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GLEANINGS

IN BEE CULTURE

A JOURNAL DEVOTED
TO BEES, HONEY,
AND HOME INTERESTS.

BY A. I. ROOT,
MEDINA, OHIO.

MURRAY HESS
CLEVELAND O

GLEANINGS IN BEE CULTURE.

GLEANINGS IN BEE CULTURE.

ESTABLISHED IN 1873.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.
PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, - MEDINA, O.

A. I. ROOT, EDITOR.

ERNEST R. ROOT, - - ASSOCIATE EDITOR.

J. T. CALVERT, BUSINESS MANAGER.

Terms. \$1.00 per annum; two years, \$1.80; three years, \$2.50; five years, \$3.75, *in advance*; or two copies to one address, \$1.80; three copies, \$2.50; five copies, \$3.75. These terms apply both to the United States, Canada, and Mexico. To all other countries in the Universal Postal Union, 18 cents per year extra for postage. To all countries out of the U. P. U., 42 cents per annum extra.

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1 to 2 insertions, per line.....	20c
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For electrolytied advertisements we will allow an additional discount of 5 per cent.

A. I. ROOT, Medina, O.

CLUBBING LIST.

We will send GLEANINGS with—
The American Bee Journal, weekly, (\$1.00) \$1.75
The Canadian Bee Journal, weekly, (.75) 1.65

The Bee-Keepers' Review,	(1.00)	1.75
The British Bee Journal,	(1.50)	2.00
Missouri Bee-Keeper,	(.50)	1.35
American Apiculturist,	(.75)	1.70
American Bee-Keeper,	(.50)	1.40
All of the above journals,		5.65

American Agriculturist,	(\$1.50)	2.25
American Garden,	(2.00)	2.60
Prairie Farmer,	(1.00)	1.70
Rural New-Yorker,	(2.00)	2.00
Farm Journal,	(.50)	1.20
Scientific American,	(3.00)	3.75
Ohio Farmer,	(1.00)	1.90
Popular Gardening,	(1.00)	1.85
U. S. Official Postal Guide,	(1.50)	2.25
Sunday-School Times, weekly,	(1.50)	1.75
Drainage and Farm Journal,	(1.00)	1.75
Fanciers' Monthly,	(1.00)	1.75
Illustrated Home Journal,	(.50)	1.35
Orchard and Garden,	(.50)	1.40

[Above Rates include all Postage in U. S. and Canada.]

Hebblewhite & Co., 369 George St., Sidney, New South Wales, are our authorized agents for Australia and adjacent islands. All remittances for subscriptions should be made to them. Subscription price, 5 shillings per annum postpaid.

Names of responsible parties will be inserted in either of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in every issue.

UNTESTED QUEENS

For \$1.00 from July 1st. till Nov. 1st.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with * use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. If wanted sooner or later, see rates in price list.

- *A. I. Root, Medina, Ohio.
- *H. H. Brown, Light Street, Col. Co., Pa. 7tf90
- *Paul L. Viallon, Bayou Goula, La. 7tf90
- *S. F. Newman, Norwalk, Huron Co., O. 7tf90
- C. C. Vaughn, Columbia, Tenn. 9tf90
- Jenkins & Parker, Wetumpka, Ala. 9tf90
- E. L. Goold & Co., Brantford, Ont., Can. 9tf90
- *W. A. Compton, Lynnville, Giles Co., Tenn. 9tf90
- *Oliver Hoover & Co., Suydertown, Northumberland Co., Pa. 19tf90
- D. A. McCord, Oxford, Butler Co., O. 11-23d
- *F. H. & E. H. Dewey, Westfield, Hamp. Co., Mass. 11-9
- A. J. Higgins, Washington Mills, Dub. Co., Ia. 14-12
- *E. C. Eaglesfield, Berlin, Green Lake Co., Wis.

HIVE MANUFACTURERS.

Who agree to make such hives, and at the prices named, as those described on our circular.

- A. I. Root, Medina, Ohio.
- P. L. Viallon, Bayou Goula, Iberville Par., La. 7tf90
- C. W. Costello, Waterboro, York Co., Me. 1tf90
- Leahy Mfg. Co., Higginsville, Laf. Co., Mo. 9tf90
- Jenkins & Parker, Wetumpka, Ala. 9tf90
- W. T. Falconer Mfg. Co., Jamestown, N. Y. 7tf90

FLORIDA ORANGES,

And here is where you can raise them.

AT I-2 PRICE, in 5 and 10 acre lots, for cash or on long time, one-third of a 300-acre tract of one of the choicest pieces of natural orange land there is in the State, being Rich, Heavy, High, Gray Hammock; 2½ miles from railroad, healthy section, pure water, good roads, clear title. For particulars, address 23-24d

A. F. BROWN, HUNTINGTON, PUTNAM CO., FLA.
Please mention this paper.

Hatch Chickens by Steam. IMPROVED EXCELSIOR INCUBATOR



Will do it. Thousands in successful operation. *Simple, Perfect and Self-Regulating.* Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other. Send 6c. for Illus. Catalog. 6EO, H. STAHL, Quincy, Ill. Please mention this paper.

BEE - HIVES ! SECTIONS !

AND ALL APIARIAN APPLIANCES.

Our Motto : Good Goods and Low Prices.

Catalogue free for your name on a postal card.

14tfdb

LEAHY M'F'G CO.,
HIGGINSVILLE, MO.

Please mention this paper.

BEE-KEEPERS, NOTICE !

On account of not getting suitable situation to build a factory at Thornton, I have located 5 miles east of that place, at Independence, Preston Co., W. Va., where I have just completed a new factory, at which place I can furnish bee-supplies on short notice. Illustrated catalogue and price list free. E. J. SHAY, Independence, Preston Co., W. Va. Please mention this paper. 23tfdb

I MAKE THE

Benton Shipping and Introducing Cage

in two styles, at \$10.00 and \$20.00 per 1000. I am sending them all over the country. The largest queen-breeders are using them, and are enthusiastic in their praise. Send your order now, and get 5 per cent discount from above prices. A full line of

BEE-KEEPERS' SUPPLIES

always in stock. Catalogue free. 17-21d
C. W. COSTELLOW, WATERBORO, YORK CO., ME.
In responding to this advertisement mention GLEANINGS.

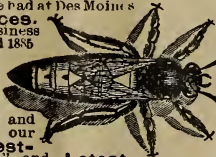
AMERICAN BEE JOURNAL

32 pages—\$1.00 a year—Sample Free.

The oldest, largest and cheapest Weekly bee-paper
THOMAS G. NEWMAN & SON,
CHICAGO, ILL.

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at Root's Prices. The largest supply business in the West. Established 1885. Dorettailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Grates, Feeders, Clover Seeds, etc. Imported Italian Queens, Queens and Bees. Sample copy of our Bee Journal, "The Western Bee-keeper" and Latest Catalogue mailed Free to Bee-keepers. JOSEPH NYSEWANDER, DES MOINES, IOWA.



31tdb

In responding to this advertisement mention GLEANINGS.

VIOLINS MURRAY & HEISS. CLEVELAND OHIO. CATALOGUE FREE
MUSICAL GOODS OF ALL KINDS. GUITARS MANDOLINS

In responding to this advertisement mention GLEANINGS.

MUTH'S Honey - Extractor.

Square Glass Honey-Jars, Tin Buckets, Bee-Hives Honey-Sections, &c., &c. Perfection Cold-Blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

P. S.—Send 10-ct. stamp for "Practical Hints to Bee-keepers." Please mention this paper.

For Sale, Portable Engine on Wheels

8 H. P., in good repair. Will sell AT A BARGAIN if taken at once. Address

LOWRY JOHNSON, Masontown, Pa.

In responding to this advertisement mention GLEANINGS.

