents a year. Sample copy free. Also illustrated catalogue of bee-keepers' supplies.

Address LEAHY MFG. Co.,
Higginsville, Mo.; or at 1730
South 13th St., Omaha, Neb.;
or at 404 Broadway, East St.
Louis, Illinois.



Bee-Supplies.

We have the best equipped factory in the West. Capacity one carload a day. We carry the largest stock and greatest variety of everything needed in the apiary, assuring **Best Goods** at the **Lowest Prices**, and prompt shipment. Illustrated catalogue, 72 pages, free.

We also manufacture tanks of either wood or galvanized steel, all sizes, any form, and for all purposes. Price list free. Address

E. Kretschmer, Red Oak; Ia.

Page & Lyon,

Mfg. Co.

New London, Wis.

— — — — —
Nearness to pine and bass-wood forests, the possession of a saw-mill and factory fully equipped with the best of machinery, and years of experience, all combine to enable this firm to furnish the best goods at lowest prices. Send for circular, and see the prices on a full line of supplies.

Latest Improvements Perfect Goods Reasonable Prices.

Hives, shipping cases, sections, extractors, etc., everything a bee-keeper needs. Catalogue and copy of the American Bee Keeper *free*.

The American Bee Keeper is a live monthly and has been published by us for the past ten years—50 cts. per year.

W. T. Falconer Mfg. Co.,

JAMESTOWN, N. Y.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat-bottom foundation is used. This style of foundation allows the making of a more uniform article, having a *very thin* base, with the surplus wax in the side-walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen *wired*.

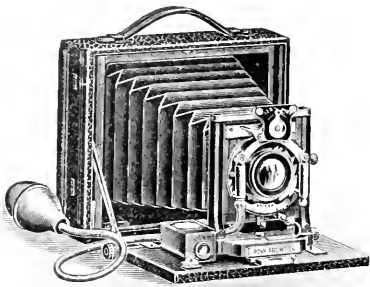
Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y.

Amateur Photography

Anyone, without any experience, and with no instruction other than that contained in the manual furnished, can make beautiful photographs with the



PREMO CAMERA

Catalogue sent free upon application. For five cents we will enclose sample photograph.

Rochester Optical Co., Rochester, N. Y.

Orrin P. Safford, agent at Flint, Mich.

Say! Did you know the WESTERN BEE KEEPER has changed hands? C. F. GORDON is now Editor and Pub.
Wanted Every bee-keeper large or small to send 15c for four months trial.—sample copy free.
17 Good Block, Denver, Colorado.

QUEENS, Untested, 75c; 6 for \$4.00; tested, \$1.00; 6 for \$5.00; breeders \$2.00. The best stock, imported or golden. W. H. LAWS, Lavaca, Ark.

Please mention the Review.

The Time has Arrived

for you to buy your shipping cases, those five-gallon cans, and a few hundred of the new Danz. cartons (send for sample) to harvest that crop of honey in proper shape. We can furnish you with these and all other supplies. Cash paid for beeswax. Send for catalog.

M. H. HUNT & SON,
Bell Branch, Mich.

Please mention the Review.

UNION COMBINATION SAW.

For ripping, cross-cutting, mitering, beveling, grooving, gaining, boring, cross-sawing, edge-molding, beading etc. Full line of foot and hand power machinery. Send for catalogue A.

Seneca Falls Mfg. Co.

48 Water St., Seneca Falls N. Y.

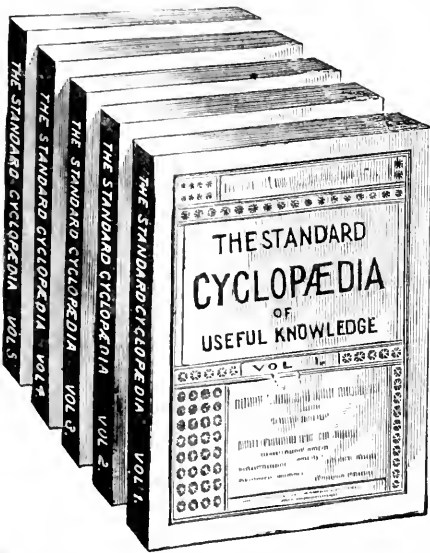
Please mention the Review.

The Standard Cyclopædia of Useful Knowledge, IN FIVE VOLUMES.

1268 Pages! 643 Handsome Illustrations!

REGULAR PRICE, \$1.25. OUR PRICE, 35 CENTS.

A five-volume Cyclopædia, the regular price of which is 25 cents per volume, or \$1.25 for the set, but which we offer for only 35 cents! We deliver the Cyclopædia post-paid to any address in the United States or Canada.



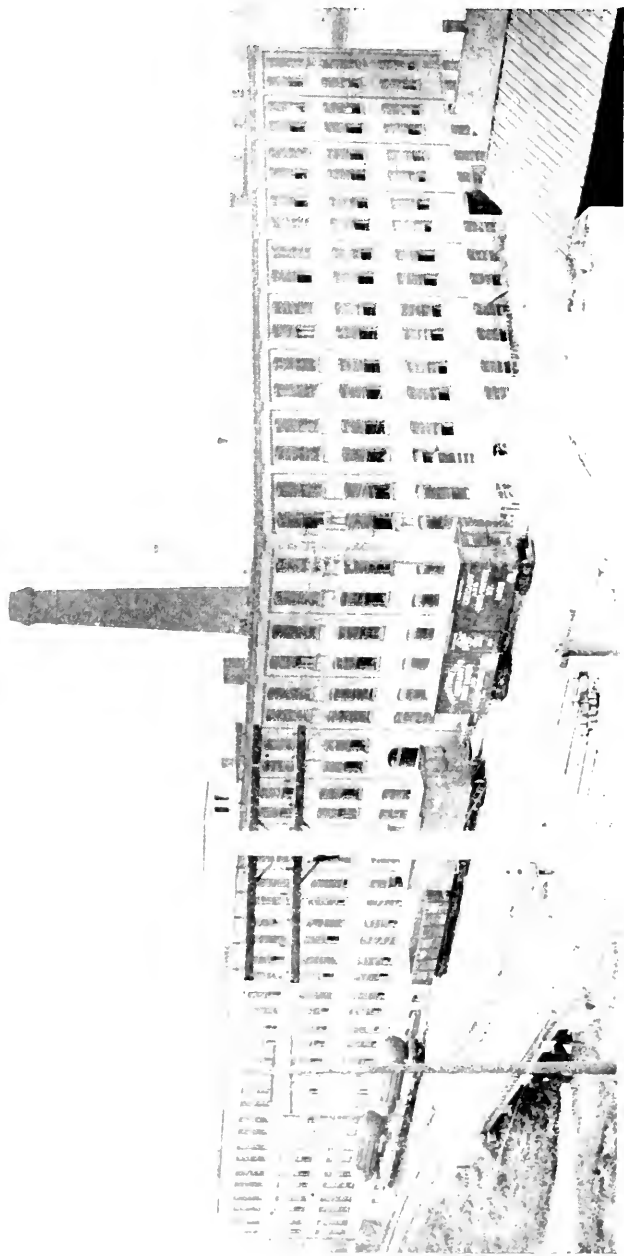
A five-volume Cyclopædia for 35 cents (seven cents per volume) is a revelation in book-making, and something never before attempted. The Standard Cyclopædia of Useful Knowledge is published in five handsome volumes, well printed from clear, bold, readable type on good paper, and neatly bound in handsome colored paper covers. It contains a total of 1268 pages and no less than 643 handsome illustrations. The scope of the work is remarkable, embracing almost all subjects that are of interest and value to the masses of the people. Among the topics treated are History, Biography, Natural History, Travels, Manners and Customs, Wonders of the World, Manufactures, Invention and Discovery, Wonders of the Sea, Law, Mining, Foreign Products, Familiar Science, Statistics, Agriculture, Horticulture, Stock Raising, Poultry Keeping, Architecture, Cookery, Floriculture, Ladies' Fancy Work, Home Decoration, Etiquette, Lace Making, Painting, Home Amusements, The Nursery, The Sick Room, etc., etc. It describes the most famous battles and wonderful events of history; it contains portraits and biographies of the greatest statesmen, authors, poets, generals, clergymen, etc., of this and the preceding century; it describes, illustrates and gives interesting information concerning numerous animals, birds, reptiles, fishes and insects; it illustrates and describes the life, habits, manners, customs, forms, rites and ceremonies of the people and tribes of every part of the world; it illustrates and describes all the great natural and other wonders of the world; it tells all about the processes of manufacture of all the common and familiar things that we see every day about us; it tells the history of all the great inventions and discoveries of modern times; it describes and illustrates the many wonderful and beautiful things found at the bottom of the sea; it contains much valuable information concerning law and legal matters; it describes and illustrates the mining of all the various metals and other substances; it tells all about the growth and culture of tropical and other fruits, plants, trees and foreign products of every description; it contains interesting information concerning the earth and the solar system, also regarding sound, light, heat, electricity, air, water, wind, rain, hail, snow, etc.; it contains facts, figures and statistics of great value upon hundreds of interesting subjects; it gives important hints and suggestions to farmers concerning crops, fertilizers, implements and machinery, stock raising, dairy farming, poultry keeping, bee keeping, etc., etc.; it contains, also, much useful information concerning fruit raising and gardening; it gives designs and plans for houses, cottages, barns and other outbuildings; it contains hundreds of valuable cooking recipes and hints and helps for home-keepers; it tells how to cure all common ailments by the use of simple home remedies; it contains numerous food recipes, etc.; it gives important information upon the subject of floriculture, telling how to successfully grow all kinds of flowers and plants; it tells how to decorate and make the home beautiful, contains explicit directions for embroidery and painting, and numerous patterns for laces and crochet work; it contains a valuable treatise on etiquette, giving the rules of correct deportment for all occasions; it gives valuable advice to mothers upon the care and rearing of young children; and it contains a great fund of games and other amusements for social gatherings and evenings at home. The contents of the Standard Cyclopædia of Useful Knowledge are so extensive and so varied that we could not possibly, within the space at our command, enumerate more than the smallest fraction of them. It is a vast storehouse of useful and entertaining knowledge, containing the cream or substance of twenty ordinary volumes. It is a work for everybody—man, woman and child—and contains information, instruction, hints, helps and suggestions that will be found of the utmost value and usefulness to all. No home should be without this great and valuable work. We will send THE STANDARD CYCLOPÆDIA OF USEFUL KNOWLEDGE by mail post-paid to any address upon receipt of only

Thirty-five Cents!

Special Premium Offer. I will send *The Standard Cyclopædia of Useful Knowledge*, as above described, by mail, postpaid, also the Review for one year, and 12 back numbers upon receipt of \$1.25; which is only 25 cts. in addition to my regular subscription price, so that you practically get this great work for only 25 cts.

W. Z. HUTCHINSON, Flint, Mich.

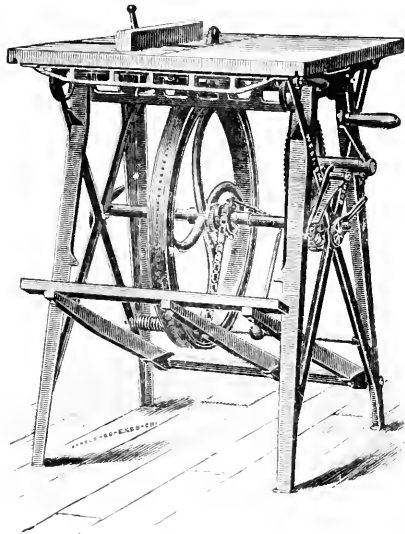
If you are going to *Buy a Buzz-Saw*, write to the editor of the Review. He has a new Barnes saw to sell, and would be glad to make you a specially low price upon it.



THE W. F. & JOHN BARNES COMPANY'S FACTORY, ROCKFORD, ILLS.

Make Your Own Hives During the Leisure of Winter.

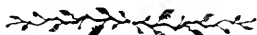
BEE keeping is busy work in the summer-time; but the winter brings a leisure that many more bee-keepers might profitably employ in making needed hives, supers or shipping cases for another year. Power and expensive machinery are



not needed; simply a cozy little shop and a foot-power saw are all that are needed. When a bee-keeper realizes all this, there is no question as to what saw he shall buy; it is made at the factory shown on the opposite page, and is illustrated on this page. The editor of the Review has used one of these machines, and has no hesitation in saying that it is all that is claimed for it. Any one who buys a machine, and is not entirely satisfied with it, has the privilege of returning it and having his money returned. One thing more; there are attachments, such as a scroll-saw, a boring attachment, etc. that can be added at a small cost. Send for illustrated descriptive price list to

W. F. & JNO. BARNES CO., Rockford, Ill.

Superior Stock.



Every bee-keeper who has had experience with several strains of bees knows that some are far superior to others—that there is scrub stock among bees, just as there are scrub horses, cattle, sheep and poultry. Let me give my own experience. Years ago, while living at Rogersville, I made a specialty of rearing queens for sale. Before engaging in this work I bought Italian queens and Italianized, not only my own bees, but all within three miles of my apiary. In buying those queens I think that I patronized nearly every breeder in the United States; and even in those years of inexperience I was not long in noting the great difference in the different strains of bees. The queens from one particular breeder produced bees that delighted me greatly. They were just plain, dark, three-banded Italians, but as workers I have never seen them equaled. They seemed possessed of a steady, quiet determination that enabled them to lay up surplus ahead of the others. Easier bees to handle I have never seen. It sometimes seemed as though they were too busy attending to their own business to bother with anything else. Their honey was capped with a snowy whiteness rivaling that of the blacks. In addition to these desirable traits must be added that of wintering well. If any bees came through the winter it was the colonies of this strain. They came as near being ideal bees as any I have possessed. All this was twenty years ago; and several times since then I have bought queens of this same breeder, and I have always found this strain of bees possessed of those same good qualities—industry, gentleness, and hardiness. In addition to this they cap their honey as the blacks do theirs. I have frequently corresponded with this breeder, and with those who have bought queens of him, and I am thoroughly convinced that he has a strain of bees that are far superior to the general run of stock. If I were starting an apiary, for the production of honey, I should unhesitatingly stock it with this strain of bees.

This breeder has always advertised in a modest, quiet sort of way, nothing in proportion to what his stock would have warranted, and I have decided that I can help him, and benefit my readers, at a profit to myself, by advertising these bees in a manner befittingly energetic.

The price of these queens will be \$1.50 each. This may seem like a high price, but the man

who pays it will make dollars where this breeder and myself make cents; and when you come to read the conditions under which they are sold, it will not seem so high. The queens sent out will all be young queens, just beginning to lay, but, as there are no black bees in the vicinity, it is not likely that any will prove impurely mated. If any queen SHOULD prove to be impurely mated, another will be sent free of charge. Safe arrival in first-class condition will be guaranteed. Instructions for introducing will be sent to every purchaser, and if these instructions are followed, and the queen is lost, another will be sent free of charge. This is not all; if, at any time within two years, a purchaser, for any reason **WHATEVER**, is not satisfied with his bargain, he can return the queen, and his money will be refunded, and 50 cents extra sent to pay him for his trouble. It will be seen that the purchaser **RUNS NO RISK WHATEVER**. If a queen does not arrive in good condition, another is sent. If he loses her in introducing, another is sent. If she should prove impurely mated, another is sent. If the queen proves a poor layer, or the stock does not come up to the expectations, or there is **ANY** reason why the bargain is not satisfactory, the queen can be returned and the money will be refunded, and the customer fairly well paid for his trouble. I could not make this last promise if I did not know that the stock is **REALLY SUPERIOR**.

I said that the price would be \$1.50 each. There is only one condition under which a queen will be sold for a less price, and that is in connection with an advance subscription to the Review. Any one who has already paid me, or who will pay me, \$1.00 for the Review for 1900, can have a queen for \$1.00. That is, you can have the Review for 1900 (and 12 back numbers) and a queen for \$2.00. Of course, all arrearages must be paid up before this offer will hold good. This special offer is made with a view to the getting of new subscribers, and as an inducement to old subscribers to pay up all arrearages and to pay in advance to the end of next year.

Of course it is now too late to send out queens, but they can be ordered, either alone, or in connection with a subscription to the Review, and the orders will be booked and the queens sent next spring.

W. Z. Hutchinson, Flint, Mich.



Cheap Lumber Makes Low Prices.



IN these days of keen competition and low prices, no man who has to buy his lumber can succeed in making sections alone. White, clear-stuff lumber, suitable for making sections, is too expensive. The man who makes something besides sections, into which he can put the dark lumber, sorting out and sawing off here and there a

strip of clear white, gets his lumber for sections at a low price. The man whose portrait and picture of his factory appear above, Mr. Jas. Forncrook of Watertown, Wis., the original one-piece section-man, makes packing boxes for a cracker factory, and into these boxes goes all of his dark lumber, leaving the white for sections. This explains why he can sell sections at the following prices:

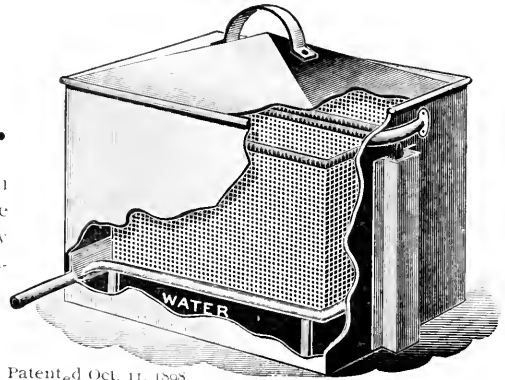
500 sections, \$1.80; 1,000 for \$3.00; 3,000 for \$8.10;
5,000 for \$12.00; 10,000 for \$21.00.

No. 2 sections are not made to order, but when in stock are sold at \$1.80 per M.

Beeswax Extractor.

The only Bees Wax Extractor in the world that will extract all the wax from old combs rapidly by steam. Send for descriptive illustrated catalogue.

C. G. FERRIS,
South Columbia, N. Y.



Patented Oct. 11, 1895

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costello, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.



Here is the thing you were looking for last winter. *The New Champion Winter Case*, which does away with all unnecessary work, and in which the bees will not die in the coldest winter. Send for special prices on quantities wanted.

R. H. SCHMIDT & CO.,

9-99-1f. Sheboygan, Wis.

Please mention the Review

— If you wish the best, low-priced —

TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odell taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

Please mention the Review.

1899 Queens 1899

For Business—Queens for Strong Colonies—Queens for large surplus. Competition in Quality, but not in price.

If you want queens, nuclei or supplies at bottom prices, send for my illustrated price list. 12-97-11

J. P. H. BROWN, Augusta, Ga.

Please mention the Review.

JOHN F. STRATTON'S CELEBRATED



Birmingham Steel Strings

for Violin, Guitar, Mandolin, Banjo

Finest Made. Extra Plated.

Warranted not to rust. Send for Catlg

JOHN F. STRATTON,

Importer, Manufacturer and Wholesale Dealer
811, 813, 815, 817 E. 9th St., N. Y.

Please mention the Review.

To stick things, use **MAJOR'S CEMENT.**
Beware !!! Take no substitute. 2-98-12f

Please mention the Review.

Best on Earth. 19 Years Without a Complaint.



	(largest smoker made)	4 inch stove	Dozen	Each
Smoke Engine			\$13.00—mail	\$1.50
Doctor	3½	"	9.00—	" 1.10
Conqueror	3	"	6.50—	" 1.00
Large	2½	"	5.00—	" .90
Plain	2	"	4.75—	" .70
Little Wonder (wt. 10 oz)	2	"	4.50—	" .60
Honey Knife			6.00—	" .80

For further description, send for circular.

T. F. BINGHAM, Farwell, Michigan.



THE HOME OF THE REVIEW.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL XII FLINT, MICHIGAN, DECEMBER 10, 1899. NO. 12.

PAST, PRESENT AND FUTURE OF THE REVIEW. BY W. Z. HUTCHINSON.

As this issue of the Review is somewhat devoted to "write-ups," it may not be out of the way to say a few words in regard to why and how the Review was started, how it has prospered, and to consider its prospects for the future. I know that once before, about ten years ago, I gave a brief history of the Review, its editor, and its



home, but the Review has gained many new readers since then who may be interested in its birth and growth.

For nearly fifteen years I made a specialty of bee-keeping; and, during that time, I was often struck by the large amount of matter published that seemed to me the next thing to useless. So many times, after reading an article, I would find myself exclaiming, mentally, "Well, what of it?" It seemed to me that it contained no idea whatever that would help

a bee-keeper to make of his business a more safe, pleasant and profitable pursuit. There seemed so much chaff and so little wheat. It often occurred to me that there was room for a journal that would make a specialty of gathering up and publishing all of the really valuable articles that appeared in the other journals; or, at least, of giving the ideas that they contained.

Again, we would occasionally have a valuable article upon some special topic; months might elapse when we would be treated with another upon the same subject, but from a different pen, and with differing views; and it seemed to me that it would be an excellent plan to secure articles, all upon one subject, but from different men, those of experience, and publish them all in one issue of a journal, thus enabling us to see a subject under all of the different lights possible.

Then, again, there seemed to be need for a journal that should be free from the influence of a supply-trade. In those days some of the journals seemed very much like what are now called "house-organs;" those published in the interest of some manufacturing concern. The editors of some of those journals could see little good in anything not manufactured or controlled by them-

selves. When I protested against what I considered the unfair manner in which one such editor conducted his discussions, I was told that if "I didn't like the way in which — — was conducted, the obvious way was to start a journal of my own fashioned according to my ideas of journalism." This was the "last straw" that decided me to publish a journal of my own that should be an "open court" in which all should be heard and treated fairly and impartially. Let me say, parenthetically, that in those days I had some most decided views in regard to the management of a journal; and, while a dozen years of editorship have not materially changed those views, they have given me a broad charity, not only for editors, but for everybody. I may add that however some of the journals may have been lacking in fairness in the earlier days of my bee-keeping, there is now but little cause for complaint in this respect.

Having finally decided, for the foregoing reasons, to start a journal of my own, I immediately commenced laying the foundation, although this was some two or three years before the Review was started. I began booking the names of bee-keepers secured from my own correspondence, from the pages of the journals, and from all available sources. When I got out the first issue of the Review it went to 6,000 bee-keepers, the names of which I had gathered up and arranged alphabetically, and according to States, that there might be no duplicates. I had long been engaged in a friendly correspondence with the men whom I expected to furnish me with correspondence. The engraving on the front cover page of the Review was drawn by myself some two

years before the Review was started. I remember, after it was finished, I set it up in a little cupboard with a glass door, sat down in a rocking chair, with a baby in my lap, and rocked, and sang, and admired.

But the final starting of the Review was really a rash undertaking; one that I would not advise any one to attempt, as it was actually started without capital—except my knowledge of bee-keeping and the good will of bee-keepers. Not only this, but I went in debt, nearly \$1,600 for a home; expecting to pay for it out of the profits of publishing a bee journal! Surely, "Fools rush in where angels fear to tread."



The Review's Composer.

Had I foreseen the obstacles to be surmounted, and the difficulties to be overcome, I doubt if I should ever have had courage to have started the Review; but an intense love for the Review, almost as a parent loves his child, and the possession of a genuine bull-dog determination to never give up regardless of discouragements, have carried me

through; but the eating of plain food, and the wearing of old clothes, yes, of *patched* clothes, are only "circumstances" compared to some of the unpleasant things that have been endured that the Review might live. The question of whether I could afford this or that for the Review has always been answered by simply taking out my pocket book and laying it on the altar.

Advertising previous to the publication of the Review brought in money enough to get out the first issue. After this there was, for a time, a race between receipts and expenditures. The latter came out ahead; and then a radical change was made. Type and materials for printing

were bought, on time, one part of [the house was given up for an office and I commenced another rash undertaking—that of attempting, without previous experience, to set up the type and make up the forms of a magazine. The work was difficult, yet fascinating. Some help was hired at first, but the wife and children soon became imbued with the spirit of enterprise. They addressed the wrappers, folded and stitched the papers, and wrapped them up for mailing—and the life of the Review was saved. What seemed a misfortune, now allows the Review to be published at a good profit. One of the little girls that once wrapped up the papers, is now a young lady and sets nearly all of the type.

Two years ago I saw that while the Review was holding its own, so to speak, it was making no advance; that if it was to take the place in literature that I hoped to make it fill, there must be some change. It was enlarged, better paper used, new and larger type bought, a heavier cover, printed in colored ink, substituted for the old one, a frontispiece added, more attention paid to the use of illustrations, and, last, but not least, no stone left unturned to secure the very best possible matter with which to fill its columns. These changes, coupled with liberal advertising, sent the Review ahead with a bound. Its subscription list has doubled in the last two years.