N. A. KNAPP, Rochester, Lorain Co., O.,

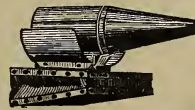
HAS FOR SALE

50 STRONG COLONIES OF PURE ITALIAN BEES, 500 WHITE AND BLACK FERRETS.

Also a fine lot of Scotch collie and coon-dog pups. Prices sent on application. 17tfdb

Please mention this paper.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington Patent Uncapping-Knife, Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3 1/2 in.,	postpaid	...\$2.00
Conqueror "	3 "	"	... 1.75
Large "	2 1/4 "	"	... 1.50
Extra (wide shield) 2 "	"	"	... 1.25
Plain (narrow) " 2 "	"	"	... 1.00
Little Wonder,	1 1/2 "	"65
Uncapping Knife.....			... 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have had done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to 1tfdb BINGHAM & HETHERINGTON, ABRONIA, Mich.

In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say your own advt. in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices of offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange standard apiarian supplies, Dadant's foundation, etc., for **2 FOUR-horse-power STEAM-BOILERS.** Must be in splendid condition. Also would like light power **BAND-SAW or JIG-SAW.** Write quick.
CHAS J. GOODRICH, Box 1156, Pittsfield, Mass.

WANTED.—To exchange 3 saw-tables, shafting, and belting, for bees on L. frames.
GEO. H. KIRKPATRICK, Union City, Ind.

WANTED.—To exchange wall paper, from 5c a roll and up, for honey. J. S. SCOVEN,
1214fd
Kokomo, Ind.

WANTED.—A good Christian housekeeper without incumbrance, to keep house for a family of three adult persons. 22-23d
J. L. CLARK, Apalachicola, Franklin Co., Fla.

WANTED.—To exchange a good paying job for some of your spare time this winter; also a Goodspeed & Wyman gauge lathe, for a pony planer, or "Our Domestic" clothes-drier (see page 800, Oct. 15), for extracted honey.
D. S. HALL, So. Cabot, Vt.

WANTED at once. A lady to assist with housework, and bees in the summer. Steady employment to the right party. Residence in village. Address with ref., ELIAS FOX, Hillsboro, Wis. 24-1d

WANTED.—To exchange for honey or offers, Victor Safety bicycle, in No. 1 condition, Barnes foot-power saw, Stanley automatic honey extractor, new; No. 5 Novice extractor, 4½x5½ photographic outfit; queens, to be sent next season.
24tfdb
J. A. GREEN, Dayton, Ill.

WHAT will you give in exchange for a new foot-power buzz-saw? Home-made but well made.
H. L. HUTCHINSON, Mayville, Tuscola Co., Mich.

WANTED.—To correspond with parties having R. C. W. or B. Leghorns for sale.
F. E. PRICE, Nokomis, Mont. Co., Ill.

WANTED.—A position in an apiary. Or to run an apiary on shares. South preferred. Eight years' experience.
J. E. HENDERSON,
Roney's Point, Ohio Co., W. Va.

WANTED.—To exchange nursery stock for any thing useful.
GEO. GOULD & SON, Villa Ridge, Ill.

WANTED.—Situation in apiary for season of '92, with an experienced apiarist, to learn more of apiculture. Have handled bees in Ohio for two seasons back. HOWARD W. AULD, Newburgh, Oregon. References, Hill Mfg. Co., Dennison, Ohio; P. M., Tippecanoe, Ohio.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write B for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.
PAGE & KEITH,
14tfdb
New London, Wis.

In writing advertisers please mention this paper.

Syracuse, New York,
FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.
FOUNDATION is Our Own Make.
F. A. SALISBURY.

In writing to advertisers please mention this paper. 4tfdb

SPECIAL NOTICES.

DEALERS IN BEE-KEEPERS' SUPPLIES.

Those who handle bee-keepers' supplies, buying to sell again in their vicinity, or who issue a catalogue and fill orders from a distance, will do well to write to us for our inducements before closing arrangements with any one for the sale of their goods. We have in preparation some things to help you make it known to the bee-keepers in your vicinity that you can supply them, and thus add to your sales as well as to the convenience of those who look to some one to order for them from the manufacturer. These things in preparation are not yet completed, but we give you notice, so you can write; and when they are ready you can be notified.

OUR NEW PRICE LIST FOR JAN. 1, 1892.

Before the next issue of GLEANINGS is mailed we hope to send to each of our readers a copy of the 74th edition of our price list. Among other changes that will be noted we mention the following. The matter on bees and queens has been rewritten, and a new table of prices is given, quoting lower prices in many cases. The new shipping-boxes for bees deserve notice. In queen-cages we have thrown out the Peet entirely, and list only the improved Benton. The West queen-cell protector and Miller's introducing-cage are given for the first time in our list. We call especial attention to Coggs' brush, which far surpasses anything before used for the purpose. It is an extra long, broad, and very thin whisk-broom made of selected broom-corn, and will take the bees off the side of a comb at one sweep.

We catalogue the Porter bee-escape, as we believe it to be the best so far produced. We are prepared to furnish these to dealers at the manufacturer's wholesale prices, which we will quote on application. Bushel boxes have been included in the list. The price of bee-veils and material has been quite a little reduced. The improvements in hives and frames are noted elsewhere in this issue. You will find the price of wire nails very much reduced. The old series, E long-wind Waterbury watch, has been dropped out of our price list, as we no longer furnish it. Instead you will find Root's household repairing outfit, which is proving a great money-saver in the homes of many who have more time to do their own mending than money to pay for having it done. The price of lawn-mowers is also reduced. You will note other changes in our list.

DO YOU WANT GLEANINGS CONTINUED?

With this number, the paid subscriptions of a great many of our readers expire. The date on the label on the wrapper of the journal tells you when the time paid for is up. Those whose subscription expires with the present number should receive, in their copy of GLEANINGS, a printed notice of expiration, and an order-sheet and addressed envelope for renewal. If you wish GLEANINGS continued we shall be pleased to receive your renewals; or if it isn't convenient to send the amount now, please fill out the blank, stating when you will send it, and we will know what your wishes are. If you do not want it continued, please do not fail to notify us, for we continue the journal until we receive orders to discontinue. We adopt this method because the majority seem to prefer it. There are a few who do not like it, and have written some rather severe things about such a practice. Now, our plan is such that we can please every one. If you do not want your subscription to continue after the time paid for, all you have to do is to say so when you send your order and it will be marked with a "D," and will be dropped when the time paid for is up. Inasmuch as the majority prefer to have it continued, it doesn't seem fair to put the majority to inconvenience to please the minority when they can so easily have their wish complied with. If any of our readers, even though their subscription has not run out, prefer to have it stop when the time paid for is up, write us a postal card, saying so, and we will mark your name, that there may be no room for misunderstanding or hard feelings; and remember, if you allow the matter to run along without notifying us until you get in arrears, we are entitled to all arrearages before the journal may be stopped. We have no desire whatever to send GLEANINGS to any one who does not want it, but we do want to continue sending it to those who do want it; and we ask you to be careful in sending in your subscriptions and renewals, to make known what you wish.

HONEY COLUMN.

CITY MARKETS.

PORTLAND.—*Honey.*—Price of comb ranges from 12@14½ and 15c, as to color. Extracted ranges from 5½@6¼. The bulk of our supply comes from California. We lack practical bee-men in Oregon. We need apiarists in the fullest sense of the word. Oregon ought to be one of the finest honey-producing localities in the world. It rains considerably here in winter; yet here it is Dec. 8, and roses are in bloom *out of doors*; and on Sunday, Dec. 6, we saw cultivated blackberries and strawberries in bloom.

LEVY, SPIEGEL & CO.,
Portland, Oregon.

Dec. 8.

CINCINNATI.—*Honey.*—Demand for honey is fair only; supply is good of all kinds but choice comb honey, which brings 14@16c in the jobbing way. Extracted honey brings 7@8c on arrival. *Beeswax*, demand is fair at 23@25c on arrival for good to choice yellow.

CHAS. F. MUTH & SON,
Cincinnati, O.