Of the future it is difficult to write. Of *myself* I can say that, while I am nearly fifty years old, I am really right in my prime. I have always led a peaceful, quiet life, free from hurry and worry, have avoided excesses of all kinds, never indulged in stimulants of any kind, nor kept late hours, and I suppose that I am really younger than some men who have not yet seen forty years. I have an intense love for my profession; and, aside from the dollars and cents side of the business, I desire most earnestly to be of real service to bee-keepers. I am still keeping bees, and visiting bee-keepers, and corresponding with them, and con-

tinually planning and contriving how to make the Review better and better as the years go by. If I wake up in the night, I think of the Review.

FLINT, Mich., Nov. 25, 1899.



SOME HINTS AND SUGGESTIONS TO THE SHIPPERS OF HONEY.

BY M. H. MANDELBAUM.

I am pleased to contribute to your December number, and hope my article will



be of value to the readers. I have handled honey for the firm of S. T. Fish & Co. for the past 12 years, and, although I have never been in an apiary, my knowledge has been obtained from reading bee-papers, and occasionally

attending conventions, when held in our city. At one time honey was only consigned; but, as far back as ten years ago, we went to New York State and paid cash for honey; and have followed this method ever since. This year we bought in the vicinity of Denver, Colorado, and paid *cash*, when loaded on cars, seven cars comb honey; 8,228 cases, costing us, delivered in Chicago, \$23,840.00. In addition to this, we bought honey in other sections of the country. Perhaps this is enough, as to our firm, to open the subject, and now I intend to give you a few points that probably will receive attention from some apiarists.

There are honest bee-men, but also dishonest ones, the same as in other lines of business, and in our experience we have come across a number who are very tricky.

When bee-men send their honey to commission merchants on consignment, they help to lower the market. As an example: a merchant who has no trade for honey is anxious to sell it and render sales, and does not uphold the market, while firms, like ours, who buy are compelled to maintain prices. If the commission merchant had to buy his honey instead of having a consignment, he would be interested in holding up the price; therefore, we advocate the discontinuance of consignments, except to firms in the honey line who have an established outlet.

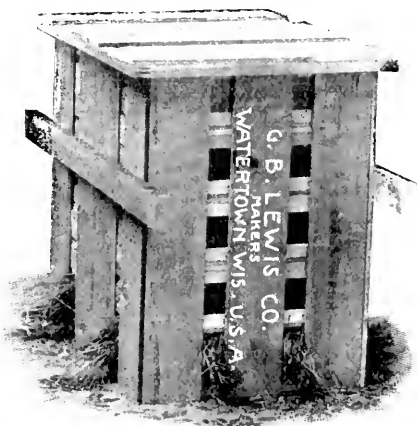
Recently I was in St. Paul and Milwaukee, and many firms had consignments of comb honey, most of which was leaking; and, as they do not know how to handle it, and are not selling it, eventually we will buy large quantities of it as granulated comb honey, and this we usually buy from 5 to 7 cents per pound. If that comb honey was ours, we would take the leaking frames out of the cases, put it in proper shape, and sustain the market at present prices. I do not expect to change the present order of affairs, but it is time that somebody entered a protest. The only kind of honey to ship is that made with separators.

I was the first one to advocate the subject of grading, and I have seen good improvements in this direction in the past few years, but we are not as near perfection as we should be in that direction. There should be a uniform package and it should be the 24-lb. section case, single tier, with strips in the bottom and these strips nailed.

The trade buys honey according to color and not flavor. I have often stated that if you would give me white comb, it can have vinegar in, and the trade will buy it. I know that dark comb honey is often the best flavored, but honey sells only on *color*. Of course, the sections should be well filled, clean and neat, for the neater the package, the more catchy for the eye.

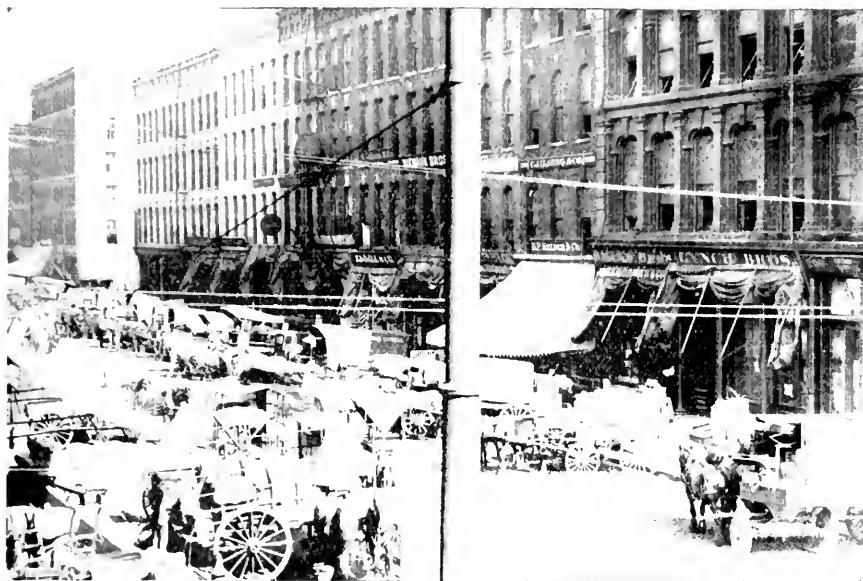
A few seasons ago, we received large quantities of honey-dew; and at that time were not posted as to what it was, and it injured our trade considerably. Today we would not sell honey-dew for anyone; and, in my opinion, it is as unfair to put honey-dew on the market for honey, as to put up glucose with the label "Honey."

Every bee-keeper should have his name on the crate; never put on his address, because some trade is partial to some localities. A customer might say: "Sell us white clover from Wisconsin," and yet, when we give him white alfalfa from Colorado he doesn't know the difference. Or if we give him white basswood from Michigan, it meets his approval; therefore, leave your address off the crate; but always put on your name. The gross, tare and net should be on the case. In shipping comb honey to market in less than carloads, cases should be crated, handles



CRATE FOR SHIPPING CASES OF COMB HONEY.

on the crate, and straw on the bottom of the crate, and have a sign, "Handle with care." Then it is much easier to re-ship honey to the trade at distant points and have it arrive in good order. When our customers know that we can deliver honey without its leaking, they will be more



A VIEW IN CHICAGO'S GREAT HONEY-MARKET—SOUTH WATER STREET.

anxious to handle it, and always make a profit; but it will take more than one article in the Review to convince the apiarist that he should make extra crates as part of his expense in getting honey to market. I know of no commodity that is shipped by freight that is so liable to damage as is comb honey. Glass is not, because that is packed in straw. A claim agent told me a year ago that he would not pay a claim on broken comb honey simply because it broke from the jar of the car. Now then, if honey is a commodity that is so perishable, why should not the bee-keeper buy crates containing eight cases, and then if there is any damage, railroads must be responsible. Honey that leaks always sells from 2 to 8 cents per lb. less than if it did not leak, and a crate certainly will not cost this amount of money. Sometimes a bee-man will send in a case with a board in, to fill the vacant space; this is not satisfactory, but is unavoidable in order to have the case used. In shipping the honey from Colorado, we engaged carpenters and

bought lumber to brace the cases so that they could not shift; but the scantling broke, and the spikes gave way from the action of the car in transit, and some cases would show considerable leak. When you consider its frail condition, you will know that we had much "nerve" to go West and buy this commodity, and worry along to sell it, at a small margin of profit. Instead of bee-keepers thinking, when we come to buy honey, that we are a demon, they should welcome us with open arms. Some of the bee-men do so, and show themselves sensible business men, but some look upon us in the light of trying to buy too cheap; but perhaps at another time they will be doing the worrying as to the disposition of their stock.

This was a year in Colorado's favor, for it had a crop, while many localities were without. We found some cases of comb honey that had moths, candied combs, partly filled combs, and interwoven combs—by this we mean two or three sections joined together but no name on the cases, so we couldn't discover the men wh

deceived us; but another season, when buying in carloads, every case will bear the owner's name, or we will not buy the honey.

Honey should be graded by name, using the terms, fancy white, white, fancy amber, amber, fancy buckwheat, buckwheat. Of course, in each term, to lower the grade, the words No. 1 and No. 2 could be used.

Extracted honey also has its off-side. We had a number of complaints on account of the honey being full of bees. In loading a car of extracted honey, and without the name of the owner on the case, we cannot tell who deceived us; therefore, in future, every man will have to have his name on the cases so that we can trace the dishonest packages.

When we sell to the trade we must guarantee the quality; therefore when we buy, we should have the quality that is bargained for and nothing else. I do not think well of the barrel, as it frequently leaks, and give my recommendation for the 60-lb. cans; new cans at that, for second-hand cans frequently are damaged from too much usage.

We recently bought a car of extracted honey, and then the Association didn't want to ship because someone else offered them a fraction more, but we shall send our claim to an attorney, and if he thinks we can legally hold them, will enter suit. Morally, they are bound to deliver; but we do not often find farmers who consider a moral contract good.

We bought buckwheat comb honey from a party in New York State, and, after making the sale, he wrote that his neighbor received $\frac{1}{4}$ cent more than our offer, and he wanted us to increase the bid, which we did. This is hardly fair, for, if we had offered him $\frac{1}{4}$ cent per lb. *more* than his neighbor received, I am sure that he would never have given us the benefit; but, as the honey made a profit, we felt inclined to be liberal, as we wanted to have this party's friendship; for we buy his honey every year. Should his party read this article, we do not want

him to be offended, as we only cite this instance to show the difficulties that some times confront us.

It is well that every man finds his own market, and I heartily recommend home-trade, and, thereby, higher prices for the producer; but when our firm buys we buy to make a profit, and ask no sympathy from anyone, for we have been trading for years, and will continue doing so. The combination in trade, commonly called Trusts, sometimes advances prices, and then again lowers them. If we had been agents for the honey producers, we would have held every pound of their extracted at 10 cents, at producing points, because we knew of the shortage and the requirements of the trade, but much of the honey was sold at producing points at 6 cents per lb., therefore the manufacturer is the gainer. We are so closely allied with the handling of honey that we buy honey others will not, and we make our own outlet, usually selling such leaking and granulated comb honey to manufacturers.

As to our endeavoring to buy at low prices, we want the reader of this article to know that the bee-papers are also buyers of honey and they always buy as cheaply as they can. It is every man's privilege to refuse to sell, whether he is manager of an Association or a private individual. Managers are not in business for their health; they make money. They make it on their salaries or on commissions they receive.

I know of two men who buy honey in Wisconsin, and who buy it *cheap*. This year we went there, and as soon as they heard we were in the field, they advanced their price. That only goes to show that if we had not gone there, they would have gathered in the honey at low prices. Competition is so keen that we must avoid the middle-man, and buy our goods direct from the producer whenever possible. We have customers who consign honey every year, and know we make them more money than if they sold the honey for cash at home. Frequently we

refuse to take honey on consignment; for there are times when we do not want it; and it therefore is best that the bee-man confers with his commission house before he attempts to send his honey to market.

I read an article in the Review on the subject of honey as a food, and I had a number of copies printed which I distributed among my friends here, and it is wonderful to see how each one, after reading that article, had honey on his table. This occurred because the article stated that the honey was healthful and cured several ailments. The article was clever in that it referred to complaints that everyone is akin to. I know that if I lived in a locality and produced honey, that every man within fifty miles of my town would use honey.

Conventions should deal with weighty subjects; not waste time discussing some minor points. Take Armour advertising his articles; Pabst his Malt; and Pearl-line; people know them from their advertisements. Who is there that advertises honey? An article in the September magazines showing its value for food and medical purposes would create a wonderful demand. We advertised in trade papers and created our own demand for our large supply.

I want my article to be of benefit to the bee-keeper; I want him to have home-trade; to use a proper package; to get the most money out of his honey possible; and to become prosperous. I don't ask him to buy anything from me; I don't ask him to sell to us; but I want him to better his condition. The farmer's lot, to say the least, is a difficult one. When Congress will have eliminated adulteration they will have accomplished much for the good of this country; and wholesalers in cities will not become rich by selling cornstarch for mustard, glucose for honey, oleomargarine for butter, colored water for cider. I would not be surprised to hear any day that old shoes were ground up and sold for pepper.

CHICAGO, Ill., Nov. 22, 1899.



QUEENS WITH A PEDIGREE,
AND WHAT MAY BE EX-
PECTED OF THEM. BY
J. E. CRANE.

The advertising of queens bred from a \$100 queen marks a new departure in queen rearing; and perhaps a new epoch



in bee-keeping as great as the introduction of the movable comb frame or the introduction of Italian bees. Not that the careful breeding of queens is new but that such careful breeding has produced re-

sults that are now being recognized and appreciated. It proves beyond a doubt that bees are as susceptible to improvement as other kinds of animal life; and that the Yankee is bound to make the most of it. Already bee-keepers in all parts of our broad land are watching for the most productive colonies, that the queens may be used in stocking their apiaries with better queens and superior workers; and, lest such meet with disappointment and give up, a few words on this subject may not be amiss.

It is a common saying that "like produces like;" and it is true, in a general way. It is also true that in the breeding of animal or vegetable life, that the parent transmits not only its own qualities, but that of its ancestors—it may be for many generations.

Many years ago I had a queen whose workers showed many very desirable qualities. I reared a large number of queens from her; but few if any of the queens reared from her proved equal to her. I became discouraged and gave up trying at that time. I did not take into consideration the fact that her ancestors may have had quite as much to do with

my failure, or even more than she, to say nothing of the drones with which the young queens mated.

I may be able to illustrate my point better from facts in vegetable life. A few years ago I found an ear of twelve-rowed corn among an eight-rowed variety that I prized very highly. "Now," I said to myself, "I will plant the corn from this twelve-rowed ear, separate, and see the result." I did so, expecting that I should get perhaps fifty per cent., or more, of twelve-rowed corn. I confess to some surprise when I found not more than two or three per cent. was twelve-rowed like the seed I had planted. The eight-rowed ancestry was more potent, by far, than the twelve-rowed parents. Again I selected the best twelve-rowed ears, and planted the seed. At harvest I found a great gain. It may be that ten per cent. was twelve-rowed. Again I planted; and the next season from twenty-five to fifty per cent. was twelve-rowed. Now, it is easy to see, that if the experiment were continued for a few generations farther, the eight-rowed variety would almost wholly lose its influence, and the other become practically supreme; or, in other words, it would become a thoroughbred.

I have read that English breeders of horses admit an animal to be thoroughbred that has been crossed for five or six generations with thoroughbred stock.

That the parent should transmit the character of its ancestors, as well as its own, may seem very strange and mysterious, but that it is a fact I believe few can doubt who have given the subject much attention. It was a wise answer that the educator gave when a parent inquired when a child's education should begin: "Begin with his grandfather," was the reply.

Except for this law, species would soon run into endless varieties; and varieties, or families, or breeds, would soon lose their character and identity. It gives character, or, rather, I should say, *stability* of character—something we can depend upon.

From the foregoing will be seen the importance of using good queens to breed from; queens from our most productive colonies; not only that, but it is even more important, if we would secure the best results, that the *ancestors* of our breeding queens should have been from extra-producing-stocks also—and that *for many generations*. Not only the queens, but the drones, if possible, should likewise come from such stocks.

Our chances of success are much greater by the use of queens with a pedigree than with a *chance-queen* of even *unusual* excellence. Given two colonies of bees of the same race, with queens of the same age, and of the same strength and vigor in spring; one has a queen that for many generations has come from unusually productive colonies; and gives us, say, seventy-five pounds of surplus, while the other, of *uncertain pedigree*, or whose ancestors for a number of generations have not been particularly productive, yet it gives us, beside the other, one hundred pounds of surplus honey; I should much prefer to rear my young queens from the colony producing the seventy-five pounds of surplus. I should feel quite sure of better results next year than if I had used the other queen.

I have spoken of my failure to improve my stock, some years ago, by using one of my own queens that showed superior qualities; let me add that in 1898 I received a queen from a breeder who had for many generations bred with reference to the ability of the bees to accumulate stores, and I have watched with a good deal of interest the results, this year, in hives whose queens I bred from this thoroughbred queen. While some of my own were in just as good condition. I found in my home-yard, where I watched the results more carefully, when I come to look them over for winter, that those hives in which I had introduced a pedigree-queen would average about ten or twelve pounds more honey than the average of hives having my old stock of bees. The past season has been a very

poor one, and I found my old stock to vary greatly from almost nothing to a good quantity of stores, while those lives having their queens changed last year, to thoroughbred queens, were very even; all having very nearly the same amount of honey.

The experiment has most thoroughly convinced me of the great value of queens that have been bred, for business, for *many generations*; in other words, of the value of queens with a pedigree. Much more might be said in this connection but this is sufficient at present.

MIDDLEBURY, VT., Nov. 18, 1899.



SQUARE SECTIONS VERSUS TALL SECTIONS.

BY E. D. OCHSNER.

My views regarding these two sizes of sections are the result of experience instead of observation. Since

I expressed them recently in *Gleanings* I have received numerous letters from bee-keepers all over the country, thanking me for the stand I have taken in regard to the 4 $\frac{1}{4}$ section. It is not likely



that the time will ever come when we will think alike about these things, but I can't see the square sections attacked as they have been and remain silent. When I said what I did in *Gleanings* about the pushing of new things, I did not have the A. I. Root Co. in mind in particular. I mean that new things are pushed too fast; and I had reference to *any one* who pushes new things to the front, without giving them a fair trial, at the same time trying to run good things into the ground. It is all right for a beginner to adopt

such things as he deems best, but, for me, with hundreds of supers and separators on hand, it would be folly to change; especially, when here in Wisconsin, the square section sells as well as any. Mr. Hutchinson admits that he would not change his fixtures simply because he liked the looks of the tall sections better than he did the square ones.

The square sections are of the right weight; they are satisfactory with the greatest number of extensive bee-keepers; as much honey can be produced in them as in any sections; the honey is well attached to their sides; and for style and good looks they are the equal of any.

PRAIRIE DU SAC., Wis., Nov. 20, 1899.



REARING QUEENS; HONEY FOR POISONED FLESH; AN ARTISTIC VIEW. BY J. A. GOLDEN.

I have learned that as good queens can be reared from a colony of bees that has cast a normal swarm and been hived back, as per the Golden-method as by any other method; because the parent hive contains nearly all nurse-bees, and the queen-cells are sure to be crowded with royal food.



I have learned that slacked lime dumped on the bottom-board of a hive containing bees will absorb all the dampness thrown off from the cluster during cold weather, thus enabling the bees to winter better.

I have learned that the application of honey will cure poisoned flesh. During the hot weather I was severely poisoned in the face by poison ivy and my face be-

came so badly swollen that my vision was cut off, but an application of honey rubbed over the face twice, in two days and nights, reduced the swelling. Three applications of honey cured a case of eczema.

I learned that the tall sections of honey out-sell the square one three to one.

I will conclude by saying that from an artist's standpoint, the frontispiece of the Review for September is one of the finest illustrations that has ever been produced in apicultural literature. It is full of Nature. It is an art-view. It brings a smile to my face every time I look at it.

REINERSVILLE, Ohio, Nov. 15, 1899.



FEEDING BEES IN THE OPEN AIR WITHOUT TROUBLE.

BY W. H. PRIDGEN.

For various reasons I have often found it advisable to feed bees in the open air; and I will state that I begin



by making the water in the watering troughs just sweet enough to make the bees a little more eager for it, and increase the quantity of sugar daily until forty pounds are added to twelve or fifteen gallons of water. During a scarcity

of natural supplies there will be considerable excitement, with an attempt to rob the colonies nearest the feed, if the water be made too sweet at first; but after the source is found by all the bees, syrup can be fed, if ample room for all the bees to get at it be given, without interfering in the least with the opening of hives and handling frames; however, if the feeding is being done to stimulate brood rearing, and keep the bees out of

mischief the longest time possible at a given expenditure, just enough sugar to make the bees work freely will prove to be the most satisfactory. All the water necessary is thus supplied, and causes that familiar "roaring" heard in the evening during a natural flow.

I have practiced this plan of feeding many times at different seasons of the year, and when for only a few days duration I get into it as above directed, and then ease out by decreasing the sweetness until indifference on the part of the bees is manifested, and I have not yet experienced any inconvenience from robbers on account of it.

In my last experience, which lasted for a month, I noted everything more carefully than ever before, and find that an interval of three or four days without feeding makes it necessary to be a little cautious about opening hives, until all the bees again locate the feed. The bees all quiet down as soon as the supply is exhausted, at any time of the day, but it is better to have it ready when they first get out in the morning. Strange to say, they soon learn what time of the day to expect it, and there are usually enough present to scatter the good news in every direction as soon as the feed is given, whether morning, noon or evening.

CREEK, N. C., Nov. 20, 1899.



Good things From Other Journals.

SELECTED BY DR. A. B. MASON.

UNSEASONABLE MATTER MADE SEASONABLE BY THE USE OF AN INDEX.

Editor Review:—Your editorial on "Publishing Unseasonable Matter," on page 341 of November Review, pretty nearly upset me when I read it; and I wondered if you thought I could select

things from other journals for the Review and have them "seasonable," if what they publish is seasonable. I have frequently had occasion to, and did, profit by "unseasonable matter" in the bee-journals, and also in other publications, but it never occurred to me that if I wanted seasonable information that the last publication received should contain just the information wanted. We've had an unabridged dictionary and an encyclopedia for many years, and they are full of "unseasonable matter," but it's ready for our use whenever we *do* want it; and stored away in such shape that we know just where to find it when we want it. The same is true of our bee-journal information. At the close of each volume we are furnished with an index that tells us just where to find the information we want; but it may not be in the last completed volume; and we may have to refer to some older volumes; and it is very nice to have them bound in some way, for ready reference; provided they are published in such shape as to make them convenient to handle and put away in a book case. I have had a goodly number of volumes of the American Bee Journal bound, beginning with 1873, but some of them are so large as to be very unhandy; and in the later volumes advertisements are so mixed with the reading matter, or the reading matter so mixed in with the advertisements, as to make them quite cumbersome if bound; and one doesn't care to have half of a volume of advertisements bound for the sake of the half volume of reading matter.

I have a habit of making an index of my own when reading an uncompleted volume. If I find any thing I wish to refer to again I note it down in my index; and so, in a brief space, make such matter as I wish to refer to again, "seasonable." I have but one index for the eight bee-journals that come to me, and a single letter tells me which journal to look in. For example, R stands for Review; B for American Bee Keeper; P for Progressive Bee Keeper; etc.

[Dear Doctor, if the other journals were all seasonable in their contents, and you make up your department from items culled from current issues of the other journals, as you are expected to do, your items would not be seasonable when printed in the Review; at least, a large number of them would not, but, as I said in my editorial on the subject, this matter of seasonableness can be carried too far; as I have just intimated, *you* have some excuse or reason for giving items out of season.

The index in the journals, and such an index as you make for yourself, are a great help in overcoming the unseasonability of our bee-journals, but, if a man doesn't know what he wishes to find, an index is of no help to him. That is, if a man reads of some little kink, and then so long a time elapses before he can put it into operation that he forgets all about it, an index will not help him. If a man would make a seasonable index, that is, have an index in which is noted all of the best articles from all of the journals, on the subject of swarming, for instance, another notation of articles on feeding bees, and so on, covering all of the different prominent subjects, and then would look up all of these articles as the season approached when the information would be needed, the seasonability of bee-journals would not be of so great importance to him. I think Mr. Doolittle does something like this; but there are few men like him.

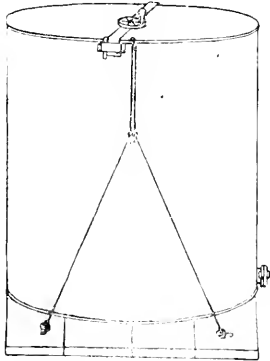
The Doctor refers to the dictionary as containing unseasonable subjects. Yes, and so do the bee books; and it is all right that they should. They ought to contain "the whole thing." A newspaper is a typification of seasonability; a book covers the whole ground; a journal or magazine is a cross between the two.—ED.]

FASTENING DOWN A HONEY EXTRACTOR SO IT CAN NOT "DANCE."