Dec. 8.

CHICAGO.—*Honey.*—Trade has been active, and sales of best white comb readily made at 16c. Extracted is also selling freely at 7c. Stocks are light, and we look for steady market.

R. A. BURNETT,
161 So. Water St., Chicago, Ill.

Dec. 8.

KANSAS CITY.—*Honey.*—Demand poor. Supply large of comb; 1-lb. fancy white, 15@16; dark, 12@13. Extracted, light demand; supply light; white, 7@7½; dark, 5@6. *Beeswax*, none on the market. Weather mild, with light trade.

HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

Dec. 11.

NEW YORK.—*Honey.*—Of comb honey, we have only odds and ends left for which there is a very slow sale, and low prices must be accepted now, in order to dispose of these lots. Extracted light amber California, 7½c; Florida, best grades, 7@7½c; buckwheat, 5½@6¼. *Beeswax*, 27@28½c.

F. G. STROHMAYER & CO.,
New York.

Dec. 9.

ALBANY.—*Honey.*—There is a large falling off in the demand for comb honey, and prices less firm. Extracted in good demand with prices unchanged. We quote fancy white 1-lb. sections, 13@14c; fair to good, 10@12c; buckwheat, 9@10. Extracted, 6@8c. *Beeswax*, 24@26.

CHAS. McCULLOUGH & CO.,
Albany, N. Y.

Dec. 11.

MILWAUKEE.—*Honey.*—The demand for honey is very fair and the supply is good yet; of the finest section, not enough. Apiarists should remember that choice qualities are appreciated in this market. Common and poor goods always move slowly. Will quote choice 1-lb. sections, 15@16; dark and oil qualities, 10@12½. Extracted, white, in lbs. and kegs, 7½@8c; dark, 6@6½. *Beeswax*, 23@25.

A. V. BISHOP,
Milwaukee, Wis.

Nov. 25.

NEW YORK.—*Honey.*—Market is dull, with a sufficient supply to meet all demands. We quote honey this day as follows: 1-lb. sections, fancy white, 14c; 2-lb., 12c; 1-lb., fair, 11@12; 2-lb., 10@11; 1-lb. sections, buckwheat, 10@10½; 2-lb., 9. Extracted honey, basswood and clover, 7@7½; buckwheat, 5½@6. *Beeswax*, fine, 26@27c.

CHAS. ISRAEL & BROS.,
New York.

Dec. 9.

DETROIT.—*Honey.*—The supply of comb honey is not large, but sales are slow and prices are not what they should be; it is selling at 11½@13c, with occasionally a choice lot at 14. Extracted, 8c. *Beeswax*, 25@26c.

M. H. HUNT,
Bell Branch, Mich.

Dec. 9.

KANSAS CITY.—*Honey.*—Receipts and demand are fair. 1-lb. white comb, 15@16; dark, 14@12. Extracted, white, 7@7½; dark, 5@6. *Beeswax*, receipts light, 23@26.

CLEMONS, MASON & CO.,
Kansas City, Mo.

Dec. 9.

CHICAGO.—*Honey.*—Good demand for fancy white honey at 16c. Other grades slow sale, 12@14c. Extracted selling 6½@7½, with as yet light demand. *Beeswax* selling 26@27c.

S. T. FISH & CO.,
189 So. Water St., Chicago, Ill.

Dec. 8.

BOSTON.—*Honey.*—Our market is well supplied with honey. Selling from 14@16c for 1-lb. sections. Extracted, 7@8c. *Beeswax*, none on hand. Demand good.

BLAKE & RIPLEY,
Boston, Mass.

Dec. 9.

ST. LOUIS.—*Honey.*—There is little of an encouraging nature to report in regard to the honey market. The trade is very quiet, and prices unchanged.

D. G. TUTT GRO. CO.,
St. Louis, Mo.

Dec. 9.

SAN FRANCISCO.—*Honey.*—Extracted honey is getting very scarce, and, in consequence, firmly held. We quote 6@6½c. Comb honey also not so plentiful, and firmly held at 11@13. *Beeswax* scarce at 24@25.

SCHACHT, LEMCKE & STEINER,
San Francisco, Cal.

Nov. 27.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans. C. H. STORDOCK, Durand, Winnebago Co., Ill.

FOR SALE CHEAP.—10 bbls. extracted honey mixed with honey-dew. Quality good. Will sell in any quantity desired. Price on application. Sample sent for a two-cent stamp.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey, basswood, mesquite, alfalfa, sage, and other varieties. Lowest prices. Correspond with us.

S. T. FISH & CO., 189 So. Water St., Chicago, Ill.

FOR SALE.—2000 lbs. choice extracted honey, in 60-lb. cans.

WALTER S. PODDER,
Indianapolis, Ind.

WANTED.—Comb and extracted honey, about 800 lbs. Address

CHARLES SULLIVAN,
7 Worcester Square, Boston, Mass.

FOR SALE. CLOSING OUT.

50 new Simplicity hives painted two coats white. I will put in 2 cases of sections to each hive. I will furnish these hives complete at \$1.5 each. This will close March first. For a quantity price, Address

J. E. HENDERSON,
Roney's Point, Ohio Co., W. Va.

In responding to this advertisement mention GLEANINGS.

MONEY IN RABBITS, TRUE, Belgium Hares, From Imported Parents.

N. BOOMHOWER, GALLUPVILLE, N. Y.

In responding to this advertisement mention GLEANINGS.

BARCAINS.

For \$1.50 we will send American Agriculturist and Gleanings or any other dollar paper in U. S. For \$2.00, Youths' Companion and any dollar paper published. For \$1.21, Albany Weekly Press and any dollar paper. Cosmopolitan, American Agriculturist, New York Tribune, Arthur's Home Magazine, and your choice of any of the bee-papers, all full year for \$5.00. In above offers American Agriculturist and Youths' Companion must be new subscribers. Papers may go to same or different addresses. Samples of above, 3 cts. each, except Cosmopolitan, which is 25 cts. Full catalogue of 1500 papers free. Address C. M. GOODSPEED (Am. Club List), Thorn Hill, N. Y.

In responding to this advertisement mention GLEANINGS.

Bee-Hive Machinery For Sale.

A complete set, in first-class condition, and for sale at a bargain. Other business the reason for selling. 24-1d C. A. GRAVES, Shelby, Ohio.

26 COLONIES Black Bees in a pattern of Simplicity hive, for \$1.00.

J. M. OVENSHERE, D. D. S., Dundee, Yates Co., N. Y.

SECTIONS.

\$2.50 to \$3.50 per M. Bee-Hives and Fixtures cheap.

NOVELTY CO.,
6ftdb Rock Falls, Illinois.

In responding to this advertisement mention GLEANINGS.

Three Back Numbers of the

REVIEW

FOR 10 CENTS.

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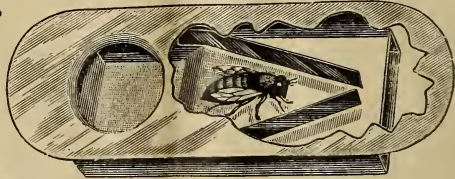
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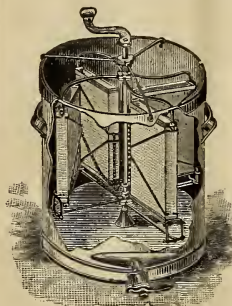
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BEE CULTURE

ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
\$1.00 PER YEAR MEDINA OHIO

Vol. XIX.

DECEMBER 15, 1891.

No. 24.

STRAY STRAWS

FROM DR. C. C. MILLER.

I'M NOT so very rich, but I have more than I want—of the grip.

THAT PICTURE on page 937 is a libel. The real thing is a beauty.

NOT WHAT A MAN has, but what he doesn't want, makes him rich.

THE COLORADO State society is to have an annual "honey day." What's a "honey day"?