I presume many bee-keepers who use an extractor have been pestered by the extractor making an effort to "dance a

jig" when combs of unequal weight are being extracted, and have wished for some simple and effective method for speedily, easily, and effectively fastening it so as to take the dance out of it, and still have it so fastened as to be readily and quickly removed when desired. The best appliance of this kind that I have seen is described in the November number of the Canadian Bee-Journal by H. R. Smith, the inventor. He says:—

Our honey extractor had an exasperating habit of dancing about on its stand whenever the combs in it were not well balanced. Into the stand I drove four large screws about half their length, two on each side of the extractor, about fourteen inches apart. Two pieces of steel wire were then bent to form double hooks, and these were hung on the top edge of the extractor, on opposite sides. One end of a piece of strong cord was tied to one of the screws, the cord was passed up through the hook, down to the other screw on the same side and tied to it. A



short piece of cord was then tied around the double part just below the hook. A similar arrangement of the cord was made on the other side, and the short pieces were slid down the double cords as far as they would go. To release the extractor we simply slip the short pieces of cord upward; this gives enough slack to let us remove the hooks from the can. We have had no more trouble with the extractor shaking; and can recommend the contrivance as being practical, easily applied and costing next to nothing.

If, as in my case, one needs frequently to move the extractor, and does, or does not, use a stand, it might be an improve-

ment to use heavy screw-hooks instead of screws; so that they can be readily removed and replaced without the use of a screw-driver; and some might prefer to use wire where Mr. Smith uses cord.

PUBLISHING BEE JOURNALS—AND PUBLISHING REPORTS OF BIG CROPS AND BIG FAILURES.

I see by the last two numbers of the Canadian Bee-Journal that there is talk of the Ontario Bee Keepers' Association "taking over" and publishing the Bee Journal; but, for a wonder, the members don't all seem to think alike about the matter, and J. D. Evans says:—

There is a danger of its falling under the control of some "goody goody" blatherskite, whose chief aim in life is to induce every man and his sisters and his cousins and his aunts to keep bees.

He then goes on to tell "what a good bee paper should be;" premising his information with the statement that "perhaps few of the members of the O. B. K. A. would agree with him;" and I believe he is right. He says:—

1st, It should strictly exclude from its columns all reports of big crops; they are seldom true and always misleading. * *

2nd, I think that a bee journal should honestly publish failures. * *

My! but what will become of those of us who don't produce good yields? Who will "whistle" for us to "keep our courage," if the journals don't do it; and publish "reports of big crops," which I believe are generally true, and seldom mislead one who does his own thinking?

I perfectly agree with Mr. Evans in his second proposition; and I believe all other honey producers do the same. Failures *should* be published, just as honestly as big crops.

FIRST-SEALED CELLS DON'T CONTAIN SO GOOD QUEENS AS THOSE SEALED A LITTLE LATER.

In the American Bee-Keeper for October, Mr. Ed. Jolley says:—

Dr. Miller says that queens from the first sealed cells are the best. My expe-

rience is that when a colony in a normal condition is absolutely deprived of its queen, it will, in its haste to replace her, choose a larva that is too old to produce a first-class queen. Queens from the cells that are sealed from one to two days after the first ones will be the better ones—queens that are in every way equal to those produced by natural swarming. The cells last sealed are apt to be on larvae that are too old; so that neither the first nor the last are as good as the "come betweens."

We all know that Dr. Miller and Mr. Jolley are both pretty good authority; but my experience is the same as Mr. Jolley's in cases where the colony is suddenly deprived of its queen, and left to raise another; or where the queen has been removed for the purpose of producing queen-cells. Some of those first-sealed have a look of inferiority; and, with me, have produced inferior queens.

GLASS OVER THE SECTIONS.

Farther on in his article, in speaking of the desirability of having comb honey sections nice, clean, and white, he says:—

I have been trying a plan this season which, so far, has given good satisfaction. I put a piece of glass the size of the section crate over the sections. The glass lying flat on the smooth, upper surface of the sections leaves no room for propolis. It is not necessary to lift it until the super is completed. You can look down through the glass and through the interstices of the sections, and see their progress without disturbing the bees with smoke, breath, or air. I put a cloth over the glass in some hives, and leave some without anything. The bees work equally as well in one as the other.

Probably there are many localities where a glass honey board like that would be real nice to have, but I'll guarantee that if Mr. Jolley were to produce honey in my locality he would need to buy his glass by the carload, or scrape the propolis from the bees legs before they entered the hive, for they would so fasten the glass to the sections that the easiest way to remove it would be with a hammer; but it would be a treat to be able to see the bees at work between the sections.



EDITORIAL Offerings.

SIXTEEN extra pages this month.

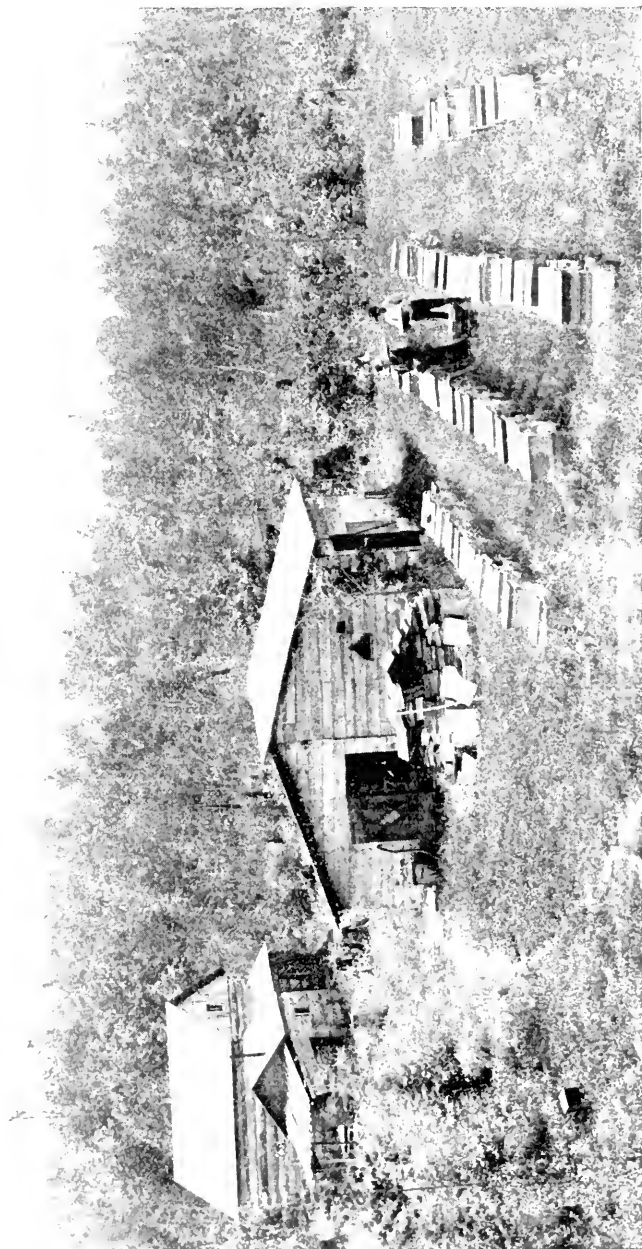
IN RENEWING, don't forget to write the long chatty letter about yourself, and and your bee-keeping.

GLEANINGS for November 15th outdid herself in the way of illustrations; giving seven full page views of the Home of the Honey Bees. If not a subscriber, send for a copy of this issue.

ADVERTISING PAGES in this issue are some of them quite interesting reading, aside from the fact that they offer for sale goods that are needed by bee-keepers. Look them over, admire them, and then patronize the men who have had the enterprise to advertise so liberally.

MICHIGAN STATE bee-keepers will meet in convention Jan. 1 and 2, at Thompsonville. There will be reduced rates on the railroads; and hotels have reduced their rates to 75 cts. a day. Everything indicates that the attendance will be larger than in years. At least two, and perhaps three, of the A. I. Root family, of Medina Ohio, will be present.

"CRITICISMS" were crowded out indirectly this month, and the "Extracted Department" and "Editorial Offerings" squeezed down pretty thin, by the unusual amount of advertising secured for this special issue of the Review. It must not be forgotten, however, that the advertisements help furnish the money to make the Review what it is.



HOME, APIARY, AND BEE-PASTURE OF G. W. DRINKWINE, GREENWOOD, WISCONSIN.



APIARY OF G. W. WILSON, KICKAPOO VALLEY, WISCONSIN.

THROUGH WISCONSIN WITH PENCIL AND CAMERA.

As most of my readers know, I spent nearly three weeks last July, with pencil and camera, among the bee-keepers and manufacturers of Wisconsin. Some parts of this State are still peculiarly well-adapted to the keeping of bees. Like some parts of Michigan, they still bring to mind the old German complot that says:

Bells' ding dong,
And choral song,
Deter the bee
From industry;
But hoot of owl,
And wolf's long howl
Incite to toil
And steady toil.

Many parts of the country in the vicinity of Greenwood are ideal locations from the bee-keeper's standpoint. There are old pineries in which the raspberry, the willow herb, the aster and the golden rod delight to revel. Then there are strips of hard wood where basswood abounds. In

the clearings the white clover is springing up. The country here is new. In some directions the forests stretch away unbroken for miles. Wild game is plentiful. Log houses have not yet been forsaken; and the mellow tinkle of a cow bell is often heard in some distant wood. Perhaps it is because my boyhood's days — those days so free from care — were passed in just such surroundings, that a visit to such scenes is so enjoyable. The sight of an apiary, snuggled away in some woodland nook, arouses in me a strange longing to go and do likewise.

One feature of some parts of Wisconsin that adds greatly to the honey-production of the regions in which it abounds, is the bluffs covered with basswoods, along the banks of some of the streams. The Kickapoo valley is an instance of this. The basswoods on the bluffs are not all nice, tall, straight trees such as grow on bot-

tom-lands; they are more inclined to be crooked, or ill-shapen. This, combined with the great difficulty of getting timber down off the bluffs, allows these linden-crowned hills to stand unmolested; and they will so remain for years to come. All up and down the Kickapoo, the apiaries are strung like golden beads upon a silver string. Almost the only source of surplus in these valleys, is the basswood; and the bee-keepers do not attempt the protection of comb honey. They say

was nearly level, nicely grassed over, and adorned with a few shade trees. The apiary contained about 300 colonies, mostly in the Heddon hive, and their owner, Mr. John F. Otto, kept everything so neat and snug, and managed with such an admirable system, that I was captivated—I was really sorry when the time came to say good by. As he has promised to describe his system for the benefit of the Review readers, I won't take space now to say any more.



WINTERING-CELLAR AND APIARY OF 300 COLONIES PURE ITALIAN BEES BELONGING TO JOHN F. OTTO, FOREST JUNCTION, WISCONSIN.

that the harvest is too short for the building, and filling, and capping of the combs. The honey sometimes comes in a flood; and it is only by furnishing the bees with an abundance of empty combs that storage can be furnished as fast as the bees can bring in the honey. One very important feature is that the basswood on these bluffs seldom fails to furnish honey.

Some parts of the State abound in both clover and basswood, and the apiarists produce comb honey. Over near Lake Michigan, at Forest Junction, I found an apiary after my own heart. The ground

THIS ISSUE of the Review is a holiday number as regards size, subject-matter, wealth of illustrations and number of copies printed; and I hope that my readers will enjoy it at much as its preparation delighted me.

SAMPLE COPIES of this issue will be sent a great many who are not now subscribers. The attention of such, as well as that of old subscribers who wish to renew, is called to the special offers on pages 355, 358, 394, 395, and 400.

PLEASE TELL WHY, IF YOU ORDER THE REVIEW DISCONTINUED.

Some of the subscribers of the best journals in the world sometimes order their papers discontinued. The Review is no exception. When a subscriber orders his paper discontinued, I know the editor would like to know the reason why. Is the paper lacking in some respect? Has it contained something that has offended or displeased this man? Has he no fur-

BEE-KEEPERS' ASSOCIATIONS; THEIR PAST, PRESENT AND FUTURE.

(Read at the Ontario, Canada, convention.)

The time was when a man who owned some bees would walk a mile or two to see an article "on bees," in some paper. The time was when a bee-keeper would come home from a convention fairly loaded down with the new things he had learned. If the wives of the bee-keepers who now attend conventions

ther use for the paper, and, if so, why? These are some of the thoughts that come to the editor. Now I am going to make a peculiar request: will each man who orders his Review discontinued, have the kindness to say *why*? I recognize the right of any man to order his paper stopped, and that without giving the reasons why, and I am simply making a request that may be granted or not, just as the subscriber feels about it. I certainly will appreciate the favor when the request is complied with—possibly I may get some hints.

should ask their husbands, upon their return, what new things they had learned, I think that some of them would have to scratch their heads before replying. The time was when the principal feature of an association was the dissemination of methods for managing bees. This is no longer true. The social pleasures are now the paramount feature of a convention. Perhaps no one has admitted this; but look down deep in your heart and see what answer you find to the question, "Why did you come?" Editors of bee-journals, and the supply dealers, may

go to a convention to further the interests of their business, and it is entirely proper that they should, but the honey producer comes mostly, principally, and all of the time, "to see the boys and have a good time." I will admit that many things in regard to the managing of bees for profit are still learned at conventions; and these gatherings would still be as valuable for this purpose now as in days of yore, were it not for the great number of most excellent and low-priced journals devoted to the business. No sooner does a bee-keeper make some discovery than he reports it to his favorite journal; the other journals copy it; and by the time that a convention meets, there is nothing new to talk about—it has all been told.

But the social feature of a convention is not to be sneered at. The friction of mind against mind, this rubbing up against our fellows, brightens us, sharpens our wits, gives us broader views, and makes us better bee-keepers and better men. Then there is the pleasure of it. This life is not simply a life of dollars and cents. At least it *ought* not to be. The man who has worked at home, all summer, owes himself, and his wife, an annual outing with kindred spirits.

From a business point of view, the usefulness of bee-keepers' associations in the future will be the accomplishment of those objects that require united action—those that bring to mind the motto: "In union there is strength." Associations can accomplish things that are beyond the power and purse of the private individual. See what legislation has been secured for bee-keepers, both in United States and in Canada, through united action—through association. Foul brood laws, laws against the spraying of trees while in bloom, laws against adulteration of honey, the protection of bee-keepers in their right to keep bees, lower freight rates, etc., have all come from association. The Bee-Keepers' Union stands ready to defend bee-keepers in their rights, to assist in the passage of needed laws, to prosecute adulterators, to help its mem-

bers in any way wherein is required united action. United action, in the shape of Exchanges, has done much for bee-keepers in the way of buying supplies and selling honey. It is in such directions as these that lies the work of Associations in the future.



W. J. CRAIG, EDITOR OF THE CANADIAN BEE JOURNAL.

I take pleasure in showing a picture of the new man who has taken the place of R. F. Holtermann, as editor of the Canadian Bee Journal. Mr. Craig was born near the old city of Londonderry, Ireland, and came to this country about ten years ago. He soon formed the acquaintance of Mr. Holtermann, from whom he took his first lesson in bee-keeping. Two years later he engaged with the Goold, Shapley & Muir Co., to assist in their apiary and supply-business. This, together with his attendance at conventions and exhibitions has put him in touch with the bee-keeping world; and I am pleased to see him start out as well as he has with the Canadian Bee Journal.

EXTRACTED.

BEGINNING IN BEE-KEEPING.

Some Good Advice in Regard to Learning the Business, and Sticking to it.

Occasionally a man gets the "bee-fever," and in his haste to get into business, he spends a lot of money foolishly, and does many things that are unprofitable. After he gets nicely started he meets with losses, becomes discouraged, and makes a sacrifice to get out of the business, or else adds something else to the bee-business. Any reader who finds himself in any of these positions, or is likely to so find himself, may read with interest and profit the following from the Wisconsin Agriculturist. It was written by Harry Lathrop of Browntown, Wisconsin.

I advise those who have mastered some other branch of agriculture, and are doing well in it, not to take up bee-keeping for the purpose of making money out of it; better invest more time and capital in the business you are already in than to take up something new. Of late I have become somewhat interested in sheep-farming, and thought strongly of starting in the business, as I have some land that is well adapted to sheep; but after more thought and deliberation, have decided to enlarge my bee business instead, rather than take up something in which I have had no experience; although I am satisfied there is more money in sheep than in bees if one has the necessary capital and experience. The case is different with those who wish to keep a few bees for pleasure or pastime (with the stings thrown in). The question has been asked, Is it best for one to work a season or two with an experienced bee-keeper or go ahead and learn by experience. The school of experience is all right, but the tuition is often too high.

If one, knowing nothing about bee-keeping, is determined to take it up as a business, I think it would pay them well to work a season or two with a successful man, even if they had to pay for the priv-

ilege. As a matter of fact, though, one can usually get small wages if they can find a man who needs help.

There are three ways of gaining knowledge, all of which are necessary to a practical understanding of the business in question—study, observation and practice. I advise every beginner to get one or more standard works on bee culture and study them; as to which is the best, I do not propose to give any publisher a free advertisement, but if any one asks me privately I will give them my opinion. By observation, I mean keeping one's eyes open and making careful note of what they see. Practice alone can make the theoretical knowledge, gained by reading, a benefit to us.

Then comes the question, How many colonies should one have to begin with? I started with one, and during the first year of my bee-keeping I had but the one, as there was no increase. I now think I am more competent to properly care for one hundred colonies through a season than I was that first year to care for one. I would say then, it depends on how much you know about the business and how much time and money you have to put into it. A very good and safe way is to start with a very few colonies, give them the best care you can, and make them pay for all expense incident to increasing the plant. Thus you are out only time over the first expense of starting, and the loss of time is compensated by the education one gets.

The question is often asked, "How much honey will a colony of bees make in one season?" One might as well ask, "How many apples will one apple tree bear?" There are many conditions to be taken into account. In a general way we can say that an average of fifty pounds of surplus honey per colony each year for a term of years is considered good returns; some do better than that, but they are those who occupy favored localities. My bees have done well, but I cannot give exact figures. As far as individual colonies are concerned, I have had yields all the way from nothing up to 225 pounds of finished comb honey in a single season. In good seasons I usually make my apiaries yield about 100 pounds of surplus per colony, spring count, for the whole apiary. It is well to remember that a small number of colonies can be made to produce relatively much larger yields than a larger number, therefore, don't be figuring and be deceived into the conclusion that you can make a great fortune out of an extensive bee business because some one has reported making twenty or even forty

dollars from a single colony in one season. I do not wish to discourage any one, what I want is to dispel the false and delusive lights that have played about this subject. The worst kind of discouragement is that that comes to one, who, with a great amount of enthusiasm invests too heavily on the start, and meeting with severe losses finds himself with a lot of useless hives and fixtures on hand. I have known a number of such who gave up in disgust. I advise going slow at first making sure of every inch of ground gained. Industry and grit will win in this business as in any other.

SOLID TRAINS TO NORTHERN MICHIGAN.

The Chicago, Milwaukee & St. Paul Railway is now running solid trains of palace sleeping cars, dining cars (serving meals *a la carte*) and first-class day coaches, through from Chicago to Calumet, Houghton, Hancock and other points in the Copper Country without change of cars, with direct connection for Marquette, Negaunee, Ishpeming, etc., and passengers from the East, South and Southwest will find this a most desirable route.

All coupon ticket agents sell tickets via the Chicago, Milwaukee & St. Paul Railway.

General Index to Volume XI.

INDEX TO SUBJECTS.

A B C of Bee Culture	305	Breeding, Selection in.....	302
Adel bees	148, 169	Brood-Rearing, what Induces free	17
Adulatorators, Prosecution of.....	277	Business, Bee-Keeping as a	53
Addresses of Correspondents, Giving the	204	Cappings, how to have white	50
After-Swarms	210	Catch the Spirit of the Times	213
Alpaugh Solar Wax-Extractor.....	107	Canadian Pure honey Bill	110
Alfalfa	304, 335	Carrying bees out of the cellar	88
Amalgamation	278	Caring for caged Queens, the bees	302
American Bee-journal's New Dress.....	51	Candy for Shipping Queens in Hot Weather,	239
Amount of honey Produced	277	Candied Honey	310
Ants, Getting rid of	145, 211	Cellar Versus Out-Door wintering	268
Antidotes for bee Stings	115	Cellar wintering of Bees	310
Apis Dorsata	185	Cellar, Removing Bees from the	38
..... Untamable and Undesirable	334	Cellars, Bee	325
..... a Longer Tongue, Has	296	Chive and Brood-Food	206
Apple Trees for Shading Hives	211	Characteristics of a Good Colony	177
Artificial Queen-Cells	220	Clover, Mammoth	87
Average Length of the breeding Season	44	Clipping Queens	112, 209
Australian Bee-Keeper	338	Cleaning Sections.....	280
Barrels for Honey	249	Clamps, Keeping Bees in	293
Basswood	197	Cleaning Unfinished Sections.....	305
Bee-Keeping an Ennobling Pursuit	111	Clamps, Bees in	332
Bee-Keeping as a Profession	311	Controlled Fertilization of Queens	203
Bee Hunting	282	Contraction of the Brood-Nest	175
Bee-Repositories	345	Commission Men	279
Bee-Cellar, A Wisconsin	345	Commission, Quotations and	278
Bee-Escapes, Removing honey without	274	Controlling Swarming with the Heddon Hive, 144	
Bee-Escapes, Does their use Cause the Bees to bite the Cappings	340	Control of Drones and the Mating of Queens, 144	
Bee-Escapes for use in producing Extracted Honey	182	Controversy, The Taylor-Miller.....	136, 151
Bee-Keeping as a business	53	Count, Selling Sections by	42
Bees, how to Secure the best.....	113	Convention, An impromptu Bee	22
Bees Good Natured, Keeping	69	Color of Honeys	309
Bees in Clamps	332	Criticisms	274
Bees outside the Hives not suffering from heat	86	Critic Been Pair, Has our.....	44
Bill, Canadian Pure honey	110	Crimson Clover.....	143, 243, 335
Black Clothing, and the Aversion of bees	149	Criticisms, Getting Used to	80
Bleaching wax	241	Cutting off Discussions.....	14
Black Rousing the Ire of Bees.....	40	Cuba as a Honey country	83
Boil Dead Bees, Don't	340	Cuba as a honey country and a Home.....	201
Boiling Foul Brood Germs	276	Cuba and Some of the Reasons why Little Honey was Secured from the Royal Palm, 236	
..... Honey	206	Dealing in honey.....	46
..... Honey in a Vacuum	18	Dickel Theory	272
..... Foul Broody Honey.....	25, 47, 213, 216	Discussions, Cutting off	80, 88
Boyd, Ernest Wynne	339	Discussions and how they Ought to be Conducted,	152
Breeding Season, Average Length of the.....	44	Discussions are Started, How.....	23
		Dorsata, Apis.....	185

Drawn combs for Sections	105	Italian Versus German bees	71
Drone Comb and Virgin Queens	242	Judgment, Hasty and Ill-Considered.....	47
Drones for Late Queen-Rearing, Preserving	269	Kaerntner Bees	271
Drone Comb, Virgin Queens and the Building of	336	King Birds	300
Editor Edit, Should an	180	Kreutzinger Entrance Closer	10
Eldorado, The Bee-Keepers'.....	143	Large Number of Colonies, Necessity for a.....	303
Entrance Closer, An	10	Hives	26, 299
Error, Persisting in	180	Cells Don't Increase the Size of the Queens	50
Evaporated Bees	145	Large Colonies	154
Extractors, honey.....	79	Versus Small Colonies.....	299
Examining Bees in the Cellar before Carrying them out	88	Laying Season, How Long is the	19
Excremental Discharges	249	Langstroth, An Opportunity to Honor the Memory of	21
Extracting Unfinished Sections.....	293	Larvæ for Queens, Bees Choosing	234
Exchanges, Bee-Keepers'	277	Laws, Pure Food	278
Extracted, Packages for Shipping	342	Language, Out-spoken	49
Fastening bees in the hive	217	Lay, Length of Time that Queens	84
Fertilization of Queens, Controlled	203	Length of time that Queens lay	19, 84
Fertilization of Blossoms, Importance of Insects in the	271	Leakage Stopped by Coating Rubber Rings with Wax	212
Flight, Taking Bees out for a	170	Locality and management, Hives.....	73
Foundation, No-Wall	418	Locality, Don't Forget the	89
Foundation, New-Process Versus the Old-Process	337	Locality, The influence of	270
Foul-Brood Question, the	180	Magic Lantern show	279
" Combs may be used Under Some Circumstances	19	Mate, at what Age Queens may	273
Foul-brood Law, Mich. Bee-Keepers working for a	52	Mating of Queens	186
" on the Decrease in Canada,	19	Mating of queens, Control of the.....	144
Foul-Broody Hives need no Disinfecting	19	Mammoth Clover	87
Foul Broody Honey, Careless Attempt at Burning	87	McKnight's Home, Some Glimpses of	150
Foul-Brood Law for Michigan	130	Milkweed as a Honey-Plant	143
Foul-Broody Honey, Boiling	25, 213, 216	Motion, Are Bees Affected by Objects in	40
Foul-Brood by Boiling, Destroying	150	Motus will not injure Clean Combs	20
Foul-Brood, Prevention of	212	Moving Bees Short Distances	237
" Cure	243	Miller, Dr.	207
" Germ's, Vitality of	272	Mice in the Cellar	338
" Germ's, Boiling	276	Narrow Sections	410
Food, Honey as a	309	No-Wall Foundation	418
Fuel for Smokers	274	Nuclei From Being Robbed, Preventing.....	82
Gerstung Theory	177	Oil-stoves, Warming bee-Cellars with	304
Gleanings and Grammar	179	Organization may Accomplish, What	23
Good Things from Other Journals	52	Out-spoken Language	49
Good Natured, Keeping Bees	69	Packing, Thickness of Winter	245
Government willing to aid in the Importation of Apis Dorsata	297	Palm of Cuba, The Royal	330
Grading of Honey	101	Packages for Shipping Extracted Honey	342
Hasty says Good By	20	Pickings from our Neighbors' Fields	50
Hatch-Gemmill Wax Press	138	Pickled brood	247
Heat, Bees Outside the Hive not Suffering from the	86	Plain Sections	122
Help that may come from Letters	21	Planting Trees for Honey.....	266
Heddon Hive, Controlling Swarming with the	144	Philadelphia Convention	247
Hetherington, Capt. J. E.	303	Phonetic Spelling	333
Hives that are Unwieldy	51	Pressure in Rendering wax.....	24
Hives and Honey Boards	79	Printer's Ink can help in the Selling of Honey	199
" Size of.....	54, 167, 211, 313	Prolificness in a Queen Desirable, Is Extra	52
" Large	11, 18	Propolis and Travel-Stain	148
" and Colonies, Size of	26	Prevention on Increase.....	178
" Locality and Management	76	Premiums, Giving	149
" Small	73	Propolis and wax	209
Honey Leaflets	91	Propolis often Mixed with Wax.....	20
Honey, Dealing in	41	Prevention of Swarming	175, 208
" Stored by Blacks or Italians, Difference in	87	Prevention of Increase	233
" for Horse-Feed	115	Practice Versus Theory	216
" Produced, Amount of	277, 297	Prosecution of Adulterators	277
" as a Luxury	277	Printer's Ink, Power of	241
" Dew	133, 231, 240, 262, 295	Promptness Versus Information	304
" Origin of	308	Profession, bee keeping as a	312
" as a Food	309	Pure Food Laws	278
Hutchinson, Her work and Condition, Mrs	182	Queen-Cells built, The best Place to have	339
Hungarian bees	271	Queen-Traps	294
Hunting Wild bees	261, 262, 295	Queens, Introduction of	306
Hunting the Honey Bee	280	" the Bees Caring for Caged	302
Hyde-Scholl Separators	8	" may Mate, At What Age	273
Increase, Prevention of	178, 233	Queen Traps Versus Clipped Queens	209
Inky Drops, from the smoker, What Causes	341	Queen's Flight by Clipping Her Wings, Controlling a	271
Indoor Wintering of Bees	343	Queens, bees Choosing Larvæ for	231
Introducing Queens	246, 306, 337	Queens are Infertile when the Bees Select the Larvæ, Some of the	215
" A Certain and Practical Method of	183	Queen Cells, Artificial	229
		Queens, Controlled Fertilization of	203
		" the Mating of	186
		" Hap Hazard	179
		Queen-lessness, outward Signs of	336
		Queens by Removing the old Queen, Rearing 174	

Queen Laying out of Season	148
Caring for Caged	245
Queen-Cells, How to get the best	339
Queens with a Pedegree and what may be Expected of them	367
Queen-Traps and the control of Increase	114
Queens, Clipping	112
Queen Rearing, Advantages of Using Regu- lar Size Frames in	82
Queen Desirable, Is Extra Prolificness in a Queen, Rearing queens by Simply Removing the Old	145
Queens, Large Cells do not Increase the Size of the	50
Quotations and Commissions	278
Rauchfuss Wax-Extractor	302
Rays of Dark	300
Raspberry Juice	279
Repositories, bee	345
Review, Past Present and Future of the	361
Reversible Honey Extractors	246
Rendering beeswax 6, 78, 79, 106, 107, 108,	138
Rearing Queens by Simply Removing the Old Queen	145
Reversing Combs Quickly	276
Removing bees from the Cellar	38
Robbed, Preventing Nuclei from being	82
Royal Palm, Some of the Reasons why Mr. Poppleton Secured so Little Honey from the	236
Robber bees	307
Royal Jelly, Worker Jelly Versus	336
Salt for Killing Grass	181
Section Honey boxes	5, 19
Sections, Have we yet Learned the Secret of Well-Filled	21
Sections by Count, Selling	42
Sections, Thick	245
Sections, Getting bees started Working in	118, 150
Sections, Narrow	119
Separator, A New	37
Separators	8, 14
Selling Honey	100, 328
Selling Honey by Weight	80
Selling Sections by Count	2, 42
Sex, the Influence of Food in Controlling	206
Sex in Eggs, What Determines the	306
Self-Interest, booming Articles for	338
Selser, Wm. A.	339
Second Story, Why Does Mr. Root Put on a	147
Second Swarms	243
Selection in breeding	302
Shade, Importance of	276
Shade in the Apiary	195, 241
Shipping Cases	17
Shipping, Extracted Honey, Packages for	342
Shipping of Honey	101
Shippers of honey, Some Suggestions to the	363
Size of Hives	54, 167, 211, 213
Size of Hives and Colonies	76
Size, About that Word	136
Small Hives	91
Smokers, Fuel for	274
Smoke, Hot or Cold	185
Smoke, an Injudicious use of	180
Smoker, What Causes Inky Drops to Come From the	341
Smoking bees out of Supers	276
Solar Wax-Extractor, the Rauchfuss	302
Solar Wax-Extractor	200, 107
Solar Wax-Extractors, Improvements in	334
Spelling, Phonetic	333
Spring Management	118
Specialty and Co-Operation	145
Spirit of the Times, Catch the	213
Sting, What to do When a Relapse is Threat- ened from a	271
Sting While a Man Holds his Breath, Can bees	212
Stings, Avoiding	210
Straw for Smoker-Fuel	245
Straining Sugar Syrup	209
Sulphuric Acid and How to use it in Render- ing Wax	106

Supply-Dealing Editors	122
Sulphuric Acid for Cleansing Wax	300, 301
Swarm-Catchers a Success	19
Swarming, Populous Colonies Greatly Given to with the Heddon Hive, Controlling	144
Prevention of	167, 175, 208
Swarming-Time	171
Taylor-Miller Controversy	136, 151, 170, 234
Temperature and Ventilation	86
Temperature in a bee-cellar, Danger of too High a	148
Temperature not Dangerous, A High	170
Temperature of Cellar-Wintering	209
Temperature in bee Cellars	327
Thick Combs	184
Theory Versus Practice	216
Tin Combs	240
Trusts and Combines not Wholly Unmixed Evils	45
Travel-Stain	51, 149, 169
Traps, Queen	294
Unwieldy Hives	51
Unseasonable Matter, Publishing	341
Unfinished Sections, Cleaning	305
Uncertainties of bee-keeping	312
Unfinished Sections, Extracting	263
Uniting bees	242
Useless Consumers, Rearing bees that become Inutilizing Hives in Summer	173
Ventilation and Temperature	86
Virgin Queens, Introducing	270
Virgin Queens and Drone-Comb	242
Virgin Queens and the building of Drone Comb	336
Vitality of Foul brood Germs	272
Wax Extractors, Improvements in Solar	334
Wax Press, A	232, 241
Wax, Pressure Used in Rendering	24
Wax Extractors	79
Warming bee-Cellars with Oil-Stoves	304
Water in the Spring, Giving bees	146
Western bee-keeper	20
Wedded in Washington	21
Weight, Selling Honey by	80
White Cappings	50
Wintering of bees, the Size of Frames and the	207
Wintering bee in the Cellar	310
Wintering of bees, In-Door	343
Wintering, Cellar Versus Out-Door	268
Wisconsin bee Cellar	345
Working in the Sections, Getting bees started to	118, 150
Yearling Queens	270

INDEX TO CORRESPONDENTS

Aikin R. C.	175
Alpaugh Jacob	37
Atehley Willie	174
Barnes M.	345
Barber Ira	327
Beasley J. D.	261
Beckwith I. W.	6, 105
Bingham T. F.	69
Burnett & Co., R. A.	80
Crane J. E.	42, 367
Clark L. J.	282
Chute Herbert	205, 310
Cook A. J.	308
Dadant C. P.	26, 54, 249, 345, 345
Daggitt E. A.	14
Davenport C. H., 38, 71, 91, 108, 171, 185, 199, 217, 280, 310.	
Dibbern C. H.	173
Doofittle G. M., 57, 80, 82, 115, 123, 204, 210, 238, 260	
Ferris C. G.	79, 232
Flower W. E.	294
France N. E.	247
Gemmill F. A.	138
Getaz Adrian	73, 167, 265, 313
Handel J.	251
Hambaugh J. M.	120
Hasty E. E.	20
Hetherington O. J.	332
Heddon Jas.	70

Howe S Harry	339
Holmes M. B.	112
Hyde & Scholl	8
Jones H. L.	200
Jones E. R.	237
Kreutzinger L.	10
Lathrop Harry	312
Mason A. B., Sr.	111, 149, 174, 203, 237, 247, 248, 258, 292, 335
Mandelbaum M. H.	393
Martin J. H.	49, 206
McEvoy Wm.	107
McKnight R.	133, 150
Miller Arthur C.	106, 233
Miller C. C.	41, 130, 169, 234
Montague C. A.	143
Pettit S. T.	110
Poppleton O. O.	78, 236
Pridgen W. H.	229
Root E. R.	151, 198
Secor Eugene	22
Shearman J. D.	262
Snyder Aaron	201, 265
Somerford W. W.	83
Soper W. D.	46
Stachelhausen L.	76
Stephenson W. J.	146
Taylor R. L.	15, 47, 81, 111, 147, 178, 207, 242, 272, 298, 336
Thompson F. L.	102, 141, 152, 197, 177, 206, 230, 370
Townsend O. H.	263
Victor W. O.	328
Whiting I. C.	294
Whiting W. A.	186

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

NO. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," "No. 1, dark," etc.

CLEVELAND O.—We quote as follows: Fancy white, 16 to 17; No. 1 white, 15 to 16; fancy No. 1 amber, 13 to 14; fancy dark, 8 to 9; white, extracted to 9.

A. B. WILLIAMS & CO.

Dec. 4. 80 & 82 Broadway, Cleveland, Ohio.

CHICAGO, ILL. There is a good demand for all grades of honey, and we quote as follows: Fancy white comb honey, 16 other grades white, 14 to 15; amber comb honey, 12 to 13; extracted in good demand 7 to 9, depending on color and package. Beeswax 28.

S. T. FISH & CO.,

Dec. 1. 189 So. Water St., Chicago, Ills.

KANSAS CITY.—We quote as follows: Fancy white, 15; No. 1, white, 14; fancy amber, 13½; No. 1 amber, 13; white extracted, 8; amber, 7; dark, 6; beeswax, 22.

C. C. CLEMONS CO.,

Dec. 1. 423 Walnut St., Kansas City, Mo.

NEW YORK.—Honey of the better grades in good demand. Beeswax quiet. We quote as follows: Fancy white, 14 to 15; No. 1 white, 12 to 13; fancy amber 11; fancy dark, 10 to 11; No. 1 dark, 10; white extracted, 8 to 8½; amber, 7 to 7½; dark, 6 to 6½; beeswax, 26 to 27.

HILDRETH & SEGELKEN,

Oct. 16. 120 West Broadway, New York.

BUFFALO, N. Y.—There is very little new honey in the market, and the demand is very good. We quote as follows: Fancy white, 15 to 16; No. 1 white, 14 to 15; fancy amber, 13 to 14; No. 1 amber, 12 to 13; fancy dark, 11 to 12; No. 1 dark, 10 to 11; white, extracted, 8 to 9; dark, 6 to 7; beeswax, 28 to 30.

W. C. TOWNSEND,

Dec. 1. 86 West Market St., Buffalo, N. Y.

BUFFALO, N. Y.—Very little fancy here, and much wanted. Would thank those having it to write us. No. 2, etc., sells well. We quote as follows: Fancy white, 15 to 16; No. 1 white, 14 to 15; fancy amber, 10 to 11; No. 1 amber, 9 to 10; fancy dark, 9 to 10; No. 1 dark, 8 to 9; white, extracted, 6 to 7; amber, 5 to 6; dark, 5; beeswax, 27 to 30.

BATTERSON & CO.

Nov. 29. 167 & 169 Scott St., Buffalo, N. Y.

CHICAGO, ILL.—There is a firm tone in all kinds of honey, even buckwheat sells easier than of yore. For the best white comb, such as we class as fancy, 16 cts. is easily obtainable; and 15 for No. 1. Stained or off-grades of white bring 13 to 14; amber, 10 to 12; dark, 9 to 10. Extracted, white, 8 to 9; amber, 7 to 8; dark, 6 to 7. Beeswax, 27. All of the foregoing are wanted on arrival.

R. A. BURNETT & Co.,

Nov. 7. 103 So. Water St., Chicago, Ill.

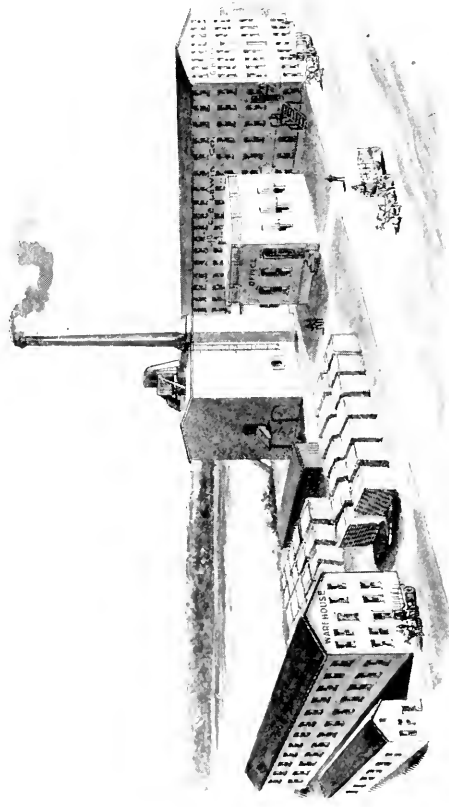
NEW YORK, N. Y. Our market never was in better condition for the sale of either comb or extracted honey. The causes for this are very light stocks and the demand more active than in previous years; probably caused partially by the general report of a short crop.

We always claim that sales made before the holidays are larger than those made afterward, as well as more profitable. Honey is selling to-day as follows: Fancy white, 15 to 16; No. 1 white, 14 to 15; No. 2 white, 12 to 13; fancy amber, 12 to 13; No. 1 amber, 11 to 12; fancy mixed, 12 to 13; No. 1 mixed, 11 to 12; fancy buckwheat, 11 to 12; No. 1 buckwheat, 9 to 10; extracted California white, 8½; light amber, 8¼; white clover and basswood 8½; amber, 8. We are asking 7 to 7½ for buckwheat, but little trade being done. Florida and other grades of Southern, 7 to 8¼, according to quality. Beeswax very quiet at 26½ to 27.

FRANCIS H. LEGGETT & CO.

Nov. 1. 70 Broadway, Franklin & Varick Sts.

One-Quarter Century.

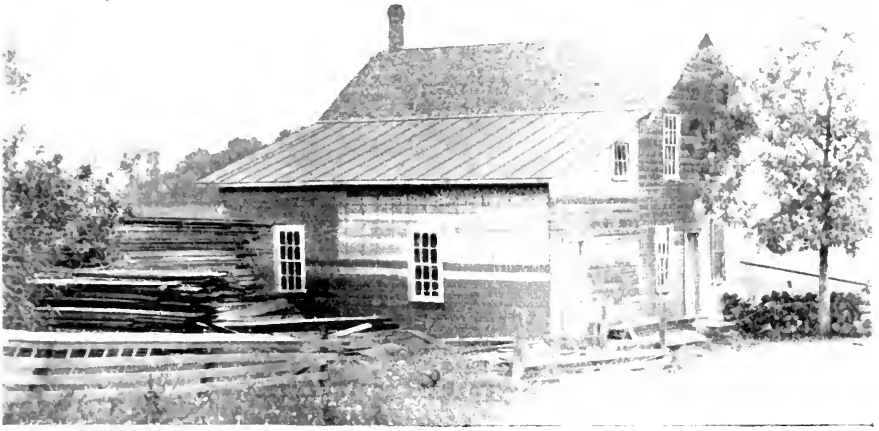


1874

1900

G. B. LEWIS & CO.,

Manufacturers of Bee-Keepers' Supplies, Watertown, Wis. Send for Catalogue.



FACTORY OF AUG. WEISS, HORTONVILLE, WIS.

A Superior Process and Low Prices.

No one in this country makes comb foundation superior to that turned out by Aug. Weiss, Hortonville, Wisconsin—possibly, his foundation has no equal. In the first place, he is a most excellent mechanic, capable of doing the finest and most perfect work, and considerably given to experimenting. In the next place, he is a practical bee-keeper, and knows, or can find out, by actual experience, exactly what is suited to the needs of the bees. When such a man starts in to make foundation, something is likely to happen. In this case a new and superior process of sheeting the wax was developed, something radically different from any method previously employed, and the superior quality of his foundation is largely due to this peculiar method of sheeting. Besides this, the rollers of his foundation mills are larger than those usually employed, thus giving a larger curve to the working surface—the work more nearly approaching that done by a press.

One more point: Mr. Weiss has not been making foundation many years, and, naturally, wishing to build up a larger business, he is using one of the strongest possible incentives for drawing trade, that of low prices—so low as to bring remonstrances from some of his competitors.

Although Mr. Weiss makes a specialty of foundation, he has power and wood-working machinery, and makes hives, supers, shipping-cases, etc., and carries a full line of supplies. If in need of supplies, you will do well to send for his price list—especially so if you are in need of foundation.—EDITOR REVIEW.



A wee Glimpse of the Weiss Apiary.

Wanted! Your Honey.

We will buy it, no matter where you are. Address, giving description and price, 12-99-tf
 THOS. C. STANLEY & SON, Fairfield, Ills.

THE

A. I. ROOT CO., 10 VINE ST., PHILADELPHIA, PA BEE-SUPPLIES.

Direct steamboat and railroad lines to all points. We want to save you freight.

If You Wish Neat, Artistic

PRINTING,

Have it Done at the Review.

Bee keepers should send for our

'97 CATALOG.

We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.

J. H. M. COOK, 62 Cortland St., N. Y. City
 Please mention the Review.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking. 3-99-tf

THE JENNIE ATCHLEY CO.,

Beeville, Bee Co. Texas.

Bee - Supplies.

Root's goods at Root's prices. Poulder's honey jars. Prompt service. Low freight. Catalog free. Walter S. Poulder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Dark
 Italn



Golden
 Italian

QUEENS.

Reared by the best methods known.

Untested, single queen, 75 cts.; six for \$4.00; one dozen, \$7.50. Tested queens, just double these prices. Choice breeding queens, from \$3.00 to \$5.00. Circular telling how to *introduce any kind of a queen, free.*

E R. JONES.

3-98-12t

Milano, Texas

A "HOLD UP"

In advertising, but not in queen rearing, was caused by the heavy loss in bees a year ago; the supply of queens not being equal to the natural demand the past season.

In Breeding

Goldens as a specialty for beauty and business, no pains is spared in making the selections of both queen and drone mothers, and while I call attention to the fact I deem it

No Longer Necessary.

But few are allowed to quietly monopolize a good thing unmolested, and, without considering it an encroachment on the Editor's rights, I now offer for sale, for next season's delivery,

Cross-Mated Queens,

bred from his "Superior Stock" mated to choice Golden drones; thus securing a direct cross which usually results in

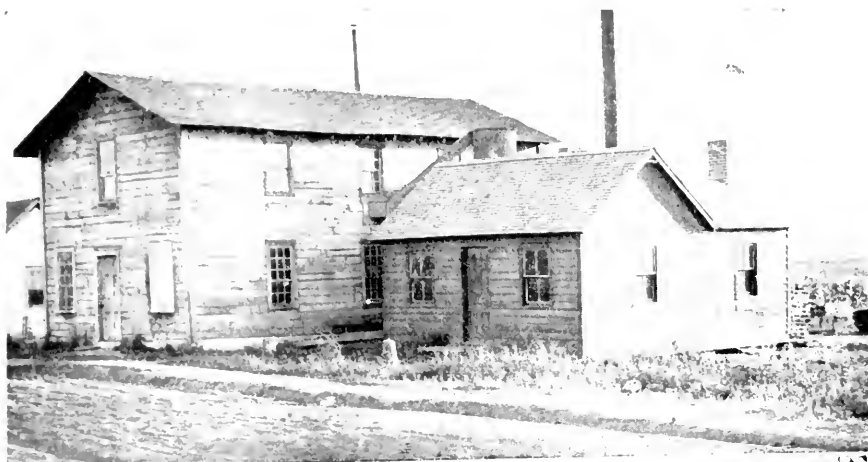
The Best for Business.

Orders will be filled in the order received; and, for early delivery, should be booked now, at \$1.00 each, \$5.00 for 6, or \$9.00 per doz. Goldens, or those reared from imported stock, all mated where only Golden drones are allowed to fly, the same price.

Money order office Warrenton.

W. H. PRIDGEN,

Creek, Warren Co., N. C.



Factory of H. Rienow & Son, Prairie du Chien, Wis.

SECTIONS.

Superiority of Manufacture and Exceedingly Low Prices.

The firm of H. Rienow & Son, at Prairie du Chien, Wis., is located where it can buy basswood bolts at a very low price; and it is possessed of a factory well furnished with machinery exceedingly well adapted to the manufacture of sections. It has a real, little, miniature saw mill for sawing the bolts into plank, a gang of jig saws for sawing the plank into sections, a machine that dovetails both ends of the sections at one operation, and a groover that does *not* cut a *sharp* groove at the point, but leaves a slightly rounded corner which greatly lessens the strain upon the wood when the section is folded. The sections are polished on both sides and planed on the edges. All of these advantages enable this firm to furnish No. 1, snow white sections, in 5,000 lots, at \$2.15 per thousand; less than 5,000, \$2.25 per thousand. No. 2, in 5,000 lots, at \$1.50 per thousand; less than 5,000, \$1.65 per thousand. This firm can also furnish hives, supers, shipping-cases, and all kinds of supplies. Send for catalogue.

Now is the time to requeen. Hyde & Son have the queens, either

GOLDEN

Italian, or the Holy Lands. Nothing but the best of stock. They have had years of experience and rear queens by the best known methods. *Special attention* is called to the Holy Lands. They are excelled by none for hardiness, prolificness and honey gathering. Try them. Untested queens, either race, 75 cts. each. Tested \$1.00. Discounts on quantities. Prompt service. Root's goods in stock. The Hyde - Scholl separators. 36-page catalog free.

O. P. HYDE & SON,

6-99-4t

Hutto, Texas.

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tons and tons of the very finest

FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered ere. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS,** Hortonville, Wisconsin.

19



00

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.80; 1,000 for \$3.00; 3,000 for \$8.10; 5,000 for \$12.00; 10,000 for \$21.00.

No. 2 sections are not made to order, but when in stock are sold at \$1.80 per M.

J. FORNCROOK,

Watertown,

Wisconsin.

WM. BAMBER,

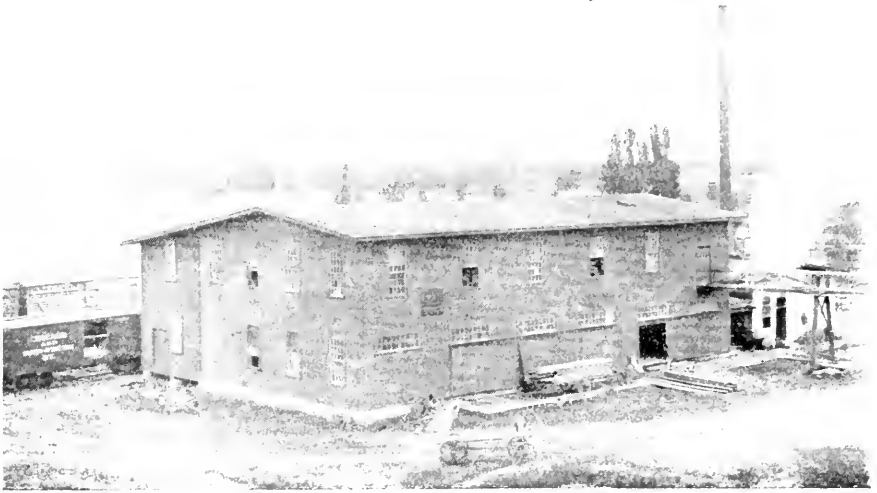
Of Mt. Pleasant, Mich., has his own saw-mill, and a factory fully equipped with the latest machinery, located right in a pine and basswood region, and can furnish hives, sections, frames, separators, shipping cases, etc., at the lowest possible prices. Making his own foundation enables him to sell very close. Send for samples and prices before buying, and see how you may save money, time and freight. Bee-keepers' supplies of all kinds kept in stock. 12-99-4t



Marshfield Mfg. Co.'s Mill and Lumber Yard.