AT COLORADO State convention, Mr. Collins was reported as losing 35 colonies by yellow-jackets.

THIS YEAR there seem to be plenty ready to buy honey outright. In years of plenty they want it on commission.

VASELINE is recommended in *B. B. J.* to drive robbers away by painting on the cracks where the robbers are trying to force entrance.

THE IMPORTANCE of a space of about two inches under the bottom-bars for winter is more and more believed in, whether for in cellar or out.

DR. MASON told us at Chicago that each State would have only about ten square feet for its aparian exhibit at the World's Fair. Rather cramped quarters.

WHITE CHILEAN CLOVER, mentioned on page 917, is *Melilotus alba*, as I know from another article I saw in a Southern paper from the pen of the same writer.

ORDER SUPPLIES now. The discount is as good as 8 to 16 per cent interest per annum on the money, to say nothing of the comfort and convenience of having every thing ahead of time.

I WANTED to go to Albany ever so much—wanted to see a number of those good friends in the East, whom I've never met, but I got the grip—I mean the grip got me—and I had to stay at home.

ENOUGH THERMOMETERS to hang one in each room might help to keep peace in the family. One says, "This room is too cold;" another says, "It's too hot;" and one of Root's 15-cent thermometers would be a good umpire to settle the case.

A. N. DRAPER tells in last *GLEANINGS* about being up all night hauling bees. When he has had a little more more experience he'll give up that nonsense, and use broad daylight. I want light enough to make sure there are no leaks before I start with a load.

HEDDON, in *A. B. J.*, gives as cardinal points in bee-keeping: "1. Select a good field, and keep it all to yourself; 2. Get bees enough to stock it." Now will Bro. H. please arise and

tell us *how* to keep the field all to one's self? Getting bees enough has not succeeded; what will? In the second place, will he tell us how to find out how many bees are "enough to stock it"?

THE MINNESOTA publication has changed its name from "*The Bee Journal*" to "*The Northwestern Bee Journal*." That's right; now we know which bee-journal is meant; but the simple name, "*the bee-journal*," might mean *GLEANINGS* or any other bee-journal. Success to the *N. W. B. J.*!

S. CORNEIL is a formidable opponent. He was killed dead, metaphorically speaking, in the foul-brood matter, but now he's up and at it again in the *A. B. J.*, with some arguments that I am very anxious to see met. Friend Corneil, the "decided improvement in my respiration" has suffered a relapse.

WHEN NEWMAN, of the *A. B. J.*, changes his mind he makes no bones of saying so. Formerly he argued that essays at a convention were essential. Now he says, in the most unreserved manner, "The Northwestern was a convention without essays, and it was a charming success. There was no want of subject-matter to discuss, and no lack of enthusiasm.

JOHN HEWITT (A Hallamshire Bee-keeper), in an article in *A. B. J.*, is after Doolittle, Root, and others, with a sharp stick, for saying old virgin queens can not be safely introduced. He uses the knock-down argument, that, for three years, he has been selling virgin queens, safe delivery and introduction guaranteed. He sends out no queen under six days old.

"WE ALWAYS have better conventions when there is a large attendance of ladies," p. 919. I don't know that I ever heard it put just that way; but, come to think of it, I'm sure it's so. The presence of one or more good women in a convention, even if not a feminine voice is heard, seems to have a livening and purifying influence. Oh, yes! let's have the women at conventions.

GAMBLING has a pretty strong hold on this nation. The Louisiana lottery openly debauches its thousands, and in many insidious ways the young are trained to become gamblers. The latest comes from a religious newspaper. It gives a rebus that any child of 12 might decipher, and then offers prizes to the first 20 who send in subscriptions with the correct solution. The money is sent for the *chance* of being among the first twenty, and that's the soul of gambling.

"IN HAULING BEES home for the winter, rather than take off the covers and put on the wire-cloth screen tops, it is cheaper to select a cool day (or else a moonlight night), when all that is necessary at most is to put on only entrance-screens." That's what you say, Mr. Editor, on page 916. Now look here. It's not necessary to select either a cool day or a light

night. In spring and fall I've hauled load after load, year after year, in broad daylight, with only entrance-screens for ventilation; and the only objection I have to shutting them up in the middle of the day to be hauled, is the loss of the bees out flying. But I've often shut up an extra load early in the morning, or the night before, and then put them on the wagon when other hives were in full flight.

ITALIANS IN ITALY.

CHAS. BIANCONCINI, THE EXPORTER OF THESE BEES, REFUTES THE STATEMENT THAT BEES GENERALLY ON THE ITALIAN PENINSULA ARE NOT PURE.

I see that a tourist, Arthur T. Goldsborough (GLEANINGS, page 842), asserts in an article to have been all through Italy, and that he saw no pure Italian bees in the country, and there were only one or two banded bees at the best, and that he doesn't believe that pure bees are found on this peninsula.

There are some assertions which are so erroneous as to need no refutation; but the article in question appears in an American newspaper. Americans do not travel much in Italy, and, in consequence, they do not read our apicultural journals. This is why I would ask of you to give room for this answer. I shall content myself by simply asking the gentleman to refer, as a basis for our argument, to Messrs. T. W. Cowan and S. Simmins, of England; Mr. Frank Benton, lately of Germany, now of Washington, U. S.; E. Bertrand, of Switzerland, and to many others in Europe. Although the bee can be bred in all parts of Italy, we are situated in a section of country where apiculture is but little cared for. The efforts put forth for the propagation of rational methods have succeeded for a number of years in quite a number of provinces; but in the most of them modern apiculture is actively discouraged, and only a small number of the "faithful" have continued in the right way.

I should like very much to know in what parts of Italy that gentleman has been; what large establishments he has visited; the names of the best known Italian bee-keepers with whom he has conversed. Several, of whom I inquired, have told me that they knew nothing about him. Certainly in some parts of Italy the black bee is to be found, but very rarely. There are also here and there some apiaries, perhaps, of the third class, the bees of which show the three yellow bands but feebly marked; but to deduce from this the idea that the race does not exist here in its purity is absurd. The gentleman will permit me to say one thing to him seriously—note, I do not speak hastily or unadvisedly: In order to secure the crop of wax and honey we very frequently buy colonies of bees in the provinces surrounding us; and we almost invariably find that the queens are very well marked. All this, however, does not interest the American importer of Italian queens. He will ask of this tourist whether he visited those establishments which export bees; whether he observed closely the race of bees in the yards of Messrs. Mona, Fiorini, Rauschenfeld, and Mr. Paglia (my partner), the largest and perhaps the finest in Italy.

Now, as this gentleman will probably reply that he does not know these people, I would suggest that he probably found some Italian peasants who have black bees in very small apiaries, where the bees were not very strongly marked. I have not seen *all* the establishments which export queens; but I am happy to believe that my colleagues are as careful as we

are to preserve their good name, and to preserve the purity of their bees. The choice of colonies, the selection of queens, and suppressing without mercy all that do not show the presence of desirable qualities on the part of European, American, and Australian buyers, have led to the enviable reputation which our house now enjoys. I can, if desired, show to this gentleman letters which prove how well people are satisfied with our bees; but out of them all I need mention only the unquestionable name of A. I. Root.

I would say to that tourist that we are so scrupulous in regard to the purity of our bees, for fear of hybridization, that we have entirely abandoned the culture of Carniolans, Cyprians, and Syrians, although we often receive orders for those races. And now I should like to know, Mr. Ernest, whether we may not have the happiness of seeing you in Italy, now that excursions are so easily undertaken. If so, you can judge for yourself whether we are right or not.

CHARLES BIANCONCINI.

Bologna, Italy.

[The article above, coming from a native born citizen of Italy, and citing such eminent authority as Cowan, Simmins, Benton, and Bertrand, to back the statements, ought to satisfy any one that the bees of Italy, as a general rule, are pure Italians. No one could possibly suppose that there were absolutely no other bees in that country, because it is natural enough that there should be a few bee-keepers who would want to see the Carniolans, Punicas, and German bees, and therefore would have queens of these races mailed to them; but that pure Italians are not to be found in Italy, as averred by Mr. Goldsboro, on page 842, is far from the facts in the case. We inserted the article, because, above all things, GLEANINGS desires that the full truth shall come out, cut which way it may. Mr. Bianconcini is a gentleman with whom we have had the pleasantest of business relations, and one whose statements can be safely relied on; and while we do not for a moment think that Mr. Goldsboro desired to misrepresent, we feel sure that he must have examined the bees very carelessly, or else visited but very few localities. All the queens that we have imported from Italy exhibit in their progeny quite a fixed type of bees. They are leather-colored, the third band being often quite indistinct. They are generally good honey-gatherers, rather better than our home-bred stocks, we think; and it is only in very rare instances when we find that they are cross. These exceptions, of course, can not disprove the rule.]

We know it has been somewhat questioned whether it is desirable or even necessary to go to Italy for our strains of bees, in view of the high perfection of queen-rearing in this country. But as we have said before, Mr. Charles Bianconcini and his colleagues are expert queen-breeders. They know how to develop the valuable traits in the bees. Besides this, they have one very great advantage over American breeders—at least in the Northern States—and that is, a beautiful climate. There is something in that southern climate that produces bees of marked qualities, whatever else we may say of the breeders. It may look as though we were interested parties; but, dear friends, we could make more money by putting high prices on home-bred stock than we could to import from Italy; and this home-bred stock would sell. We do have high-priced home-bred queens; but we can not make these queens duplicate themselves as do those we import direct from Italy.]

HANDLING HIVES INSTEAD OF FRAMES.

G. M. DOOLITTLE SIFTS THE MATTER.

I have been somewhat amused over some of the ideas advanced by the advocates of the "short-cut" plan of handling hives instead of frames, in order that we may in the future produce honey more cheaply than in the past. If I am correct, GLEANINGS has never advocated the handling of hives instead of frames, but, rather, advocated "handling hives more and frames less." This will do very well; yet, as a whole, it has, in my opinion, the element in it of impressing the beginner that a careless style of bee-keeping will accomplish as good results as will one of push and energy, which is incorporated in the handling of frames. "Old heads" can be trusted better to *guess* at the inside conditions of a colony from the outside appearances of the same; but I contend that, in order for any person to become an accomplished apiarist, he must, in his initiatory steps, become thoroughly acquainted with the inside workings of a colony of bees by *actual inspection* of the frames of brood, honey, and combs. Handling hives, in the abstract, admits of no suitable knowledge of the inside workings of a colony equal to even a fair guess; hence I claim that the ideas advanced along that line are only a step toward the "dark ages" of the past, when our beloved pursuit was pretty much shrouded in mystery. I find the following in one of our bee-papers:

"We have lost sight of the advantages of judging from outside appearances in our use of the frames. If an experienced bee-keeper places his ear against the side of the hive, and raps or jars, he can tell by the sound, pretty well, the condition of the colony inside of the hive. During the early spring, in cold storms, when there are colonies in the apiary that are liable to starve, if the apiarist will go from hive to hive every day and place his ear on the side of the hive, and rap, he can tell by the sound whether all are fed. If the response is weak, a little syrup given immediately will soon restore the strong, vigorous response to the rap," etc., on to the end of the chapter. And what is all this for? Simply to forward on the craze which has stolen the heads of some of our bee-keepers, so that no amount of work is considered too menial so long as the handling of frames can be avoided, in this great strife in producing honey cheaply, so that apiarists can live by raising honey at the present and fast becoming depressed prices of the same. Just think of a sleek, high-toned apiarist going out every day in slush and cold storms, getting down on his knees in the mud and snow, placing his ear to the side of the hives, and rapping on the same to know whether any of the colonies are going to starve, when once handling of the frames during the first flight of the bees in the spring would place them where the apiarist would *positively know* that no colony need starve during the next month or six weeks to come! Think of a woman going out every week, turning a hive bottom side up, and, with smoke, driving the bees down among the combs, peering in as best she can, setting the hive back on its stand again, removing the covering from the top, smoking again, and looking down into the hive that way, all for the sake of *guessing* at what is inside, when once handling of the frames the fore part of June would give this lady bee-keeper a perfect knowledge regarding all that would be necessary to know about that colony for the next six weeks to come! If this is to be the advancement (?) of the future decade of our bee-keeping history, I am heartily glad that my apicultural life was cast among those

of the past decade. Gentlemen, the whole thing is a step in the wrong direction. Teach the beginner that it is an *absolute necessity* that he fully understand all of the minutiae of the inside workings of a colony of bees; and, after he has this fully learned, frames are to be handled only where a gain can be made by handling them. Work in the apiary is required only where a profit is to come from that work; and that this handling and work must be done at the right time, in the right manner, and in the right place, if he or she would become a successful apiarist.

It is with pride that I look at our achievements in apiculture during the past quarter of a century; and shall we disgrace ourselves and our nation now by going back to the guesswork of our forefathers? No! a thousand times no! Let us keep climbing the hill of scientific apiculture till we shall have reached the loftiest tablelands of the highest peak, and from there shout forth the victory which a thorough understanding of the inside of a bee-hive, accompanied with a moderate use of the same, has led us to. Let the watchword be *ever onward*, onward, till the unfathomable depths of the present are reached in the future; till the human mind has grasped *all* that the mind of the Infinite has intended that we should take in of this our beloved pursuit. If any one sees only *fun* in handling frames, and playing with and searching out the marvelous things which are seen on the inside of a colony of bees, as does your humble servant, then let him set apart one or two colonies for this purpose, and consider the fun as the profit from these; but only work or play with the rest of the apiary, where it is seen that an actual profit in dollars and cents is to come from such work. In this way, neither "all work" nor "all play" will "make Jack a dull boy." G. M. DOOLITTLE.

Borodino, N. Y., Nov. 28.

[If you will follow carefully all that has been said, you will see that GLEANINGS does not differ very much from your views. It has never advocated that *beginners* should diagnose colonies without handling frames. The policy that it has and does advocate is that, after the beginner, by much handling of frames, has grown to be almost a veteran, he should no longer handle frames separately, but learn to diagnose and almost get along with handling only one frame to a colony. A *beginner* must go all through a colony. But it would be bad policy for him to continue this practice all his life as a bee-keeper, as you yourself would quite likely admit. We quite agree with you that we could not depend upon the hum or z-z-z-p of a colony, nor would we care to get down on our knees in the wet to do it. There are other cheaper and more reliable methods.]

BEEES AT THE BIG FAIR.

DR. MASON AND THE OHIO EXHIBIT.

Dr. A. B. Mason, of this city, who is probably one of the best-known bee-keepers of America, has just returned from Chicago, where he has been to confer with Mr. W. S. Buchanan, the chief of the department of agriculture for the Columbian exposition, in regard to the preparation of an exhibit of bees and honey, and every thing used by the bee-keepers in increasing the number of colonies of bees, and securing the products of the labors of the bees that "work all day and never sleep nights."

The doctor has been recommended for appointment as superintendent of the apiarian

department at the World's Fair in 1893, by the North American Bee-keepers' Association, and his selection for that position would give universal satisfaction to the bee-keepers.

Mr. Buchanan, having been quite an extensive bee-keeper himself, takes a deep interest in the apiarian exhibit, and assured Dr. Mason that he would do all he could to aid the bee-keepers in making a creditable exhibit of their industry, and suggested a plan for an exhibit of bees that was just in accord with the method that had been devised for their exhibition, and the doctor feels quite elated over the prospects for a grand exhibit.

In a paper read by Dr. Mason at the last meeting of the North American Bee-keepers' Association, he outlined a plan for the exhibits that has received the indorsement of the bee-keepers, and been adopted by all the State societies that have taken action in the matter.