Cheap Material of Finest Quality.

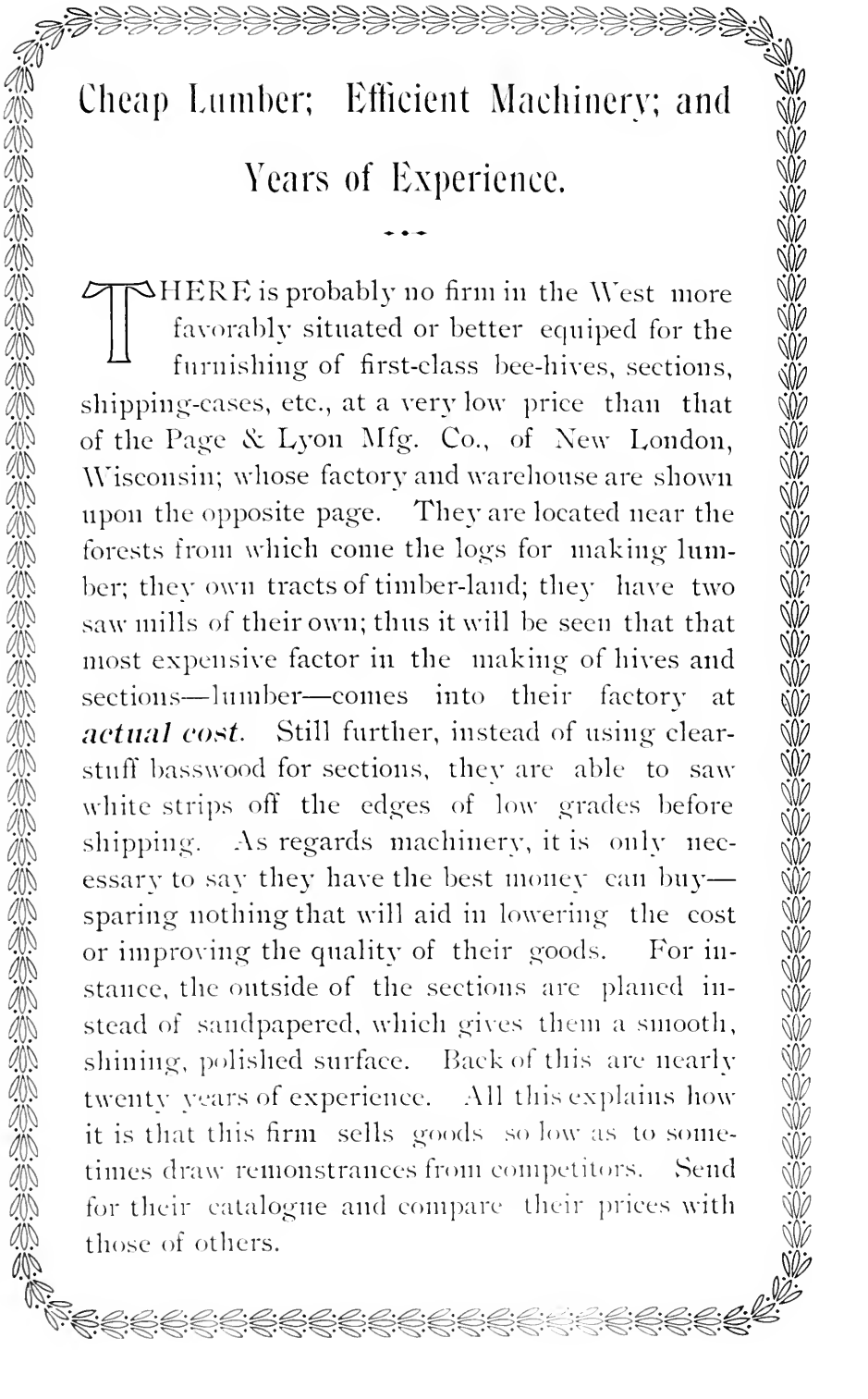
EVERY manufacturer who furnishes first-class sections at a low price must, in some way, secure fine, white, basswood lumber at a low price. The Marshfield Mfg. Co., of Marshfield, Wis., secures it in this way: It is located in the great, basswood, timber-belt of Wisconsin, where the best basswood for making one-piece sections is to be found. The fiber is more perfect, hence there is less breaking in folding, while there is a whiteness not possessed by other basswood. This firm has a sawmill in connection with its factory, and is thus able to select fine, second-growth logs for sawing into planks for making sections. These planks are cut up into pieces twice the length of a section, and piled up to season, as shown at the right of the picture. Sections made from planks can be made thicker than those from inch lumber. Sections are a specialty with this firm no other firm can furnish a better article, or at a lower price—but it also handles a full line of supplies. Send for price list.



FACTORY OF THE PAGE & LYONS MFG. CO., NEW LONDON, WIS.



WAREHOUSE AND OFFICE OF THE PAGE & LYON MFG. CO., NEW LONDON, WIS.

A decorative border of repeating floral motifs surrounds the text.

Cheap Lumber; Efficient Machinery; and Years of Experience.

...

THESE is probably no firm in the West more favorably situated or better equipped for the furnishing of first-class bee-hives, sections, shipping-cases, etc., at a very low price than that of the Page & Lyon Mfg. Co., of New London, Wisconsin; whose factory and warehouse are shown upon the opposite page. They are located near the forests from which come the logs for making lumber; they own tracts of timber-land; they have two saw mills of their own; thus it will be seen that that most expensive factor in the making of hives and sections—lumber—comes into their factory at *actual cost*. Still further, instead of using clear-stuff basswood for sections, they are able to saw white strips off the edges of low grades before shipping. As regards machinery, it is only necessary to say they have the best money can buy—sparing nothing that will aid in lowering the cost or improving the quality of their goods. For instance, the outside of the sections are planed instead of sandpapered, which gives them a smooth, shining, polished surface. Back of this are nearly twenty years of experience. All this explains how it is that this firm sells goods so low as to sometimes draw remonstrances from competitors. Send for their catalogue and compare their prices with those of others.

Do You Want
A Good Market

For Your Crop of Honey?

— * * *

We are in a position to handle any quantity, large or small, to better advantage than any other house, for the following reasons:

We deal almost exclusively in honey, giving it our closest attention all the year round.

We keep ourselves thoroughly posted as to the result of the crops of honey gathered.

We are acquainted with the most desirable trade, and know exactly what their wants are.

We know, through our long experience, the different varieties and grades of honey; hence there is no danger of selling "fancy" as third grade.

We handle by far the bulk of all the honey sent to New York, and our volume of business enables us to make the charges very reasonable.

Why then, should we not be able to handle your crop to advantage, and do justice to you in all respects?

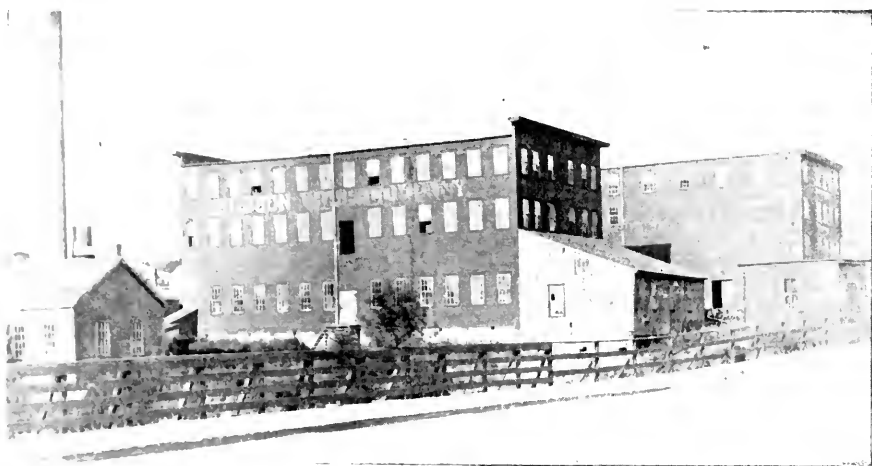
We handle not only on commission, but we BUY OUTRIGHT as well, paying SPOT CASH.

If you prefer to sell your product, write us, stating quantity you have, quality, and how put up, and we will make you our cash offer.

We shall be glad to correspond with you in regard to your crop, and hope to have the pleasure of hearing from you soon.

HILDRETH & SEGELKEN,

120-122 W. Broadway, New York City.



Plant of Interstate Mfg. Co., Hudson, Wis.

Experience—The presiding genius of the above factory is Mr. W. H. Putnam; who began the manufacture of Bee Hives, Sections and Supplies, in a small way, a dozen years ago, using power from his water grist-mill.

Room and Power—The business out-grew its humble quarters, and, in 1897, a stock company was formed, and the business moved to Hudson, Wis.; where the \$60,000 plant of a defunct furniture company was bought at a bargain, thus securing abundant power, room and machinery.

Cheap Lumber—Hudson is the land of saw mills and cheap lumber, and the best quality of white pine for hives, and the choicest of white, winter-sawn basswood for sections, can be bought at very low prices. The Interstate Mfg. Co. also makes berry boxes and crates and is thus able to utilize the dark lumber and the waste. A dry-kiln insures a supply of thoroughly seasoned lumber. Send for price list.

Some Correspondents



MISS ADA L. PICKARD,
Richland Center, Wis.

That will contribute to the Review for 1900 are pictured on this page. For some time there has been complaint that the Review devoted too much space to the subject of comb honey production, to the neglect of extracted honey. This defect is to be remedied in 1900. "Ladies first," is a good motto, and the January Review will probably contain an article from Miss Ada L. Pickard of Richland Center, Wisconsin. Ever since she was a little girl she has worked in



HERBERT CLUTE,
Greenwood, Wis.

the apiary with her mother; and, in 1898, she managed an out-apiary of 100 colonies; securing 16,000 pounds of extracted honey as the result of her labor. In my Wisconsin trip last summer I found her in an out-apiary fifteen miles from home. In the January Review she will describe her hives, implements, methods, etc., and I will give a frontispiece showing her out-apiary with its background of wooded hills, and a little brook in the foreground.

Next on the list is Mr. Herbert Clute of Greenwood, Wisconsin, who was brought up in the bee business by that old veteran, Frank McNay; and who, during the five years that he has been in business for himself, has produced about 75,000 pounds of extracted honey; building up a nice apiary, honey-house and wintering-cellar; all of which he will describe, and I will illustrate, in an early issue of the Review.

Harry Lathrop of Browntown, Wisconsin, is far from being a stranger to the apicultural world, having been in the business about eighteen years. During this time he has built up and managed, by means of some help, two apiaries, while being station-agent for a railroad, and written some most excellent and practical articles for the journals. In the Review he will tell how he produces extracted honey with eight-frame, Langstroth hives; and I will give a picture of his apiary—the neatest that I saw in Wisconsin.

Few men have had more experience in the production of extracted honey than has N. E. France of Platteville, Wisconsin. I have been figuring it up, and, as nearly as I can make it out, he has, in the past twenty years, produced at least 300,000 pounds of extracted honey. When I was at his place I was particularly struck by his practical, systematic, business-like methods; and he has promised to tell the readers of the Review about these methods before the opening of another season; and I have about half a dozen most excellent photographs with which to illustrate his articles.

One dollar will get the Review for 1900—and twelve back numbers will be sent free.





HARRY LATHROP,
Browntown, Wis.

W. Z. Hutchinson, Flint, Mich.



N. E. FRANCE,
Platteville, Wis.

BACK NUMBERS FREE!



Back numbers of the Review are different from those of newspapers and some journals. The information that they contain is just as valuable now as when first published. Each issue of the Review, especially if devoted to the discussion of some special topic, as is the case with all of the copies printed during the first five or six years of its existence, is really a little pamphlet containing the best thoughts and experience of the best men upon the topic under discussion. Some issues are now out of print; of others only a few remain; while of others there is still a good stock on hand. Instead of letting these back numbers lie on my shelves, gathering dust year after year, I think it better to use them in getting new subscribers, and inducing old ones to renew, and, at the same time, have them out doing good. I shall, therefore, as long as these back numbers hold out, send **12** of them free to each one who sends me \$1.00 for the Review for 1900, and who says that he cares for them. This offer includes renewals as well as new subscribers. The selection of these back numbers must be left with me; but I will see to it that no two are alike; and to old subscribers I will try and send such issues as they do not already possess. Before this offer is open to old subscribers, all arrearages must be paid up.

W. Z. HUTCHINSON, *Flint, Mich.*





FACTORY, APIARY AND HOME OF GUS. DITTMER.

Foundation.

(SHEETED BY A NEW PROCESS.)

In my Western trip last summer I visited no place that was sweeter, cleaner, or more wholesome, than the foundation factory Gus. Dittmer, at Augusta, Wis. The manufacture of foundation is a specialty to which Mr. Dittmer personally devotes his whole time. All of his wax is purified most thoroughly, yet no chemicals are employed. At the time of my visit he was experimenting with a new process for sheeting wax. It was not by dipping, neither was it similar to the Weed-process, but upon a plan the novelty of which is equaled only by its simplicity. In a letter recently received, Mr. Dittmer says that he now has this process in active operation, and that it is a perfect success—producing a clear, transparent, pliable foundation entirely free from the granulation that accompanies the dipping-plan. Not only is the foundation superior, but he is now able to accomplish nearly twice as much with the same amount of labor. Samples of this foundation and prices sent upon application. Besides making foundation, Mr. Dittmer carries a full line of supplies; and, from all I have seen, I am certain he is an honest man, and does all in his power to treat his customers fairly and to please them.—EDITOR REVIEW.



BEEES!

If you keep bees, subscribe for 'THE PROGRESSIVE BEE-KEEPER, a journal devoted to bees and honey. Fifty cents a year. Sample copy free. Also illustrated catalogue of bee-keepers' supplies.

Address LEAHY MFG. CO.,
Higginsville, Mo.; or at 1730
South 13th St., Omaha, Neb.;
or at 404 Broadway, East St.
Louis, Illinois.



HOUSE-APIARY, APIARY, AND RESIDENCE OF A. L. ROOT.

Experience, Enterprise, Capital, Reliability, and Fairness.

While on my way home from the Philadelphia convention, I stopped at Medina, Ohio, and visited the establishment of the A. I. Root Co.; and here are some comments upon what I saw:—

First, there is the apiary, with its vine-covered house-apiary, evergreen hedge, and hives shaded by grapevines. I took a view of it with my camera, from the roof of the factory, and show the picture upon the opposite page. In the background can be seen the home of A. I. Root and of his son-in-law, Mr. Boyden. This apiary was started at the same time that the manufacture of bee-keeping supplies was begun, and both have grown hand in hand. One man, Mr. Wardell,

is now kept constantly busy in caring for the apiary. The possession of this apiary plays no small part in the success of the A. I. Root Co. No new style of hive, frame, super, section, or foundation is adopted blindly, but is first put into actual practice in the apiary. Even foul brood was given a trial, and finally eliminated. Of course it was not introduced intentionally, but the published experience with it in this apiary has been of great value to the bee-keeping fraternity.

A visit to the press-room, the wax-room, the section-department, etc., impressed me with the enterprising spirit that seems to pervade the whole establishment. In a store-room I was shown the dies and other remains of the Weed-experimenting with full-depth cells. While this experiment was a failure, some others of Mr. Weed's were not. For instance, in the wax-room a cake of wax can be placed upon one end of a machine, and great rolls of sheet d wax taken from the other end. One of these rolls of sheeted wax, rolled up like a roll of ribbon such as we find in a store, can be placed in the end of another machine, and finished foundation, all trimmed, papered, and piled up true and square, ready for boxing, can be taken from the other end.

These machines are almost human in their capabilities. Before the wax is used it is thoroughly purified. All this insures great uniformity in the output of foundation. In the saw-room I saw the workmen cutting out all knots so that the hives would be all of clear lumber. All this waste goes through a machine called a "hog" that grinds it up so fine that the "blower" carries it to the furnace. The new water tube boiler requires so little fuel, that there is more than enough waste to keep up the necessary steam. Not only is there enterprise in the adoption of improved machinery and methods, but in the examination and adoption of new implements. This is even carried to the extent of visiting apiaries in different parts of the country to discover new things.

There was also plenty of evidence that this firm is possessed of sufficient capital to carry out this enterprising spirit, and this capital came from a business built up by dealing fairly with customers, by giving them the worth of their money, and treating them in such a manner that they returned year after year.

One very pleasant feature about this firm is that it is composed of a father, son, and two sons-in-law, all living near together, and pulling together in perfect harmony, like a well-trained four-horse team. —EDITOR REVIEW



Home of A. I. Root.



Home of E. R. Root.



Advanced Bee Culture

IS a book of nearly 100 pages (the size of the Review) that I wrote and published in 1891 ; and I will tell you how I gathered the information that it contains. For 15 years I was a practical bee-keeper, producing tons of both comb and extracted honey ; rearing and selling thousands of queens, reading all of the bee books and journals, attending conventions and fairs, visiting bee-keepers, etc., etc. Then I began publishing the Review, and, for several years, each issue was devoted to the discussion of some special topic ; the best bee-keepers of the country giving their views and experience. **ADVANCED BEE CULTURE** is really the summing up of these first few years of special topic numbers of the Review ; that is, from a most careful examination of the views of the most progressive men, and a thorough consideration of the same in the light of my experience as a bee-keeper, I have described in plain and simple language what I believe to be the most advanced methods of managing an apiary, for *profit*, from the beginning of the season through the entire year. The book is illustrated, nicely printed, and neatly bound in thick, heavy paper printed to resemble a sheet of queen-excluding zinc. Price of the book, 50 cts. ; the Review one year (and twelve back numbers) and the book for only \$1.25.

W, Z. Hutchinson, Flint, Mich.

48.50

JANUARY, 1899.



... .. \$1.00 per Year.

ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line. Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times, 10 per cent; 6 times, 20 per cent; 9 times, 30 per cent; 15 times, 40 per cent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the Review with—

Gleanings, New York	1,000	\$1.00	1.75
American Bee Journal, New York	1,000	1.00	1.75
Canadian Bee Journal	1,000	1.00	1.75
Progressive Bee Keeper	500	50	1.00
American Bee Keeper	500	50	1.00
The South American Bee Journal	1,000	1.00	1.75
Ohio Farmer	1,000	1.00	1.75
Farm Journal, Philadelphia	500	50	1.00
Farm & Poultry	1,000	1.00	1.75
Rural New York	1,000	1.00	1.75
Frank Leslie's Popular Monthly	1,000	1.00	1.75
The Century	4,000	4.00	5.50
Michigan Farmer	1,000	1.00	1.75
Prairie Farmer	1,000	1.00	1.75
American Agriculturist	1,000	1.00	1.75
Leaves' Home Journal	1,000	1.00	1.75
The Independent, New York	500	50	1.00
Ladies' Weekly	500	50	1.00
Country Gentleman	250	25	50
Harpers Magazine	500	50	1.00
Harpers Weekly	500	50	1.00
Youths' Companion (new)	500	50	1.00
Scribner's Magazine	3,000	3.00	3.50
Cosmopolitan	1,000	1.00	1.75
Success	1,000	1.00	1.75

It will be noticed that in order to secure these rates on Gleanings, American Bee Journal and the Youths' Companion, the subscribers to these Journals must be NEW. If it is any convenience, when sending in your renewal to the Review, to include your renewal to any of these Journals, you can do so, but the full price must be sent.

Names of Bee - Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States), and although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but by the use of a type writer, and by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, for lists in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Ark.	14	New Mex.	22
Calif.	226	Oregon	69
Conn.	38	Ohio	1,060
Del.	50	Penn.	645
Fla.	270	R. I.	37
Canada	1,770	S. Carolina	40
Ill.	196	Tenn.	112
Ind.	100	Tex.	225
Iowa	30	Vt.	40
Miss.	10	Virginia	160
Mo.	1,122	Wa.	12
Nebr.	272	W. Va.	118
N. H.	130	Wash.	39
N. J.	95	Wis.	432
N. York	50		

W. Z. HUTCHINSON, Flint, Mich.



Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has accepted a permanent position in Arizona, and wishes to dispose of his apiarian fixtures. He wrote to me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

- 1 Coil Wire.....60
- 61 Section Cases (Wide Frame and tin separators) at.....25
- 62 Covers at.....15
- 53 Bottom Boards at.....10
- 53 Honey Boards, Queen excluding at.....15
- 30 Escapes at.....25
- 59 Feeders (Haddon Excelsior) at.....25
- 30 Allys, Queen and Drone traps, at.....35

All of the above are in my possession and can be shipped promptly. The hives and cases are well-made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller particulars upon inquiry.

W. Z. HUTCHINSON, Flint, Mich.

BUY NORTHERN GROWN SEEDS

FARM SEEDS

Saler's Seeds are Warranted to Produce.

10 DOLLARS WORTH FOR 10c.

10 lbs. of our Farm seeds, Salt Bush, Rape for Sheep, and other seeds, Big Bone Outlets, Boneless Rape, and other seeds, including 75 bush of hay per acre, to be sent to you, including our four months Seed Catalogue, and the all about our Farm seeds, by a friend of yours upon receipt of but 10c. per lb. or 25c. per bush \$10.00 to get a start 100,000 lbs. Seed Potatoes.

at \$1.20 a cup a hhd.

50 lbs. ear of vegetables

at \$1.00

John A. Salzer Seed Co. Lagrosse Wis.

Please send this ad. to
 Catalogue, 5c.
 No 36

DADANT'S

Foundation

By the new *Weed Process* is made in the best manner, upon the best machines, and from the best wax, that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised. Smoers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,
Hamilton, Ills.

We make the finest line of

Bee-Keepers' Supplies

in the market, and sell them at *Low Prices*. Free Illustrated Catalogue and Price List.

G. B. Lewis Co.,
Watertown, Wis.

E. T. Abbott, St. Joseph, Mo., sells our hives and sections at factory prices.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield
Mfg. Co., Marshfield,
Wis.

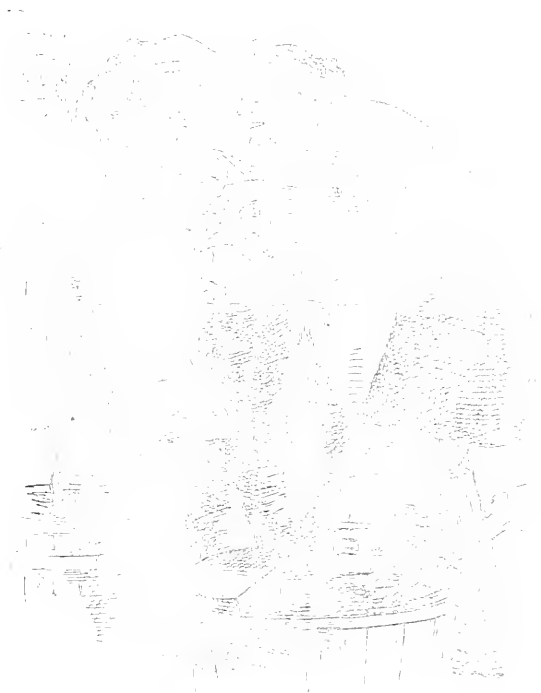
Our basswood lumber is as *white as snow*, our machinery *up to date*, and we can furnish the *finest*

One - Piece Sections

in the market. Price list and sample section free. Special prices on large quantities.

One-Piece SECTION
COMPANY.
Prairie du Chien, Wis.

Root Company's Page.



But don't you think *Managers* is a great deal better than the other? It is certainly the best of its kind in the country. It is published by the Root Company, and is the only one of its kind in the country. It is published by the Root Company, and is the only one of its kind in the country.

Managers is published by the Root Company, and is the only one of its kind in the country. It is published by the Root Company, and is the only one of its kind in the country.

Two Papers for the Price of One.