He says that the Illinois bee-keepers tried last winter to get an appropriation of \$5000 from the legislature with which to make their State exhibit, and at the recent meeting of the Northwestern bee-keepers at Chicago he said he thought that was not the way to do. His idea is to let the State bee-keepers' associations of the different States have charge of the apiarian exhibit from their State, under the direction of the State Board of Commissioners, and let the State board pay the expenses, which he thinks ought not to exceed one-half that sum, and perhaps even less.

The bee-journals of the country are in favor of the doctor's appointment, and the *Canadian Bee Journal* says: "If the apiarian exhibit at the World's Fair is not a success it will not be Dr. Mason's fault."

The space for the exhibit will, like many other departments, probably be somewhat limited, occupying not more than 300 or 400 feet in length.

There will probably be a honey exhibit from fifteen or twenty States, so the space for each will be very small indeed.

In a letter to the doctor, Mr. Buchanan says: "I would suggest that, in considering the question of space, it be borne in mind, that, in all probability, demands will be made in all departments of the exposition for vastly more space than can be assigned; and in my judgment the most careful thought should be given to the question of how best to fully illustrate an industry in the most attractive and thorough manner, in a limited space."

At the Ohio centennial one party occupied 50 feet in length and full width of the allotted space, and the doctor thinks bee-keepers will be very much disappointed in not being allowed to "spread themselves."

It is intended to have houses in all sorts of fanciful shapes, and in all kinds of attractive and beautiful receptacles, so as to call forth from the visitors all the "sweet" expressions of amazement that all the languages of the world are capable of furnishing.

An effort will be made to have a large variety of honey-producing plants growing and in bloom on the grounds.—*Toledo Blade*, Nov. 27.

RAMBLE NO. 49.

FLINT AND LAPEER, MICH.

Leaving the soil of the fertile and sovereign State of Ohio, we entered Michigan. A rapid journey of a few hours brought us into Livingston Co. We found but few bee-keepers in this portion of the State; but spent a week very pleasantly with kinsmen, and watched the progress of Michigan farming in its midsummer

phases. The mowing-machine was doing its work, and the harvesting machines were being put in order for the fields of golden wheat that dotted the landscape. In this county white beans are raised extensively; and from the hundreds of acres visible, beans seemed to be the staple crop. Every thing in the farming line looked favorable, and the people seemed happy and contented. A few days' looking into the faces of kindred who had experienced the ups and downs incident to settling a new country, and establishing good government and fostering moral and religious ideas, and we bade them farewell, and the rumbling train was again our home.

Flint, Mich., has a pleasant sound to the bee-keeping fraternity, and is a pleasantly located little city of some 12,000 pleasant people. This being the home of Bro. Hutchinson and the *Review*, the Rambler could not pass through the town without making a call. In fact, we went out of our regular route a little in order to pass through Flint. We had planned to reach there before dark; but it was 8 o'clock before we dropped from the train.

"Do you know where Mr. Hutchinson lives?" said we, to the first hackman.

He seemed to be uncertain about it, but made sure of us by tucking us into his hack, and, receiving directions from what seemed to be the boss hackman, started off on a lively trot for somewhere. He finally stopped on a street-corner, and musingly said "bee-hives."

"Yes," says we, "that's him."

A few steps more and the outlines of a house in the shadow of a few noble shade-trees were revealed; but all was dark and silent. It was 8:30; and, concluding that Bro. H. was off on a vacation, we were about to seek a hotel when the door opened and Mrs. H. appeared. It was a charming voice that said "come in." The voice further said, "Mr. H. is in bed, but I will call him."



W. Z. HUTCHINSON ROUSTED FROM SWEET SLUMBER BY THE RAMBLER.

The Rambler protested; but Bro. H. had one eye and ear open, and soon emerged from the land of Morpheus, and gave us the right hand of fellowship, and we visited until ten o'clock.

In the morning we saw visible signs why Bro. H. had retired early. The windows from the room in which the *Review* is made received light from under the branches of those afore-said shade-trees. A larger and better room, with more light, was in the rear of the house, and this had been fitted up, and moving into it was in progress. I was pleased to witness the visible signs of the continued prosperity of the *Review*. The *Review's* clean bright make-up and kindly disposition is strongly suggestive of

a ladies' boudoir; and, with wife and those twins, who are now almost young ladies' and so near alike that you want to put a distinguishing mark on one, the Hutchinson home has a certain atmosphere of refinement; and we certainly think that the *Review's* success is, in a measure, due to the wife's fair hands and twins' nimble fingers. Reader of the *Review*, remember, when you look at its pages, that it comes from a humble but beautiful American home, and should receive your hearty support. The *Review* thus occupies a unique position among our bee-periodicals. It was started with the avowed purpose of the editor to publish a journal that would stand upon its own merits, and not depend upon a large supply-business for its successful continuance. There have been very many predictions as to its failure; but we believe it has not skipped a number since it was started.

result in better work for the fraternity. The *Review*, however, is an established success with Bro. H. in the editorial chair. With a growing subscription list his efforts will also grow to meet the demands of the hour.

In the morning Bro. H. suggested that we go to Lapeer and see the Hon. R. L. Taylor and his apiary. Our journey of 20 miles was quickly made by rail. After reaching the station we had an opportunity to stretch our legs a whole mile by walking. As it was not near dinner time we took our time, and sauntered along, and inspected a stone-eater on the way—of course, it was a stone-eater. There were the jaws and the stone. Feed the jaws and the stone came out just right to make roads with. That's the kind of roads they make in Lapeer. We feel like writing a whole ramble on this very subject, but will not at this time inflict



W. Z. HUTCHINSON AND R. L. TAYLOR'S APIARY, LAPEER, MICH.

Bro. H. is a prolific writer in his chosen pursuit, and has a faculty for touching upon those points that are of vital interest to the practical bee-keeper. Bro. Root started *GLEANINGS* amid the busy whirl of a few buzz-saws. The whirl and *GLEANINGS* have had a steady growth, and, being co-workers, a separation of them would probably be a damage if not ruin to both. *GLEANINGS* would not be *GLEANINGS* without that whirl, and we want it as it is.

The *American Bee Journal* also fills an important niche, being the only weekly. We are often posted on the progress of apiculture, and would certainly miss its frequent visits. These three publications seem to take the lead in our literature. Our other papers are no doubt giving more than the small subscription price; but it has been our opinion that a concentration of subscriptions upon a few publications would

our observation upon you, and will only say that the stone-crusher is, in many portions of the country, lifting the disgrace from our country roads and making them delightful to travel upon.

Upon our arrival at the neat Taylor residence we were disappointed to find that R. L. had not returned from his arduous duties at the State capital, of law-making and looking out for the interests of bee-keepers. Bro. H. seemed perfectly at home in the Taylor family, and a pleasant hour was passed. Mrs. T. trying to make amends for the absence of her husband, she succeeded admirably, especially at the latter end of the hour when we sat down to a bountiful dinner. We know R. L. Taylor is a happy man. The queen of his home is a visible demonstration of it. After dinner we were given full liberty to examine the apiary. Mr.

Taylor's honey-house and shop are a continuation of his barn, and we here found all of the paraphernalia of an old and extensive bee-keeper. Mr. T. manufactures a portion of his own supplies, and runs his circular saws with a horse-power of his own invention. This is a very convenient arrangement, and can be taken up or put down upon his barn floor when desired. This horse-power was illustrated in GLEANINGS some years ago.

Foundation-machines and wax-rendering apparatus showed that there were busy times here on occasions. We pass from the shop to the apiary, and find nearly if not quite 200 swarms of bees, nearly all in Heddon hives, arranged in the shade of apple-trees. Mr. T. is a believer in and is successful with the new-fangled hive. In fact, he is an advanced bee-keeper. Even that dread disease foul brood has no terrors for him, as he has complete mastery of it, as we understood from Bro. H.