For the price of one paper, you can get two. You can get *Managers* and *The Orange Judd Farm Journal*, or *The Orange Judd Farm Journal* and *The Michigan Farmer*, or *The Michigan Farmer* and *The Practical Farmer*. These are the best of their kind, and are published by the Root Company.

Send for your copy today.
Send for your copy today.

The A. I. Root Co., Medina, Ohio.

ADVERS OF THE REVIEW:

We do not intend to come at you with our tongues, nor with our hands. But, as the Review has been on this page—
—we should like to want to

BLOW OUR OWN HORN.

In our own Journal, but in the other side of the page. We are not going to blow our own horn, but we will, incidentally, tell you what we think.

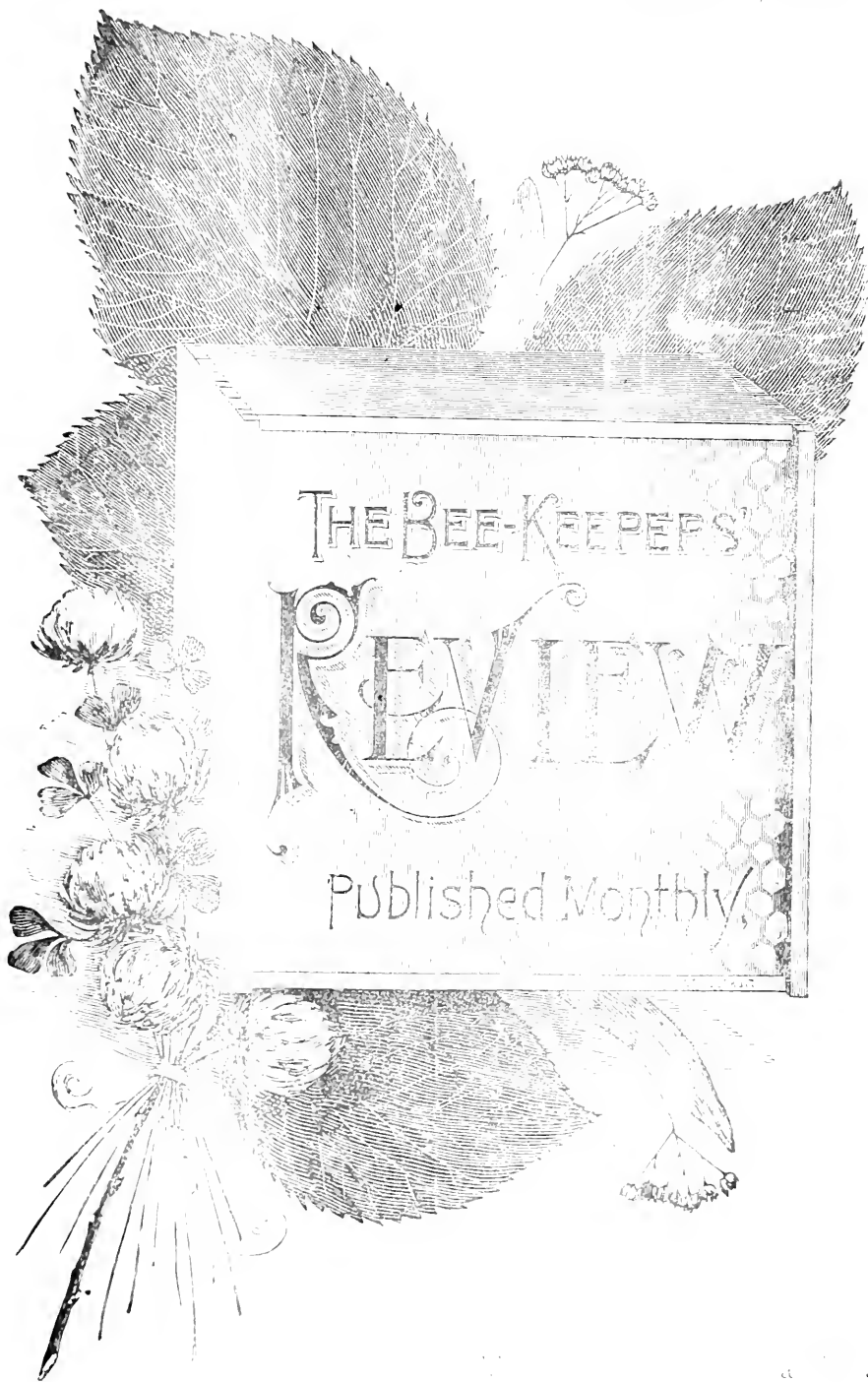
ADVANTAGES IN BEE CULTURE.

We know there are certain distinct advantages in taking a journal entirely separate from the manufacture of apian implements. For the Review is an example of this. It there are other advantages in the mode that is connected with the supply business. I have not space enough to mention them all; but I will mention just as soon as the Review is full of a good idea, and will be the very back of the Review. I know the public will be glad to know if it is a good idea. His patrons are benefited thereby.

It is a great advantage to have an hour of the day for the keeping of the Review. It has been published his day, and is a great advantage. It is a great advantage to have an hour of the day for the keeping of the Review. It has been published his day, and is a great advantage.

You can get a choice of any of the following papers for the price of one: *The Orange Judd Farm Journal*, monthly; *The Michigan Farmer*, weekly; *The Practical Farmer*, weekly. These are the best of their kind, and are published by the Root Company.

FEBRUARY, 1899.



DADANT'S

Foundation

By the new *Weed Process* is made in the best manner, upon the best machines, and from the best wax that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smoers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,
Hamilton, Ills.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield
Mfg. Co., *Marshfield,*
Wis.

We make the finest line of

Bee - Keepers' Supplies

in the market, and sell them at *Low Prices*. Free Illustrated Catalogue and Price List.

G. B. Lewis Co.,
Watertown, Wis.

E. T. Abbott, St. Joseph, Mo., sells our hives and sections at factory prices.

Our basswood lumber is as *white as snow*, our machinery *up to date*, and we can furnish the *finest*

One - Piece Sections

in the world. Price list and sample section free. Special prices on large quantities.

One-Piece SECTION
COMPANY.
Prairie du Chien, Wis.

MARCH, 1887.



THE BEE-KEEPERS'

REVIEW

Published Monthly.

DADANT'S

Foundation

By the new *Weed Process* is made in the best manner, upon the best machines, and from the best wax that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smoers, Tin Pails, Sections, and other supplies. Send for circular.

Dadant & Son,
Hamilton, Ills.

We make the finest line of

Bee-Keepers' Supplies

in the market, and sell them at *Low Prices*. Free Illustrated Catalogue and Price List.

G. B. Lewis Co.,
Watertown, Wis.

E. T. Abbott, St. Joseph, Mo., sells our hives and sections at factory prices.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield
Mfg. Co., Marshfield,
Wis.

Our basswood lumber is as *white as snow*, our machinery *up to date*, and we can furnish the *finest*

One - Piece Sections

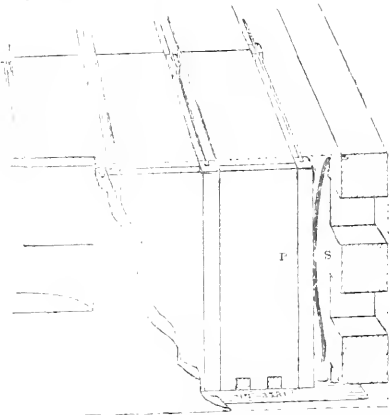
in the world. Price list and sample sections free. Special prices on large quantities.

One-Piece SECTION
COMPANY
Prairie du Chien, Wis.

Root Company's Page.

Springs Versus Thumbscrews and Wedges.

It seems to be generally admitted that a means for producing compression on sections when in the super is desirable, and some go so far as to say it is a necessity. If sections and separators are placed in supers loosely, it leaves little interstices or spaces that the bees fill with propolis. Various devices have been used to bring about the desired pressure. Some prefer and use thumbscrews; others, wedges; and still others, tightening-strips. Thumbscrews stick out in the way; and sometimes in damp weather become stuck fast in the holes. Wedges are very often propolized fast, making it difficult to remove them. The same objection applies to tightening-strips, although to a less extent. We now use two or three springs in our new supers, one at each end, and bearing against the fences, and one in the center. See S in the cut below.

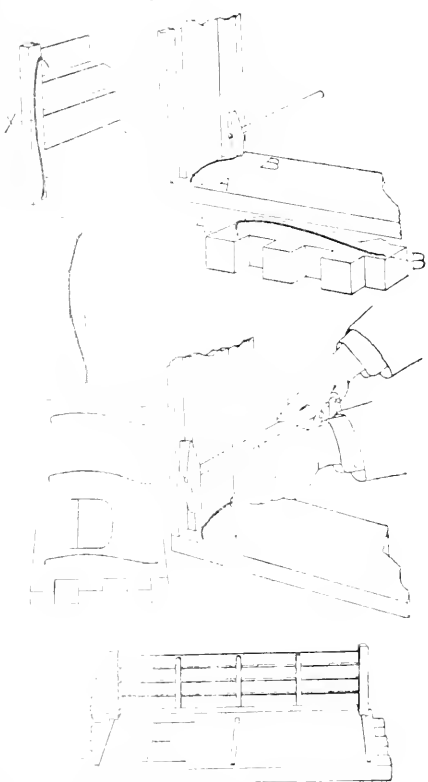


These springs produce a gentle, even pressure against the contents of the supers; and, no matter how much the weather changes, ceasing the stout to shrink or swell, those springs will adapt themselves to the condition, producing always a gentle yet firm pressure. After the sections are filled they can be easily taken out, owing to the fact that there is no excessive pressure, and propolis will be no show.

The manner of applying the spring compression to the supers is shown in the accompanying illustrations. A curved piece of steel wire, one end of which is bent at a right angle, and sharpened, this is driven into the wood at a point that will bear against the end cleat of the section which is in the super. After this is driven in, the other end is pounded down into the wood,

making a sort of groove for the end B to slide in. Three such springs are used in our regular super

two to come directly opposite the end-cleats of the fence and one opposite the center cleat as at D, showing super side detached from the opposite super side, and spaced in the same manner, are nailed three thin cleats, supplied with each package. These are to keep the outside fence a beespace from the super side, about the same distance as the springs do on the opposite side. We put in enough fences so that we have a fence between each outside row and super side. It costs a little more it is true; but it carries out in effect the better idea, or what he calls his divider, a method by which it is said the outside



faces of the outside rows of sections are well filled out as well as those in the central rows. Reports from beekeepers last season go to show that there is no need in this little scheme, and it cost me no more than a few dollars.

The A. I. Root Co., Medina, Ohio.

APRIL, 1913.



DADANT'S

Foundation

By the new *Weed Process* is made in the best manner, upon the best machines, and from the best wax, that is free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample, that will be sent upon application.

Langstroth on the Honey Bee, revised by Smeets, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,
Hamilton, Ills.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield
Mfg. Co., Marshfield,
Wis.

We make the finest line of

Bee-Keepers' Supplies

to be had. We sell them at *Low Prices*. For illustrated catalogue send for the List.

G. B. Lewis Co.,
Watertown, Wis.

E. T. Cresswell, St. Joseph, Mo. sells our supplies and sends catalogue free.

Without Stopping

the machine to reverse the combs is the way you can work with the Willis Automatic

Honey Extractor.

Such an extractor will save you time and money, and it does not cost much more than an ordinary machine. Send for descriptive literature.

We also have a large choice *Queens*, *Swarmers*, *Drone* and *Worker* bees, at 75 cents each, and *Queen* cages for 50 c.

Van Allen
& Williams,
Watertown, Wis.

Root Company's Page.

PLAIN SECTIONS AND FENCES. WHAT OTHERS THINK OF THEM.

Within the last few months we have received scores of unsolicited testimonials in praise of these new goods. We have not deemed it necessary to preserve all of these, but we herewith present a few that will speak for themselves. We have before claimed that plain sections will be better filled, and will consequently, bring better prices.

In proof of these statements, read what a large buyer of honey in Chicago says:

I find the honey stored in plain sections entered into the fancy grade in much larger proportion than that stored in the old-style sections.

EVARE, Mich., Oct. 14, 1898. B. WALKER.

And again, here is what a large commission house in Columbus, that knew nothing of plain sections, or what had been said in their favor, had to say:

There was one case marked "plain sections," about 12 lbs. net. This was a very fine case of honey, and brought 15 cts. We thought we had more of it, and showed it to some of our trade; and the result was, we took orders from every man who saw it, for two or three cases. Do you know where we can get some of this? Are all "plain sections" light weight—that is, less than a pound? We should like to get a lot of this kind, and can use anywhere from 100 to 1000 cases.

The Columbus Commission and Storage Co.,
Columbus, Ohio.

And, again, read what Hildreth Bros. & Segelken, one of the leading honey merchants of New York, says:

The TALL, WIDE, NEW PLAIN SECTION has come to stay; and the sooner our bee-keepers make themselves acquainted with this fact, the better for them.

Mr. J. E. Crane, of Middlebury, Vt., who has visited the markets of Washington, Albany, and New York, a conservative and careful bee-keeper, writes:

One dealer in Washington told me he would pay three cents per pound more for the 4 x 5 plain section honey than for the old-style sections. Indeed, I was offered two cents per pound more for 500 pounds of clover honey, to be delivered next fall, than I have been receiving of late for my best grade of honey, if put in plain 4 x 5 sections. In New York I inquired of Mr. Segelken for his plain-section honey, that I might compare it with that in old-style sections. He said he had very little left in plain sections, as such lots were picked up first by retail dealers who preferred them to the old-style sections. I found

the same true in Albany, N. Y., where I stopped to look over the honey. As these retail dealers are not in the supply business I thought their opinions worth recording.

As to what bee-keepers themselves think of them, whether the bees fill them any quicker than the old style, how they sell, and how they compare with old-style sections, the following will attest:

I will say that, while casing 400 cases about equally divided between the no-beeway and the old-style, we did not have enough crooked or broken honey for table use for two families. The past season in Western Colorado was a poor one to show up fairly any system for comb honey. But I could readily see that the bees would occupy the supers much sooner than with the old-style, especially if separators were used, and that the outside sections were, many times, finished first, which would reduce the unfinished-section business to the minimum. M. A. GILL.

Bohemia, Col., Feb. 6, 1899.

We received four or five well-filled cases of basswood honey in the new sections; and to say that they were nice would be putting it lightly. It was a great pleasure to open those crates of honey, and note the difference between them and the old-style section in regard to freedom from propolis and consequent ease of cleaning.

Essex, Mich., Jan. 7, 1899. J. A. WOOLL.

I had my plain sections in use with fences, and I must say that I am pleased with them, particularly the 4 x 5 sections. They were very nice, better than the old style, and made a great deal better show—so much so that they brought a better price, and they sell much quicker. I am so well pleased that I will use none but plain sections this season, and have sent my order for such. P. L. HUFFMAN.

Albany, N. Y.

The plain section is far ahead of the old beeway section, and I would not return to the plain separator or any money. Every customer to whom I sell honey remarks, "It is fine, the honey in the plain section does look fine." I have nothing but praise for my honey wherever I have offered it for sale this winter. W. H. FAGERTY.

Cherry Hill, Dec. 23, 1898.

We have no room for more testimonials on this page, but these are enough to show whether it will pay to produce comb honey in plain sections or not. The cost of fixtures may be a little more, but bear in mind the difference in market quotations, or at least in some markets.

We are the pioneers in the manufacture of these modern fixtures for plain sections. If you want to get them right, send to us or our branch offices and agents.

The A. I. Root Co., Medina, Ohio.

MAY, 1892



Volume 4

ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line. Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times, 10 per cent; 6 times, 20 per cent; 9 times, 30 per cent; 15 times, 40 per cent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the REVIEW with—

Gleanings, new ....	..... (\$1.00) ...	\$1.75
American Bee Journal... (new) (1.00) ...	.....	1.75
Canadian Bee Journal	(1.00) ...	1.75
Progressive Bee Keeper	(.50) ...	1.35
American Bee Keeper	(.50) ...	1.40
The Southland Queen	1.00 ...	1.75
Odo Farmer	(1.00) ...	1.75
Farm Journal (Phila.)	(.50) ...	1.10
Farm Poultry	(1.00) ...	1.75
Rural New Yorker	(1.00) ...	1.85
Frank Leslie's Popular Monthly	(3.00) ...	3.50
The Centist	(4.00) ...	4.50
Nicholson Farmer	(1.00) ...	1.65
Prairie Farmer	(1.00) ...	1.75
American Agriculturist	(1.00) ...	1.75
The Independent (New York)	(3.00) ...	3.50
Ladies' World	(.40) ...	1.25
Country Gentleman	(2.50) ...	3.15
Harper's Magazine	(4.00) ...	4.10
Harper's Weekly (new)	(4.00) ...	4.30
Yonkers Companion (new)	(1.75) ...	2.35
Scribner's Magazine	(3.00) ...	3.30
Cosmos (new)	(1.00) ...	1.30
Success	(1.00) ...	1.75

It will be noticed that in order to secure these rates on Gleanings, American Bee Journal and the Yonkers Companion, the subscribers to these Journals must be NEW. If it is any convenience, when sending in your renewal to the REVIEW, to include your renewal to any of these Journals, you can do so, but the full price must be sent.

Names of Bee-Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for single copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States), and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Arizona	Ky ...	182	New Mex. ...	22
Ark.	Kans.	356	Oregon ...	101
Calif.	La.	37	Ohio ...	1,120
Conn.	Mo.	500	Penn. ...	645
Canada 840	Mich.	1,750	R. I. ...	37
Del.	Miss.	196	S. Car. ...	40
Dak.	Mont.	94	Tenn. ...	478
Fla.	N. Y.	1,222	Tex. ...	378
Ill.	Neb.	345	Utah ...	76
Iowa ...	N. J.	180	Vt. ...	160
	N. H.	136	Wa. ...	182
	N. C.	60	W. Va. ...	172
			Wash. ...	128
			Wis. ...	500

W. Z. HUTCHINSON, Flint, Mich.



Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has accepted a permanent position in Arizona, and wishes to dispose of his apiarian fixtures. He wrote me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

1 Coll. Wire	.....	60
61 Section Cases (Wide Frame and tin sep- arators)	.....	25
68 Covers	.....	15
53 Bottom Boards at	.....	10
52 Honey Boards, Queen excluding at	.....	15
29 Escapes	.....	15
50 Feeders (Haddon Excelsior) at	.....	25
30 Alleg. Queen and Drone traps, at	.....	35

All of the above are in my possession and can be shipped promptly. The hives and cases are well made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of his lot can learn fuller particulars upon inquiry.

W. Z. HUTCHINSON, Flint, Mich.

FOR 14 CENTS

We wish to gain this year 200,000 new customers, and hence offer 1 Pkg. 13 Day Raisins, 1 Pkg. Early Riping Cabbage, 1 Pkg. Earliest Red Beet, 1 Pkg. Long Lightening Cucumber, 1 Pkg. Salzer's Best Lettuce, 1 Pkg. California Egg Tomato, 1 Pkg. Early Danner Onion, 1 Pkg. Brilliant Flower Seeds, all worth \$1.00, for 14 cents.

Worth \$1.00, for 14 cents. If you will send your 14c. together with our year Plant and Seed Catalogue you receive of this notice a 14c. gift. We invite your trade and let us know when you order by Salzer's seeds you will never go along with any one. Onion Seed 65c., and 100 lbs. Potatoes at \$1.20. See our 1891 Catalogue No. 56.

SALZER SEED CO., LA CROSSE, WIS.

W. Z. HUTCHINSON, Flint, Mich.

DADANT'S

Foundation

By the new *Weed Process* is made in the best manner, upon the best machines, and from the best wax, that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.

We make the finest line of

Bee-Keepers' Supplies

in the market. We sell them at *Low Prices*. Free Illustrated Catalog and Price List.

G. B. Lewis Co.,

Watertown, Wis.

E. T. Allen, St. Joseph, Mo., sells our hives and sections at factory prices.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield

Mfg. Co., Marshfield, Wis.

Without Stopping

the machine to reverse the combs is the way you can work with the Williams Automatic

Honey Extractor.

Such an extractor will save you time and annoyance, and it does not cost much more than an ordinary machine. Send for descriptive price list.

We also have choice *Queens*, *Italian Golden*, or *California* or *Balkan*, at 75 cents each, or \$1.00 for \$1.10.

Van Allen

& Williams,

Waukesha, Wis.

Entirely Up With Orders.

Our extensive enlargements last fall, costing in the aggregate some \$15,000, enables us to keep pace with our increasing trade. Send in your orders, and they will be promptly executed, either from the main office or branches and agencies. Give us a trial, and see how quickly we can make shipment. *Save Freight* by buying at the nearest branch or agency.

Branch Offices.

The A. I. Root Co., 118 Mich. St., Chicago, Ill. Geo. W. York, Manager
The A. I. Root Co. Co., 1921 Miss. St., St. Paul, Minn. H. G. Acklin, Manager
The A. I. Root Co., 1635 West Genesee St., Syracuse, N. Y. E. A. Salisbury
The A. I. Root Co., Mechem Falls, Me. J. B. Mason, Manager.
The A. I. Root Co., 10 Vine St., Philadelphia, Pa. W. A. Selser, Manager

Agencies.

A. F. McAdams, Columbus Grove, Ohio.
C. H. W. Weber, 2149 Central Ave., Cincinnati, Ohio.
Prothero & Arnold, Du Bois, Clearfield Co., Pa.
Cleaver & Greene, Troy, Pa.
W. W. Cary, Lyonsville, Mass.
M. H. Hunt & Son, Bell Branch, Wayne Co., Mich.
Geo. E. Hilton, Fremont, Newago Co., Mich.
Walter S. Ponder, 512 Massachusetts Avenue, Indianapolis, Ind.
Vickery Bros., Evansville, Ind.
Joseph Nyscwander, 912 West Grand Avenue, Des Moines, Iowa
John Nebel & Son, High Hill, Montgomery Co., Mo.
O. P. Hyle & Son, Hutto, Texas.
The L. A. Watkins Mfg. Co., Denver, Col.
The Abbay-Hardy Co., Grand Junction, Col.
T. H. Back, 235 West Third North St., Salt Lake City, Utah
Dud E. Lamberson, 180 Front St., Portland, Oregon.
The Beehive and Box Co., Los Angeles, Cal.
W. R. Madary, Fresno, Cal.

The A. I. Root Co.,
Main Office and Works—Medina, O.

June, 1920



THE BEE-KEEPERS'

REVIEW

Published Monthly

ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion; 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 4 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 8 times, 10 per cent; 6 times, 20 per cent; 4 times, 30 per cent; 15 times, 40 per cent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 8 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the REVIEW with—

Gleanings (new)	(\$1.00)	\$.75
American Bee Journal (new)	1.00	1.75
Canadian Bee Journal	1.00	1.75
Progressive Bee Keeper	1.50	1.15
American Bee Journal	1.50	1.15
The Standard	1.00	1.75
Ohio	1.00	1.75
Farm	1.50	1.10
Farm	1.00	1.75
Home	1.00	1.15
Erk	4.00	3.9
The	4.00	3.7
Michigan	1.00	1.75
Penn	1.00	1.75
American	1.50	1.77
The	3.00	3.50
.....	1.00	1.25
.....	2.50	3.15
.....	1.00	1.25
.....	1.00	1.25
.....	1.50	1.75
.....	2.00	2.75
.....	2.00	2.75
.....	1.00	1.75
.....	1.00	1.75
.....	1.00	1.75

It will be found that in order to secure a copy of the REVIEW, Arizona, Iowa, Kansas, Nebraska, New York, and Ohio subscribers should send \$1.00, New England subscribers \$1.50, and all other subscribers \$2.00. If you can afford to send \$3.00 in your renewal of the REVIEW, we will give you a copy of any of these books free of charge, but the publisher must be notified.

THE REVIEW, PUBLISHED BY W. Z. HUTCHINSON, FLINT, MICH.

The Bee-keeper

THE REVIEW, PUBLISHED BY W. Z. HUTCHINSON, FLINT, MICH.

THE REVIEW, PUBLISHED BY W. Z. HUTCHINSON, FLINT, MICH.

THE REVIEW, PUBLISHED BY W. Z. HUTCHINSON, FLINT, MICH.

THE REVIEW, PUBLISHED BY W. Z. HUTCHINSON, FLINT, MICH.

THE REVIEW, PUBLISHED BY W. Z. HUTCHINSON, FLINT, MICH.

THE REVIEW, PUBLISHED BY W. Z. HUTCHINSON, FLINT, MICH.