Our camera secured a very good view of the apiary; but in our operations an accident happened. In order to get a better view we were in a precarious position on a picket fence. Bro. H. seemed interested in our skill as a trapeze performer; and while he was thus absorbed, our camera had an accidental "snap shot;" and when we developed the negative there was a very good-looking head in the corner. We hope the half-tone engraving will retain it. Bro. H. seemed to enjoy the day's outing; and though we had roused him from sweet slumber the previous evening, we hope our day's outing gave him a little needed change. We journeyed back to Flint; and as our ticket was to Lansing, our farewell shake was given on the train, and we were speeding away to Lansing.

RAMBLER.

[We should like to know, Rambler, if this is the way you surprise bee-keepers. Even the cat seems to be horribly amazed; and while Mrs. H. is delightfully amused, W. Z. H. evidently does not propose to stop for ceremonies in his hearty welcome. We have watched with interest the apparent prosperity of the *Review*. It certainly has grown on its merits, and GLEANINGS is glad to welcome it as a colaborer. We have wondered sometimes whether Mrs. W. Z. H. and the twins didn't have something to do with it, as it is always so neat and tasty.

We are glad to get a view of R. L. Taylor's apiary, even though you did have to perform an acrobatic feat in order to secure it. So this is an apiary of all the new Heddon hives. Its general neatness and orderly arrangement, considering that it was not fixed up for the occasion, reflects credit upon the owner. The small picture of Mr. Hutchinson is very good. The next ramble is at the Michigan Agricultural College. Rambler's impressions there are realistic.]

THE WINTER PROBLEM IN BEE-KEEPING.

A REVIEW OF A NEW BOOK.

By Ernest R. Root.

Before us lies a 77-page book entitled "The Winter Problem in Bee-keeping. By G. R. Pierce." The book is exceedingly well written, and the writer is evidently a scholar, scientist, and a close observer. We do not remember to have seen his name in print before, in connection with bee-literature; but he appears to be fully conversant with it. He starts out by saying that bee-keeping might in some instances be made profitable if it were not for heavy losses in winter, and thinks that the average losses would not be far from 40 per cent per annum;

and concludes that if bee-keepers can be taught to winter their bees, the business would be made a success where it otherwise would be a failure. The author has evidently placed the percentage of loss beyond what it really is. Twenty-five per cent would be nearer correct; and among intelligent bee-keepers, 10 per cent.

THE POLLEN THEORY SET ASIDE.

Mr. Pierce is against the pollen theory; that is, he does not believe that pollen is the cause of diarrhea. He argues that cold and lack of stores is the real cause; that diarrhea among bees is nothing more than intestinal catarrh, and that pollen only aggravates the disease already present, rather than gives rise to it.

OPPOSED TO ABSORBENTS IN OUR COLONIES DURING WINTER.

He is decidedly against absorbents to take up the moisture from the colony. By quite a long series of experiments he concludes that they are a positive detriment to the well-being of the colony. Chaff cushions or other porous material over a sealed cover are all right, and serve a good purpose; but the trouble is, he urges, when the cushions are next to the bees they allow the escape of warm air, which, being heavily charged with moisture, and coming in contact with the colder atmosphere, precipitates said moisture, making the cushions damp. In this condition the cushions are good conductors of heat, and are a positive injury to the bees below. He is a thorough advocate of protection, and of packing around the bees; but the cover must be so sealed down that no heat can escape into the packing material above, which, unless kept dry, is worse than nothing.

For several years back we have advocated the use of absorbents in outdoor wintering; and only a few months ago we decided again that we must have them. But in the last few weeks we have been watching the matter very narrowly; and before the above work came to hand we had begun to form conclusions somewhat as expressed above. It is needless to say, that, when the book came to hand, we read it with unusual interest. We then handed it to our apiarist, Mr. Spafford, who, after carefully reading it through, was captivated, and gave it as his opinion that the author was sound, and, so far as he had observed, the statements were correct in reference to the use of absorbents. We have since reread it, and are now making some experiments, all of which up to date seem to argue against absorbents—but, mind you, not against packing material over a sealed cover.

PIERCE'S METHOD OF PACKING BEES FOR WINTER.

He uses the Langstroth hive, so his plan can be readily tested by nearly all, even at this late date. He would have a floor-board, or at least a board under the bottom-board, wide enough and long enough to project two inches on all sides. He would then have a box, without top or bottom, 20 inches deep, and large enough to leave two inches of packing space all around the hive, the same to be set down on the large bottom-board. The inside hive should have a flat board that had been sealed down early in the fall by the bees, so that it would be airtight. Above this cover-board he would place several folded newspapers, paper being one of the best non-conductors. Over this he would place three or four newspapers *unfolded*, with the edges folded and tucked around the sides of the hive. Around the whole he would then pour packing material, such as leaves crammed in solid. When the box is full, put the cover of the outside winter case on. In this condition he would not be afraid to insure them against

loss. The packing material would never become moist, neither would the cover-board inside of the hive precipitate moisture, on account of the thorough packing above and around it.

THE PLAN NOT NEW.

As already intimated, this plan of outdoor wintering is not new. Several prominent apiarists have urged it, and at different times, though perhaps not so clearly and forcibly, nor so thoroughly substantiated it by a series of experiments extending over so many years. We believe it was J. A. Green (if it was not, it was "the other fellow") who claimed that he could winter bees in a large-mouthed bottle—the bottle being, of course, thoroughly protected by several inches of packing, and the mouth being wide open.

SOME EXPERIMENTS ON WINTERING AT THE HOME OF THE HONEY-BEES.

Quite in line with Mr. Pierce's statements, the absorbents in our winter cases have been getting too moist to please us; and we have therefore put over a number of our colonies thin boards to fit tight on top of the hive. We have even gone so far as to imbed some of them in white-lead paste, being so cold now the bees would not seal them down with propolis. Over these we have poured the packing material and replaced the cover. Nay, we have gone further. We have taken sheets of glass, just the size of the top of the hive, and imbedded them in white-lead paste. Under the three glass covers were previously put creamery thermometers. Over one of these we poured chaff packing; over another, coarse planer-shavings; and on the remaining we laid a chaff cushion. When the thermometer was 10 degrees above zero outdoors under the glass it registered from 45 to 50 degrees. These glass sheets were put on the hives about a month ago. We notice another thing—that their clusters of bees were the last ones to contract up for winter, while those *under the absorbents* were balled up a week or so before—the cushions being a little moist. Now, the inside of this glass, even with only a two-inch chaff packing, never precipitates moisture; in fact, the glass feels warm to the hand, and the hive is perfectly dry inside. On the very coldest days the bees are clustered pretty well down toward the entrance, showing that they are not suffering from want of heat.

WHAT TO DO, AND HOW TO BE HAPPY, ETC.

Next summer, if we can procure a large glass bottle we will put some bees into it, let them build their natural combs, and then prepare them *a la Green*. Winter? Of course they will. But then it will be lots of fun to pull the packing away from the sides, to witness how the ball of bees is and where it migrates from week to week, etc. By the way, if you wish to have lots of fun, and wish to learn more about wintering than you ever knew before, procure a sheet of glass and imbed it in white-lead paste over the top of one of your average colonies. Protect it thoroughly with packing, and then every few days during winter "paw" the packing away, take a peep at the thermometer, and see where the bees are. If you work quickly and carefully enough, you need not disturb the bees in the least.

WHY WE HAVE HAD SUCH GOOD RESULTS WITH ABSORBING CUSHIONS.