Names of Bee-Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States) and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but I now employ a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Arizona	By	182	N. C.	80
Ark.	Kans.	350	New Mex.	20
Calif.	Ill.	305	Oregon	10
Conn.	Ind.	500	Ohio	1,120
Del.	Mich.	1,750	Penn.	645
Fla.	Mo.	275	R. I.	48
Iowa	Mass.	275	S. C.	40
Kans.	Nebr.	350	Tenn.	170
La.	N. Y.	352	Tex.	278
Maine	Pa.	70	Utah	50
Maryland	Vt.	60	Va.	182
Mass.	W. Va.	172	Wash.	128
Mich.	Wis.	500		
Minn.				
Miss.				
Mo.				
Nebr.				
N. Y.				
Pa.				
R. I.				
S. C.				
Tenn.				
Tex.				
Utah				
Vt.				
Va.				
W. Va.				
Wash.				
Wis.				

W. Z. HUTCHINSON, Flint, Mich.



Supplies Cheap.

Mr. L. ... formerly of Bracksville, Ohio, had been in my position in Arizona, and was in possession of his apiarian fixtures. He was about to sell them, and I told him if he would let them be shipped to me I would sell them at a low commission. Here is a list of the articles and the price at which they are offered.

1 doz. Wide Frame	.....	60
1 doz. Wide Frame and tin sep.	.....	25
1 doz. Wide Frame and tin sep.	.....	35
1 doz. Wide Frame and tin sep.	.....	35
1 doz. Wide Frame and tin sep.	.....	35
1 doz. Wide Frame and tin sep.	.....	35
1 doz. Wide Frame and tin sep.	.....	35
1 doz. Wide Frame and tin sep.	.....	35
1 doz. Wide Frame and tin sep.	.....	35
1 doz. Wide Frame and tin sep.	.....	35

All of these are in my possession and can be shipped rapidly. The hives and cases are well made, nicely painted, and having been in use for one or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller particulars from my entry.

W. Z. HUTCHINSON, Flint, Mich.

DADANT'S

Foundation

By the new *Weed Process* is made in the best manner, upon the best machines, and from the best wax, that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield

Mfg. Co., Marshfield,
Wis.

We make the finest line of

Bee-Keepers' Supplies

in the market, and sell them at *Low Prices*. Free Illustrated Catalogue and Price List.

G. B. Lewis Co.,

Watertown, Wis.

E. T. AMERSON, St. Joseph, Mo., sells our hives and sections at factory prices.

Without Stopping

the machine to reverse the combs is the way you can work with the Williams Automatic

Honey Extractor.

Such an extractor will save you time and money and it does not cost much more than an ordinary machine. Send for descriptive price list.

We can also furnish choice *Queens*, either golden or leather colored, at \$1.00, at 75 cents each, or \$2.00 for \$1.00.

Van Allen

& Williams,

69-71, W. 1st St., Wausau, Wis.



Entirely Up With Orders.

Our extensive enlargements last fall, costing in the aggregate some \$15,000, enables us to keep pace with our increasing trade. Send in your orders, and they will be promptly executed, either from the main office or branches and agencies. Give us a trial, and see how quickly we can make shipment. *Save Freight* by buying at the nearest branch or agency.

Branch Offices.

The A. I. Root Co., 118 Mich. St., Chicago, Ill. Geo. W. York, Manager
The A. I. Root Co. Co., 1921 Miss. St., St. Paul, Minn. H. G. Aeklin, Manager
The A. I. Root Co., 1935 West Genesee St., Syracuse, N. Y. E. A. Salisbury
The A. I. Root Co., Mechanic Falls, Me. J. B. Mason, Manager
The A. I. Root Co., 10 Vine St., Philadelphia, Pa. W. A. Jelsner, Manager

Agencies.

A. F. McAdams, Columbus Grove, Ohio.
C. H. W. Weber, 216 Central Ave., Cincinnati, Ohio.
Prothero & Arnold, Du Bois, Clearfield Co., Pa.
Cleaver & Greene, Troy, Pa.
W. W. Cary, Lyonsville, Mass.
M. H. Hunt & Son, Bell Branch, Wayne Co., Mich.
Geo. E. Hilton, Fremont, Newago Co., Mich.
Walter S. Ponder, 512 Massachusetts Avenue, Indianapolis, Ind.
Vickery Bros., Evansville, Ind.
Joseph Nysewander, 612 West Grand Avenue, Des Moines, Iowa.
John Nebel & Son, High Hill, Montgomery Co., Mo.
O. P. Hyde & Son, Hutto, Texas.
The I. A. Watkins Mlsc. Co., Denver, Col.
The Abbey Hardy Co., Grand Junction, Col.
J. H. Beck, 235 West Third North St., Salt Lake City, Utah.
Buell Lumberman, 180 Front St., Portland, Oregon.
Union Hive and Box Co., Los Angeles, Cal.
M. K. Madary, Fresno, Cal.

The A. I. Root Co.,

Main Office and Works—Medina, O.



THE BEEHIVE

B

PUBLISHED

ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times, 10 per cent; 6 times, 20 per cent; 9 times, 30 per cent; 15 times, 40 per cent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the REVIEW with—

Gleanings, (new).....	(\$1.00)....	\$1.75
American Bee Journal.....(new)	(1.00)....	1.75
Canadian Bee Journal.....	(1.00)....	1.75
Progressive Bee Keeper.....	(.50)....	1.35
American Bee Keeper.....	(.50)....	1.30
The Southland Queen.....	(1.00)....	1.75
Odo Farmer.....	(1.00)....	1.75
Farm Journal (Phila.).....	(.50)....	1.10
Farm Poultry.....	(1.00)....	1.75
Rural New Yorker.....	(1.00)....	1.85
Frank Leslie's Popular Monthly.....	(3.00)....	3.50
The Century.....	(4.00)....	4.50
Michigan Farmer.....	(1.00)....	1.65
Prairie Farmer.....	(1.00)....	1.75
American Agriculturist.....	(1.00)....	1.75
The Independent (New York).....	(3.00)....	3.50
Ladies' World.....	(.40)....	1.25
Country Gentleman.....	(2.50)....	3.15
Harper's Magazine.....	(4.00)....	4.10
Harper's Weekly.....	(4.00)....	4.20
Youth's Companion (new).....	(.75)....	2.35
Scribner's Magazine.....	(3.00)....	3.50
Cosmo-Politan.....	(1.00)....	1.50
Success.....	(1.00)....	1.75

It will be noticed that in order to secure these rates on Gleanings, American Bee Journal and the Youth's Companion, the subscribers to these Journals must be NEW. If it is any convenience, when sending in your renewal to the Review, to include your renewal to any of these Journals, you can do so, but the full price must be sent.

W. Z. HUTCHINSON, Prop. F. L. THOMPSON, Ed.

The Western Bee-Keeper

is exclusively devoted to apiculture in the



of all the best bee-keepers; also gives the latest news about the other bee-papers and their rates, at 5 cents a year.

Send for Sample house connections, and for the BOTH SIDES of issues, to W. Z. HUTCHINSON, Fifteenth St., Denver, Colorado.

Subscription to the Review

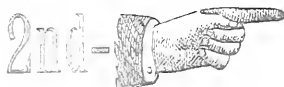
Names of Bee-Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States) and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Arizona.....	Ky.....	182	N. C.....	60
Ark.....	Kans.....	350	New Mex.....	26
Ala.....	La.....	35	Oregon.....	104
Calif.....	Mo.....	500	Ohio.....	1120
Conn.....	Minn.....	334	Penn.....	645
Canada 896	Mich.....	1,779	R. I.....	48
Conn.....	Mass.....	275	S. C.....	40
Dak.....	Md.....	64	Tenn.....	176
Del.....	Maine.....	260	Tex.....	270
Fla.....	Miss.....	70	Utah.....	68
Ga.....	N. Y.....	1,322	Vt.....	160
Ind.....	Neb.....	345	Va.....	182
Ills.....	N. J.....	180	W. Va.....	472
Iowa.....	N. H.....	126	Wash.....	128
			Wis.....	500

W. Z. HUTCHINSON, Flint, Mich.



Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has accepted a permanent position in Arizona, and wishes to dispose of his apiarian fixtures. He wrote to me about it, and I told him if he would have them shipped to me, I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

1 Col. Case.....	.....60
61 Standard Cases (Wide Frame and tin separators) at.....	25
68 Covers at.....	15
53 Bottom Boards at.....	10
53 Honey Boards, Queen excluding at.....	15
20 Escapes at.....	15
50 Feathers (Heddon Excelsior) at.....	25
30 Alloy Queen and Drone traps. at.....	35

All of the above are in my possession and can be shipped promptly. The hives and cases are well-made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller particulars upon inquiry.

W. Z. HUTCHINSON, Flint, Mich.

DADANT'S

Foundation

By the new *Weed Process* is made in the best manner, upon the best machines, and from the best wax that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, nucleus, Smokers, Tin Pails, Sections, and other supplies. Send for circular.

Dadant & Son,
Hamilton, Ills.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield
Mfg. Co., *Marshfield,*
Wis.

We make the finest line of

Bee-Keepers' Supplies

in the market, and sell them at *Low Prices*. Free Illustrated Catalogue and Price List.

G. B. Lewis Co.,
Watertown, Wis.

F. T. Miller, St. Joseph, Mo., sells our hives and sections at factory prices.

Without Stopping

the machine to reverse the comb's is that you can work with the Williams Automatic

Honey Extractor.

Such an extractor will save you the cost of a new one, and it does not cost any more than an ordinary one. Send for descriptive list.

We also furnish choice *Queens*, either golden or black, and Italian, at 75 cents each, or \$1.00 for \$1.00.

Van Dusen
Williams,
BANKERS, WIS.

Entirely Up With Orders.

Our extensive enlargements last fall, costing in the aggregate some \$15,000, enables us to keep pace with our increasing trade. Send in your orders, and they will be promptly executed, either from the main office or branches and agencies. Give us a trial, and see how quickly we can make shipment. *Save Freight* by buying at the nearest branch or agency.

Branch Offices.

The A. I. Root Co., 115 Mich. St., Chicago, Ill. Geo. W. York, Manager
 The A. I. Root Co. Co., 109, MISS. ST., St. Paul, Minn. T. G. Acklin, Manager
 The A. I. Root Co., 275 Adams, Concord, St. Johnsbury, N. H. E. A. Salisbury
 The A. I. Root Co., Mechanic Falls, Me. J. B. Mansfield, Manager.
 The A. I. Root Co., 1 Vine St., Philadelphia, Pa. W. J. Selzer, Manager

Agencies.

W. J. McAdams, Columbus Grove, Ohio.
 Geo. W. Weber, 214 Central Ave., Cincinnati, Ohio.
 J. H. Brock, Arnold, Du Bois, Clarkfield Co., Pa.
 Geo. W. S. Greene, Troy, Pa.
 J. W. May, Lyonsville, Mass.
 J. W. Hill & Son, Bell Branch, Wayne Co., Mich.
 Geo. T. Hillon, Fremont, Newargo Co., Mich.
 Geo. S. Swander, 212 Massachusetts Avenue, Indianapolis, Ind.
 Geo. W. Bros., Evansville, Ind.
 Geo. W. Swander, 101 West Grand Avenue, Des Moines, Iowa.
 Geo. W. Hill & Son, High Hill, Montgomery Co., Md.
 Geo. W. Hill & Son, Hutto, Tex.
 Geo. W. Hill & Son, Dallas, Tex.
 Geo. W. Hill & Son, Denver, Col.
 Geo. W. Hill & Son, Central Hamilton, Cal.
 Geo. W. Hill & Son, West Third North St., Salt Lake City, Utah.
 Geo. W. Hill & Son, 111 Front St., Portland, Oreg.
 Geo. W. Hill & Son, Los Angeles, Cal.
 Geo. W. Hill & Son, Fresno, Cal.

The A. I. Root Co.,

Main Office and Works—Medina, O.

AUGUST, 1899



Published Monthly

ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times, 10 per cent; 6 times, 20 per cent; 9 times, 30 per cent; 15 times, 40 per cent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the REVIEW with—

Gleanings, (new).....	(\$1.00).....	\$1.75
American Bee Journal... (new)	(1.00).....	1.75
Canadian Bee Journal.....	(1.00).....	1.75
Progressive Bee Keeper.....	(.50).....	1.35
American Bee Keeper.....	(.50).....	1.19
The Southland Queen.....	(1.00).....	1.75
Ohio Farmer.....	(1.00).....	1.75
Farm Journal (Phila.).....	(.50).....	1.19
Farm Poultry.....	(1.00).....	1.75
Rural New Yorker.....	(1.00).....	1.85
Frank Leslie's Popular Monthly	(3.00).....	3.50
The Century.....	(4.00).....	4.50
Michigan Farmer.....	(1.00).....	1.67
Prairie Farmer.....	(1.00).....	1.75
American Agriculturist.....	(1.00).....	1.75
The Independent (New York).....	(3.00).....	3.50
Ladies' World.....	(4.00).....	4.35
Country Gentleman.....	(2.50).....	3.75
Harper's Magazine.....	(4.00).....	4.50
Harper's Weekly.....	(4.00).....	5.20
Youth's Companion (new).....	(1.75).....	2.35
Scribner's Magazine.....	(3.00).....	3.50
Cosmopolitan.....	(1.00).....	1.39
Success,.....	(1.00).....	1.75

It will be noticed that in order to secure these rates on Gleanings, American Bee Journal and the Youth's Companion, the subscribers to these Journals must be NEW. If it is any convenience, when sending in your renewal to the Review, to include your renewal to any of these Journals, you can do so, but the full price must be sent.

L. W. BAILY, Pub.

F. L. THOMPSON, Pr.

The Western Bee-Keeper

is exclusively devoted to apiculture in the

LEAFLEA REGIONS
AND TO
ASSOCIATION WORK

of all kinds among bee-keepers; also gives the main points of what the other bee papers are saying. Monthly, so cents a year.

It is supplied to house connections.

Seeks to present BOTH SIDES of issues.

1515 Fifteenth St., Denver, Colorado.

Please mention the Review

Names of Bee-Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States), and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to bee-keepers or others at 25.00 per thousand names. The former price was 75.00 per 1000, but I now print a type written name by using the modified process. I can furnish you at \$2.00 a name if you wish for a list of the names of bee-keepers in any State, county, or possibly in the adjoining States, and also names of all the bees raised in the States and the names of the bees in each State.

Alaska.....	Ke.....	N. C.....	30
Ark.....	Kan.....	New Mex.....	10
Cal.....	Lau.....	Oregon.....	100
Col.....	Mich.....	Okla.....	10
Conn.....	Miss.....	Penn.....	645
Del.....	Mich.....	R. I.....	48
Fla.....	Mass.....	S. C.....	40
Ill.....	Mo.....	Tenn.....	170
Ind.....	Mo.....	Texas.....	70
Iowa.....	Miss.....	Va.....	10
Kent.....	Miss.....	W. Va.....	10
La.....	N. York.....	Wis.....	10
Maine.....	Neb.....	Wash.....	10
Maryland.....	N. J.....	Wis.....	10
Mass.....	N. J.....	Wis.....	10

W. L. FULTON, N. Hill, Mich.

For Sale Cheap.

For sale in good condition in small quantities with ten covers. Gives new this season's news, bottom of the ball store and super. Each hive priced only \$2.50, cash. Will also sell the honey. Reason for sale is poor health. R. L. Boss.

Box 10, Caro, Mich.
R. L. Boss.



A Warranted
Italian Queen
Free to a New
Subscriber!

We will send the weekly American Bee Journal to you in a Warranted Italian Queen on Bee-keeping, and other things, if you send us \$2.00. This is the regular subscription price of the Bee Journal. Send us a sample copy if you wish to see it before you send. You'll simply miss it if you don't. We'll send this offer of the queen and journal to you for 10 days. Write to W. A. & Co., 111 Michigan St., Chicago, Ill.

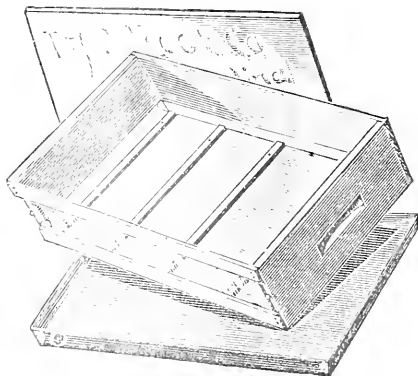
Root Company's Page.



HONEY-PACKAGES.

If you have a crop of honey you will want packages in which to put it on the market. For comb-honey you will be interested in our

NO-DRIP SHIPPING-CASES



Inch we are prepared to furnish in various styles and sizes as listed in our catalog. They are packed in lots of 50 in carrying crates suitable for shipping your honey in after it is put in cases.

For extracted honey you will want, for storing and shipping to market,

FIVE-GALLON SQUARE CANS

two in case. We provided ourselves with two earlier sizes of these before the advance in tin plate, so that while they last, we can still sell at the old price of 10 boxes, \$10.00.

For bottling up honey for retail we have a variety of packages in tin and glass, listed in our catalog. Of most of these we are also provided with a large stock.

NO. 25 GLASS JARS.

This is a very popular jar for one pound of honey. It has porcelain top with rubber ring

and tin screw band. We have them put up one gross in a barrel at \$5.50; or two dozen in a partitioned case, ready for re-shipping when filled with honey, at \$1.15 per box, or \$6.50 for six boxes.

BALL'S BEST MASON JARS

WITH ALUMINUM CAPS.

We have a carload of these which we offer for July shipment at the following special prices, put up one dozen in a box:

	PER DOZ.	SIX DOZ.	GROSS
Pint Mason Jars	45¢	\$2.50	\$4.75
Quart Mason Jars	48¢	2.75	5.00
2 quart Mason Jars	60¢	3.40	6.50

TIN-TOP TUMBLERS.

We have two sizes of these, 1, pint, or 16 oz., No. 78, packed 21 doz. (252) in a barrel, at \$5.00 per barrel, or 1, quart, 16 oz., No. 79, packed 107 doz. (1284) in a barrel, at \$5.00 per barrel, 200 of each size nested in a barrel for \$8.70.

GLEANINGS AT REDUCED RATES.

We do not need to tell about our journal, for it will speak for itself; but as an extra inducement we make the following low offers:

OFFER NO. A.

For 2 cents we will send GLEANINGS from the time your subscription is received till Jan. 1, 1900. If you send in your order promptly you will get 3 months for only 25 cents.

OFFER NO. B.

For 10 cents we will send an untested Italian queen worth 25 cents, and GLEANINGS one year.

OFFER NO. C.

For 10 cents we will send GLEANINGS the rest of this year, and all of next year; that is, from the time your subscription is received till Jan. 1, 1900. The sooner you take advantage of this offer, the more numbers you receive.

The A. I. Root Co., Medina, O.



THE BEE-KEEPERS'

REVIEW

PUBLISHED Monthly.

ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times, 10 per cent; 6 times, 20 per cent; 9 times, 30 per cent; 15 times, 40 per cent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the REVIEW with—

Gleanings, (new).....	(\$1.00).....	\$1.75
American Bee Journal.... (new)	(1.00).....	1.75
Canadian Bee Journal.....	(1.00).....	1.75
Progressive Bee Keeper.....	(.50).....	1.35
American Bee Keeper.....	(.50).....	1.40
The Southland Queen.....	(1.00).....	1.75
Ohio Farmer.....	(1.00).....	1.75
Farm Journal (Phila.).....	(.50).....	1.10
Farm Poultry.....	(1.00).....	1.75
Rural New Yorker.....	(1.00).....	1.85
Frank Leslie's Popular Monthly.	(3.00).....	3.50
The Century.....	(4.00).....	4.50
Michigan Farmer.....	(1.00).....	1.85
Prairie Farmer.....	(1.00).....	1.75
American Agriculturist.....	(1.00).....	1.75
The Independent (New York).....	(3.00).....	3.50
Ladies' World.....	(40).....	1.25
Country Gentleman.....	(2.50).....	3.15
Harper's Magazine.....	(4.00).....	4.10
Harper's Weekly.....	(4.00).....	4.20
Youths' Companion (new).....	(.75).....	2.35
Scribner's Magazine.....	(3.00).....	3.50
Cosmopolitan.....	(1.00).....	1.90
Success.....	(1.00).....	1.75

It will be noticed that in order to secure these rates on Gleanings, American Bee Journal and the Youths' Companion, the subscribers to these Journals must be NEW. If it is any convenience, when sending in your renewal to the Review, to include your renewal to any of these Journals, you can do so, but the full price must be sent.

J. W. BAILEY, Pub. F. L. THOMPSON, Ed.

The Western Bee-Keeper

is exclusively devoted to apiculture in the

ALFALFA REGIONS
AND TO
ASSOCIATION WORK

of all kinds among bee-keepers; also gives the main points of what the other bee-papers are saying Monthly, 50 cents a year.

Send No Supply house connections. Seeks to present BOTH SIDES of issues. 231 Fifteenth St., Denver, Colorado

Please mention the Review

Names of Bee-Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States) and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Arizona 47	Ky..... 182	N. C. 60
Ark..... 130	Kans.. 350	New Mex.... 26
Ala..... 80	La..... 38	Oregon..... 104
Calif. 378	Mo..... 500	Ohio..... 1,120
Colo. 228	Minn.. 334	Penn..... 645
Canada 346	Mich.. 1,770	R. I..... 48
Conn. 312	Mass.. 275	S. C..... 40
Dak..... 35	Md..... 94	Tenn..... 176
Del..... 18	Maine, 200	Tex..... 270
Fla..... 100	Miss.. 70	Utah..... 68
Ga..... 92	N. Y., 1,322	Vt..... 180
Ind..... 234	Neb... 345	Va..... 182
Ills... 300	N. J... 130	W. Va..... 172
Iowa 300	N. H... 126	Wash..... 128
		Wis..... 500

W. Z. HUTCHINSON, Flint, Mich.



Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has accepted a permanent position in Arizona, and wishes to dispose of his apianian fixtures. He wrote to me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

1 Coil Wire.....	60
61 Section Cases (Wide Frame and tin separators) at	25
68 Covers at	15
53 Bottom Boards at	10
53 Honey Boards, Queen excluding at	15
30 Escapes at	15
50 Feeders (Heddon Excelsior) at.....	25
30 Alley, Queen and Drone traps, at	35

All of the above are in my possession and can be shipped promptly. The hives and cases are well-made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller particulars upon inquiry.

W. Z. HUTCHINSON, Flint, Mich.

DADANT'S

Foundation

By the new *Weed Process* is made in the best manner, upon the best machines, and from the best wax—that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield

Mfg. Co., *Marshfield,*
Wis.

We make the finest line of

Bee - Keepers' Supplies

in the market, and sell them at *Low Prices*. Free Illustrated Catalogue and Price List.

G. B. Lewis Co.,

Watertown, Wis.

E. T. Abbott, St. Joseph, Mo., sells our hives and sections at factory prices.

Keep this before you,
We pay *cash* for

HONEY.

We want honey; and ask correspondence from those having it to sell. State quantity, quality and style of package. We are dealers in green fruit and dried fruit and all kinds of produce.

S. T. FISH & CO.,

Established 23 years.

189 South Water St.,

CHICAGO.

Reference: First National Bank, Chicago. Your banker can show you our rating.

A decorative border of repeating floral motifs, resembling stylized leaves or flowers, surrounds the text on all four sides.

All Prices Withdrawn

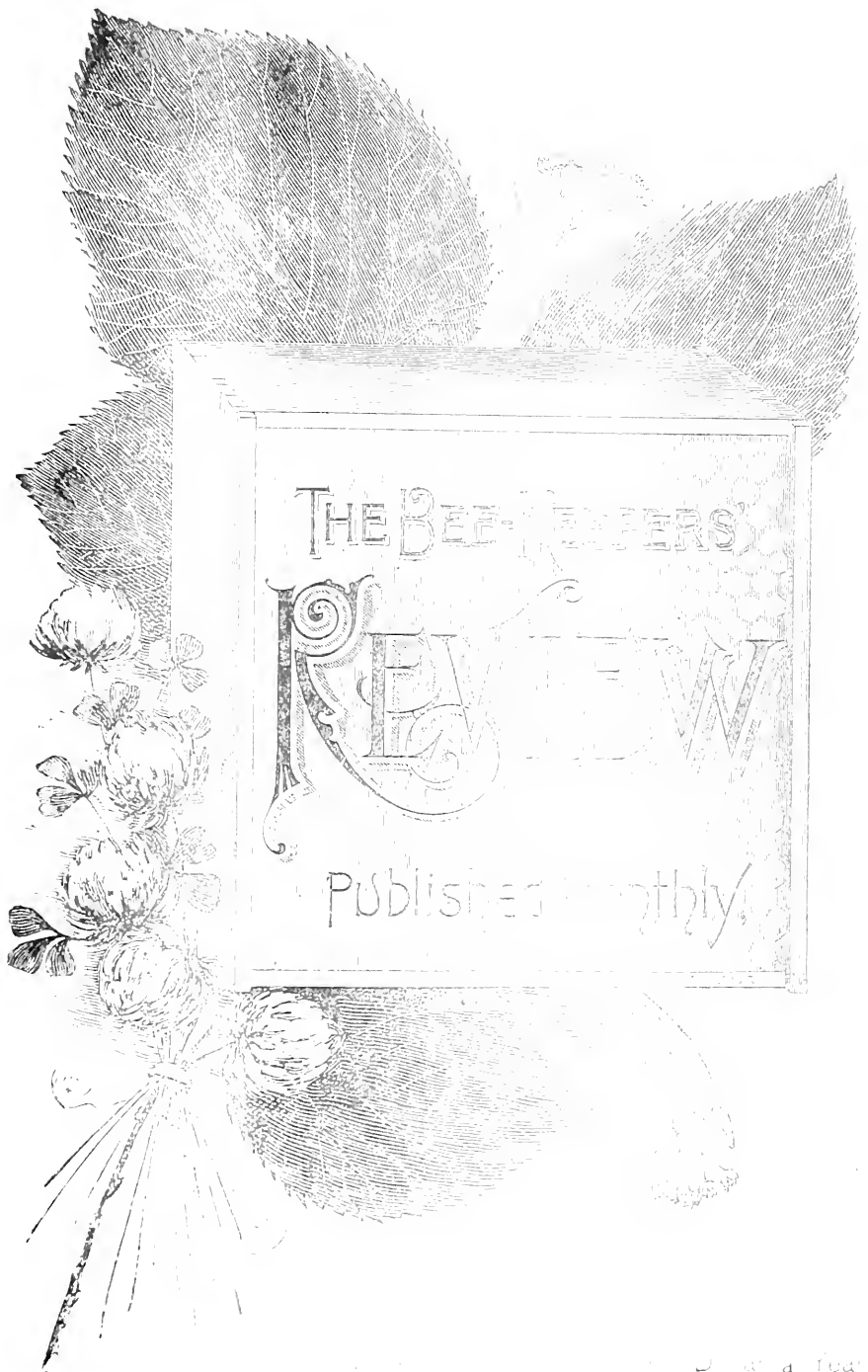
ON

On Bee - Hives, Sections,
Shipping - Cases, and all
Bee - Keepers' Supplies
Listed in Our Catalogue.

Both Wholesale & Retail.

Owing to the phenomenal advance in the cost of raw materials, ranging from 20 to 100 per cent., especially on lumber of all kinds, it is impossible longer to maintain former prices. New price lists are being prepared which we hope to have ready by Oct. 1st. The advances will range from twenty to fifty per cent. Orders received after Sept. 1st and not accepted at old prices. Instead of making gradual advances, keeping pace with the increase in value of the raw materials which has taken place during the past six or eight months we have maintained former prices until the close of the season. Now we have to make the advance all at once, and on that account it may appear like a large advance; but it is not as great as it is in per cents, as the advance in materials has been already, and still higher prices will undoubtedly be reached on lumber during the next six months than those ruling at the present time.

The A. I. ROOT CO., Medina, Ohio.



Published Monthly. Price 25 Cents a Year.

ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 2 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times, 10 per cent; 6 times, 20 per cent; 2 times, 30 per cent; 15 times, 40 per cent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 2 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the Review with—

Bees, new	\$1.00	\$1.75
American Bee Journal, new	1.00	1.75
Canadian Bee Journal	1.00	1.75
Progressive Bee Keeper	.75	1.35
American Bee Keeper	.75	1.35
The Southern Queen	1.00	1.75
Ohio Farmer	1.00	1.75
Farm Journal, Pa.	1.25	1.40
Farm, Pa.	1.25	1.75
Rural New Yorker	1.00	1.85
Frank Leslie's Popular Monthly	3.00	3.75
The Century	4.00	5.50
Michigan Farmer	1.00	1.65
Prairie Farmer	1.00	1.75
American Apiculturist	1.00	1.75
The Independent (New York)	3.00	3.50
Ladies' World	1.00	1.25
Country Gentleman	2.50	3.15
Harpers Magazine	4.00	5.15
Harpers Weekly	4.00	4.20
Youth's Companion	1.75	2.25
Scribner's Magazine	3.00	3.50
Cosmopolitan	1.00	1.50
Success	1.00	1.15

It will be accepted, but in order to secure these most interesting, American Bee Journal and the Young Bee's companion, the subscribers to these Journals must be NEW. If it is any convenience, when sending in your renewal to the Review, include your renewal to any of these Journals, you can do so, but the full price must be sent.

Leland Hotel,

CHICAGO.

Michigan and Jackson Boulevards

AMERICAN PLAN.

Single day and upwards.

EUROPEAN PLAN.

Per day and upwards.

Special rate for the week on application. The best of service every way.

Chas. W. Dabb, Prop.

Names of Bee-Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States), and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Ark.	12	Ky.	182	N. C.	60
Calif.	75	Kans.	350	New Mex.	20
Conn.	80	La.	35	Oregon	104
Del.	15	Mo.	500	Ohio	1,120
Fla.	100	Mich.	1,770	Penn.	645
Ill.	100	Mass.	475	R. I.	48
Ind.	100	Md.	54	S. C.	40
Iowa	100	Maine	100	Tenn.	175
		Miss.	70	Tex.	270
		N. Y.	1,342	Utah	68
		Neb.	345	Va.	160
		N. J.	130	W. Va.	182
		N. H.	126	Wash.	172
				Wis.	128
					500

W. Z. HUTCHINSON, Flint, Mich.



Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has secured a permanent position in Arizona, and wishes to dispose of his apiarian fixtures. He writes me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

100 2000	.....60
50 2000 cases, Wide-Frame and tin sep-	.....25
anters	.....15
65 Cheyres	.....10
24 Bottom Boards at	.....15
25 Honey Boards, Queen (excluding at	.....15
20 Escapes	.....15
5 Feeders (Heddon Excelsior) at	.....25
20 Alloy, Queen, and Drone traps, at	.....35

All of the above are in my possession and can be shipped promptly. The hives and cases are well made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller particulars upon inquiry.

W. Z. HUTCHINSON, Flint, Mich.

DADANT'S

Foundation

By the new *Wood Process* is made in the best manner, upon the best machines, and from the best wax, that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, C. Snodgrass, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield

Mfg. Co., Marshfield, Wis.

G. B. Lewis Co.,

Watertown, Wis.

Our best, with the very finest

Bee-Keepers'

Supplies

For the best of prices, we can supply you with everything you need. Write for our catalogue, or call on us. We have a large stock of supplies.

If you wish to have our catalogue, please send us your name and address, and we will mail you a copy of it. Catalogue is sent free of charge.

Keep this before you,
We pay *you* for

HONEY.

We want honey, and ask correspondence from those having it to sell. State quantity, quality and style of package. We are dealers in green fruit and dried fruit and all kinds of produce.

S. T. FISH & CO.,

Established 1870.

100 South Water St.

CHICAGO.

For more information, National Beekeepers' Association, 100 South Water St., Chicago, Ill., or write to S. T. Fish & Co., 100 South Water St., Chicago, Ill.



THE

RE

PUBLIC

DADANT'S

Foundation

By the new *Weed Process* is made in the best manner, upon the best machines, and from the best wax, that free from dirt, pollen, impurities, burnt wax, etc., that increase its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, *Bees and Smokers*, *Tin Pails*, *Scissors*, and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield Mfg. Co., Marshfield, Wis.

G. B. Lewis Co.,

Watertown, Wis.

Manufactured with the very best

Bee-Keepers'

Supplies

Manufactured and sold in accordance with the best methods. We have a full line of supplies for beekeepers, including hives, frames, sections, and all the necessary tools and materials. We also have a large stock of honey and beeswax. Write for our circular and price list.

Keep this before you,
We pay you for

HONEY.

We want honey and ask considerable prices from those having it to sell. State quantity, quality and style of package. We are dealers in green fruit and dried fruit and all kinds of produce.

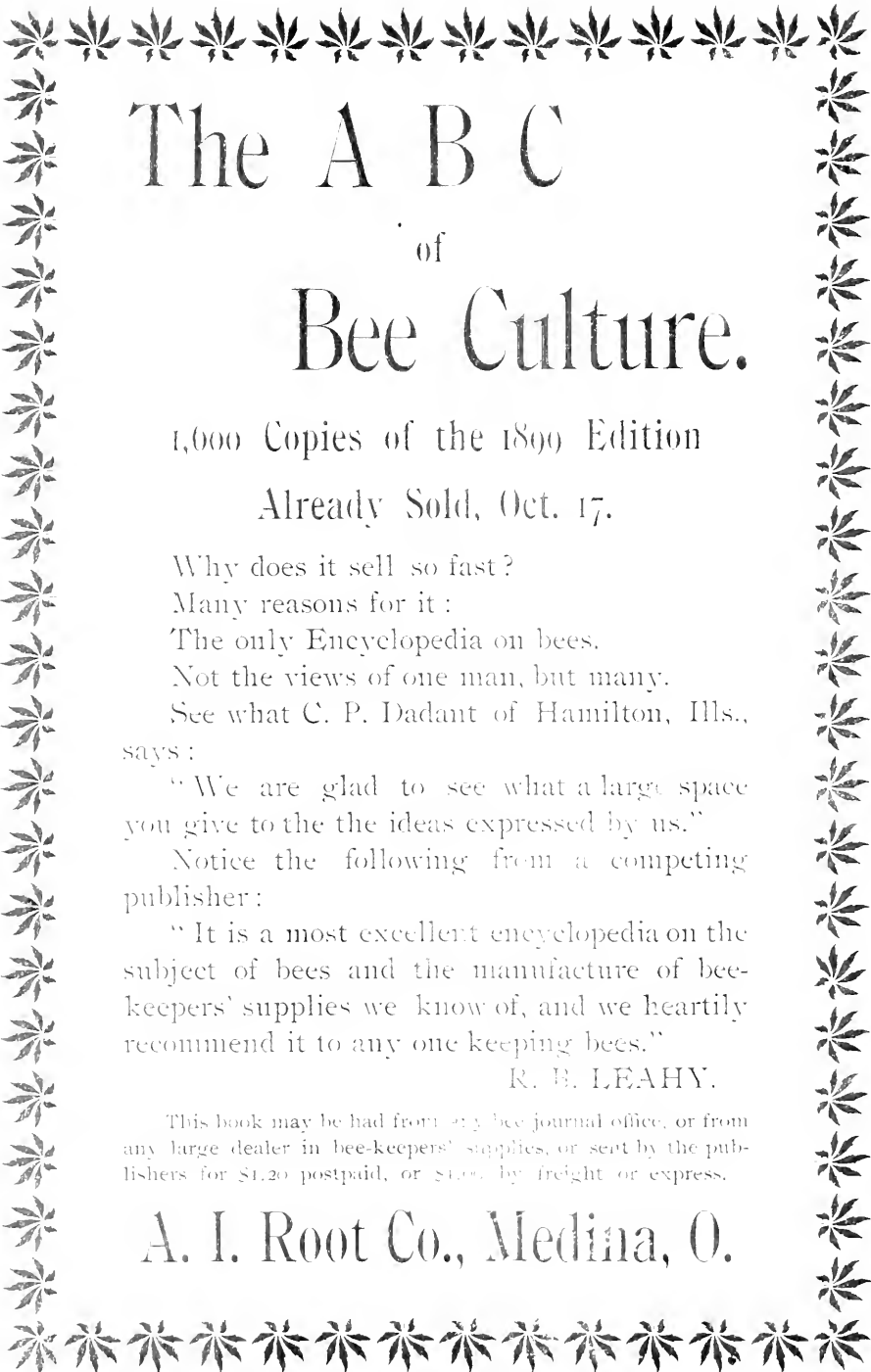
S. T. FISH & CO.

Established 27 years.

105 and 107 South Water St.

CHICAGO.

Write for Circular. Name of Beekeeper. Your Dealer and the amount of honey you are offering.

A decorative border of repeating floral motifs, resembling stylized leaves or flowers, surrounds the entire text of the advertisement.

The A B C of Bee Culture.

1,000 Copies of the 1890 Edition

Already Sold, Oct. 17.

Why does it sell so fast?

Many reasons for it:

The only Encyclopedia on bees.

Not the views of one man, but many.

See what C. P. Dadant of Hamilton, Ills., says:

"We are glad to see what a large space you give to the the ideas expressed by us."

Notice the following from a competing publisher:

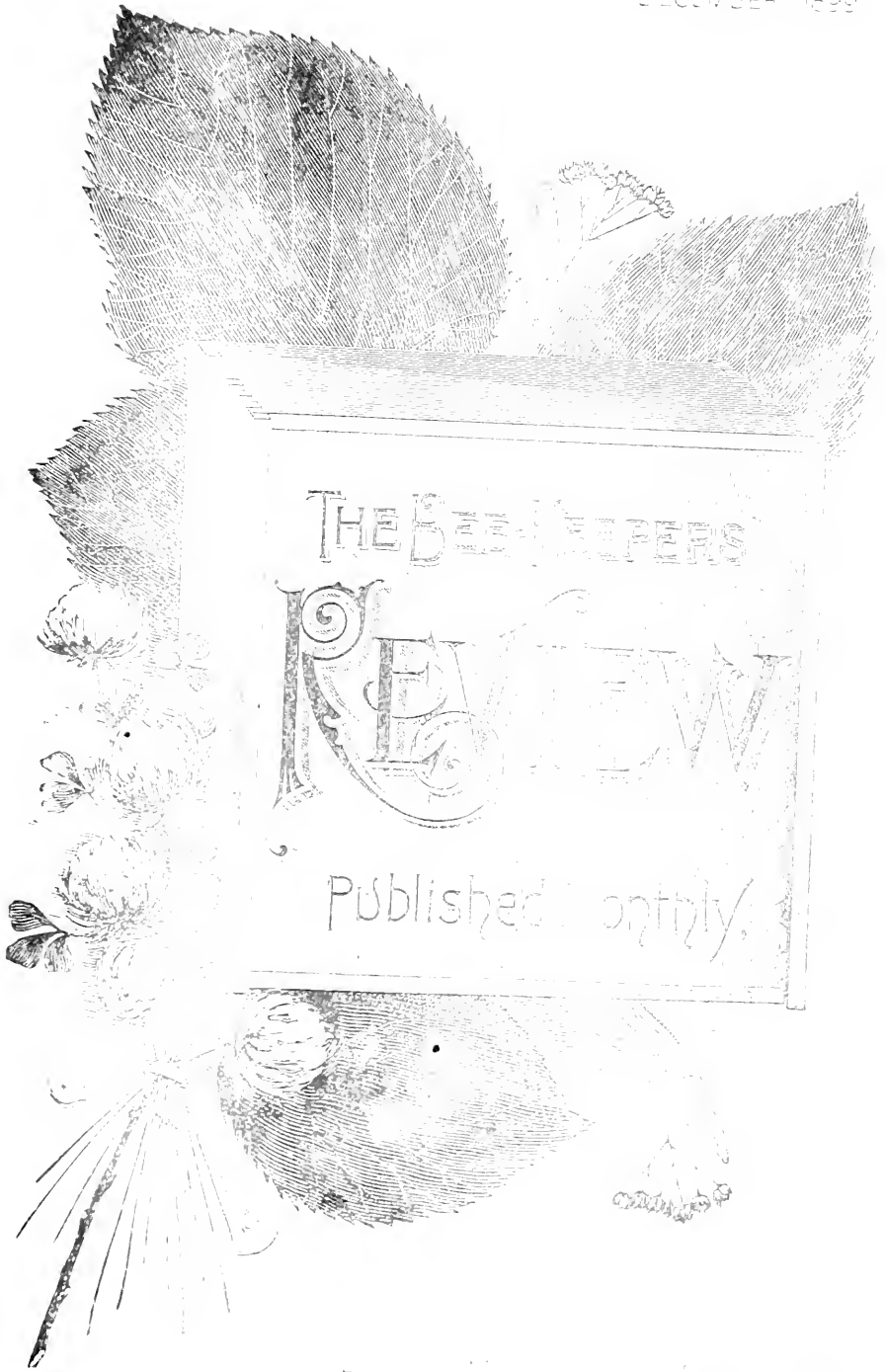
"It is a most excellent encyclopedia on the subject of bees and the manufacture of bee-keepers' supplies we know of, and we heartily recommend it to any one keeping bees."

R. B. LEAHY.

This book may be had from the bee journal office, or from any large dealer in bee-keepers' supplies, or sent by the publishers for \$1.20 postpaid, or \$1.00 by freight or express.

A. I. Root Co., Medina, O.

DECEMBER 1899



Published by the American Beekeepers' Association, Washington, D.C.

ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line for each space, each insertion; 12 lines for each space make 1 line. Discounts will be given as follows:

On 10 insertions, 10% discount; 20 insertions, 15% discount; 30 insertions, 20% discount; 40 insertions, 25% discount; 50 insertions, 30% discount; 60 insertions, 35% discount; 70 insertions, 40% discount; 80 insertions, 45% discount; 90 insertions, 50% discount; 100 insertions, 55% discount; 120 insertions, 60% discount; 150 insertions, 65% discount; 200 insertions, 70% discount; 300 insertions, 75% discount; 400 insertions, 80% discount; 500 insertions, 85% discount; 600 insertions, 90% discount; 700 insertions, 95% discount; 800 insertions, 100% discount; 900 insertions, 105% discount; 1000 insertions, 110% discount.

On 1000 insertions, 110% discount; 2000 insertions, 120% discount; 3000 insertions, 130% discount; 4000 insertions, 140% discount; 5000 insertions, 150% discount; 6000 insertions, 160% discount; 7000 insertions, 170% discount; 8000 insertions, 180% discount; 9000 insertions, 190% discount; 10000 insertions, 200% discount.

On 10000 insertions, 200% discount; 20000 insertions, 250% discount; 30000 insertions, 300% discount; 40000 insertions, 350% discount; 50000 insertions, 400% discount; 60000 insertions, 450% discount; 70000 insertions, 500% discount; 80000 insertions, 550% discount; 90000 insertions, 600% discount; 100000 insertions, 650% discount.

Circulating List.

For a list of the names of the bee-keepers in each State, and the number of names in each State, see the following list:

Alabama	150	Arkansas	100
Arizona	100	California	150
Colorado	100	Connecticut	100
Delaware	100	District of Columbia	100
Florida	100	Georgia	100
Idaho	100	Illinois	100
Indiana	100	Iowa	100
Kansas	100	Kentucky	100
Louisiana	100	Maine	100
Massachusetts	100	Michigan	100
Minnesota	100	Mississippi	100
Missouri	100	Montana	100
Nebraska	100	Nevada	100
Nevada	100	New Hampshire	100
New Jersey	100	New Mexico	100
New York	100	North Carolina	100
North Dakota	100	Ohio	100
Ohio	100	Oklahoma	100
Oklahoma	100	Oregon	100
Oregon	100	Pennsylvania	100
Pennsylvania	100	Rhode Island	100
Rhode Island	100	South Carolina	100
South Carolina	100	South Dakota	100
South Dakota	100	Tennessee	100
Tennessee	100	Texas	100
Texas	100	Vermont	100
Vermont	100	Virginia	100
Virginia	100	Washington	100
Washington	100	West Virginia	100
West Virginia	100	Wisconsin	100
Wisconsin	100	Wyoming	100

Names of Bee-Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all written alphabetically (in the largest States), and also arranged in list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but I am now a type writer, and, by using the manifold process, I can furnish them at \$2.00. A mail-orderer who wishes for a list of the names of bee-keepers in his own state only, or, perhaps, in the adjoining states, can be accommodated. There is a list of the States and the number of names in each State.

Alabama	150	Arkansas	100	N. C.	100
Arizona	100	California	150	New Mex.	100
Colorado	100	Connecticut	100	Oregon	100
Delaware	100	District of Columbia	100	Ohio	100
Florida	100	Georgia	100	Penn.	100
Idaho	100	Iowa	100	R. I.	100
Indiana	100	Kentucky	100	S. C.	100
Iowa	100	Louisiana	100	Tenn.	100
Kansas	100	Maine	100	Texas	100
Louisiana	100	Mass.	100	Utah	100
Maine	100	Mich.	100	Vt.	100
Mass.	100	Miss.	100	Va.	100
Mich.	100	Mont.	100	W. Va.	100
Miss.	100	N. H.	100	Wash.	100
Mont.	100	N. J.	100	Wis.	100
N. H.	100	N. M.	100		
N. J.	100	N. Y.	100		
N. M.	100				
N. Y.	100				

W. Z. HUTCHINSON, Flint, Mich.



Supplies Cheap.

Mr. J. B. ... formerly of Brecksville, Ohio, has secured a permanent position in Arizona, and in consequence of his apianian fixtures, he has sold his, and I told him if he would have them shipped to me I would sell them at a low price and commission. Here is a list of the fixtures and the price at which they are offered.

100000	Wide Frame and tin sep.	25
100000	Wide Frame and tin sep.	15
100000	Wide Frame and tin sep.	10
100000	Wide Frame and tin sep.	15
100000	Wide Frame and tin sep.	15
100000	Wide Frame and tin sep.	25
100000	Wide Frame and tin sep.	35

W. Z. HUTCHINSON, Flint, Mich.

White Attractor

For Sale.

White Attractor. This is a new and improved method of attracting bees to the hive. It is made of white material and is very effective. It is sold at a low price and is very popular among bee-keepers.

W. Z. HUTCHINSON, Flint, Mich.

DADANT'S

Foundation

By the new *Weed Process* is made in the best manner, upon the best machines, and from the best wax - it is free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revisal, Smokers, Tin Pails, Sections, and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.

Sections

We make millions of them yearly; workmanship, smoothness and finish can't be better. The basswood grows right here. If you want some good *Shipping Cases*, you can get them of us. A full line of *Bee Supplies* on hand.

Write for illustrated catalogue and price list free.

Marshfield Mfg. Co., Marshfield, Wis.

G. B. Lewis Co.,

Watertown, Wis.

Can furnish you with the very finest:

Bee - Keepers' Supplies

in the world.

Particular attention given to new and improved machinery for operating the hive, and every bee keeper's requirements.

If you desire a complete catalogue, please send us your name and address, and we will mail you one, and will do so as soon as it is ready.

Keep this before you,
We are your

HONEY.

Get your honey, and ask correspondences from those having the best. See quantity, quality, energy of package. We are well known for our pure and dried honey of all kinds of produce.

S. T. FISH & CO.,

125 West Superior,
Chicago, South Water St.

CHICAGO.

Bees and honey are the national product of the United States, and the industry is one of the most important.



The A B C OF Bee Culture.

1890 Edition. Fully up to Date. 2000 of the Last Edition
Sold in Eight Weeks. The Only Encyclopedia on Bees.

Sixty-seven thousand copies have now been printed. It is for sale in the United States by all dealers in Bee Keepers' supplies, and the publishers of all bee-journals, also by most of the leading agricultural and horticultural papers, and large book-sellers and seedsmen. Send your order where it is most convenient for you. Price \$1.20 post-paid, or by freight or express with other goods at purchaser's expense, \$1.00. We also club it with Gleanings in Bee Culture, one year, postpaid, for \$1.75.

See what Mr. Hutchinson says in October Review in reference to the A B C of Bee Culture. The following is also from a bee journal editor:

I must thank you for your kindness in sending me a copy of your new edition of the A B C of Bee Culture, which I have cursorily perused with much pleasure. I see there is a great deal of new matter introduced to the advantage of the book. Your plan of revising every edition and eliminating the obsolete practices and appliances is a good one, and the only way to keep up with the times, because a few years makes such a change in bee-keeping, and those books written eight or ten years ago are quite obsolete. There are only three books that are issued on this same principle and these are your A B C, Bertrand's Conduite du Rucher, and my Guide Book.

The foul brood photo is an improvement on the last as it shows a larger surface, and is more clear. In all respects this edition is an improvement on the last and I must congratulate you.—T. W. Cowan, Pacific Grove, Calif., Oct. 20th. —Ed. British Bee Journal.

Gleanings in Bee Culture for 1900.

See the special offers we make in our Nov. 15th issue. By the way this is an illustrated number showing seven full page views of the Home of the Honey Bees. Send for a copy if you are not a subscriber. Be sure to ask for November 15th issue if you mention the Review.

A. I. Root Co., Medina, O.