Of course, before spring we may be very much less enthusiastic over non-absorbents. But we have this to say about absorbing cushions: Very few bee-keepers—in fact, no one—can show better results in winter for the last ten years than we have had. During this time, with absorbing cushions we have lost less than

three per cent, and that with anywhere from 150 to 200 colonies. But as we look back now, the three per cent died from some unknown cause; and, as nearly as we can recollect, their cushions were very wet. One colony in particular last winter—the best one in the whole apiary—"went up" before March, and its cushion was soaking wet. We were quite loath to believe at the time that the wet cushion had any deleterious effect; but in the light of recent developments it is suggestive. Now, why is it that we had such a low percentage of loss? Perhaps this is the solution: Our cushions were about eight inches deep; and, being packed solidly in the upper story, it amounted, almost, to *no* upward ventilation. In a sense, then, they approximated toward the condition of a sealed cover. If we are correct in our own observations, two inches of packing and a sealed cover is as good as eight or ten inches of packing *next to the bees*. Where we have used absorbing cushions over two inches thick next to the bees, many of them have been soaked through, even after being on the hives for only a month. Over against this is the fact that packing material of the same thickness, above the sealed cover, was perfectly dry, *so also was the hive inside*; and the thermometer registered 45 to 50 when the outside temperature under a high wind was only 10 degrees above zero. This is a fruitful and timely subject, and we should like to have it thoroughly discussed.

By the way, we should mention that the book, "Winter Problem," can be obtained of the author, G. R. Pierce, Blairstown, Benton Co., Ia.; price 50 cents. It is not a very large book, but it represents, evidently, a great amount of study and experimentation; and although you may not find any thing new in it, you will find it beautifully written and interesting.

JULIUS HOFFMAN.

THE INVENTOR OF THE HOFFMAN FRAME.

The subject of this sketch was born in the town of Grottkan, province of Silesia, Prussia, Germany, on the 25th of October, 1838. His birthplace is but a few miles from where Rev. Dr. Dzierzon spent most of his lifetime among his bees, and from whence he spread his knowledge and discoveries over Germany and the world. When young Hoffman was a little over 13 years old he visited Dr. Dzierzon, and was imbued with such enthusiasm for the bees that he at once bought a colony of blacks into which he introduced one of Dzierzon's best Italian queens. With the exception of about three years he has handled and kept bees ever since.

In 1862 Mr. Hoffman left Germany and took up his abode in London, England. He moved with him a colony of Italian bees and kept them on a shelf outside his bedroom window for four years, during which time they never tried to swarm. They gathered considerable honey from mignonette, which grew in the small gardens of the city.

In 1866 Mr. Hoffman came to America. He could not part with his pets, hence they crossed the ocean with him. He settled in the city of Brooklyn, and accepted employment in the organ and piano business. During the next four years he increased his bees to 36 colonies. But he soon realized that so many bees in a crowded city lead to trouble and become a nuisance. At that time honey was bringing a good price; and as he loved the bees he decided to move into the country and engage in honey production as a business. The next spring he moved to Rockland Co., N. Y., 35 miles from New York, and

in the fall he had 65 colonies. This place did not suit him, and he cast about for a better location.

The writer, at a meeting of bee-keepers in Albany, N. Y., early in the winter of 1872, read an essay which led Mr. Hoffman, who was in attendance, to seek acquaintance. A mutual and lasting friendship sprang up; and, by the advice of the writer, Mr. Hoffman was induced to move to Fort Plain, N. Y., where he settled in the spring of 1873.

There in a few years he increased his stock of bees to about 400 colonies, selling off the increase, 50 to 100 colonies, each spring. During this period many of the renowned bee-keepers in various parts of New York were each winter losing hundreds of dollars' worth of bees, and were buying heavily to keep up their stocks. Thus while other bee-keepers were losing their capital, and were discussing the subject of wintering, at conventions and

known a bee-keeper to discard them, and nearly all who use them are prosperous.

□ But Mr. Hoffman desired more land, and a location where more buckwheat is grown; hence in 1884 he sold his place and bought 75 acres of new land four miles east of Canajoharie, and seven miles from his former home. On this he erected suitable buildings, and has each fall for the last five years put into winter quarters about 650 colonies. By sale and shrinkage these are generally reduced to about 500 colonies each spring. This number, kept in five or six different places, is about all that he can, with one assistant, conveniently handle, especially as the assistant has to do chores and attend to three horses and a few cows, besides doing considerable farm work. He has no other assistance except two daughters, who help to extract the honey and prepare sections of comb honey for market.

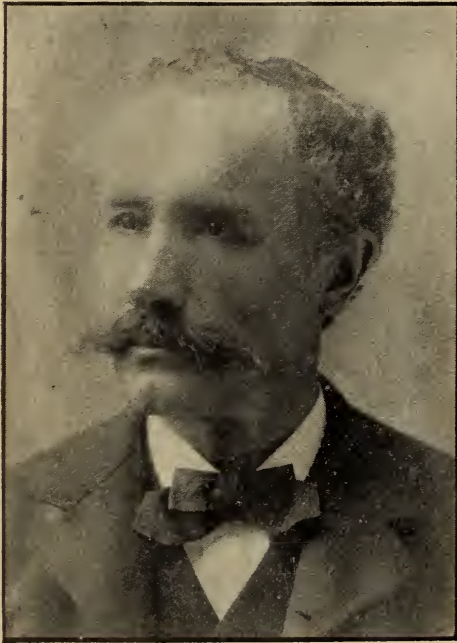
The extracting is all done at home. Mr. Hoffman has always produced comb honey principally, except for the last three years, during which time the crop has been nearly all extracted.

Seventeen years ago Mr. Hoffman devised the brood-frame that bears his name. It was the outgrowth of a desire to improve existing methods and facilitate manipulation.

Mr. Hoffman's best average crop of comb honey was 80 pounds per colony, and the poorest (season of 1890) was 20 pounds.

Mr. Hoffman is medium in stature, slight of build, and is unassuming and quiet in manner. He has a vigorous mental-motive temperament, and is never idle. A piano and organ builder by trade, he is ingenious and a good mechanic, able to construct his hives in a thorough and perfect manner. He is a great reader, and has frequently translated and condensed articles from the German periodicals.

Aside from his duties as an apiarist, he travels considerably over the adjacent territory and repairs and tunes musical instruments. He is still in the prime of a vigorous manhood; and may he live long to enjoy the fruits of his labors, bless his family, and instruct the bee-keeping fraternity, is the wish of
Canajoharie, N. Y. J. H. NELLIS.



JULIUS HOFFMAN.

through the papers, and were experimenting with new methods and expensive cellars, Mr. Hoffman was prospering and selling to them his increase. Never shall we forget the astonishment and admiration that filled us when, after Mr. Hoffman had lived at Fort Plain some months, we called and beheld his large apiary and stirring enterprise. Then indeed we thanked our stars that we had been instrumental, in part at least, for the presence among us of a real, live bee-master.

From that time on, for some years, we visited him often and studied the conditions, methods, and surroundings, in order to learn the secrets of his great success. Without pointing out at this time the various elements that led to this success, we will state that not the least among them is the brood-frame that bears his name, and which we had the pleasure to first describe and recommend in the *Bee-keepers' Exchange*, page 52, 1879. This gratification is more complete, as, when once adopted, we have never

[Our older readers will remember J. H. Nellis as the editor of the *Bee-keepers' Exchange*—a very sprightly bee-journal under his management. He was also at one time secretary and at another time president of the North American Bee-keepers' Association. He not only published a bee-journal, but he was quite an extensive manufacturer of apiarian supplies. In later years, however, the publishing and apiarian-supply business has given place to other interests, although he has all along kept bees. Mr. Nellis was the first one to make public the Hoffman frame and its merits. The files of his old bee-journal show that he was enthusiastic in its praise; and the fact that he has used this frame all these years, and still likes it, shows that it wears well. He has promised to favor us with two or three more articles, not only in regard to further facts concerning Mr. Hoffman and his methods, but also some facts from his own experience.]

When we visited Mr. Hoffman we saw all the evidences of material prosperity; and, if we were not mistaken, this prosperity came mainly from the bees. He has a pleasant and beautiful home by the side of a deep ravine. We desire to indorse all that Mr. Nellis has said of its owner; and although he has been wonderfully successful he is very modest in regard to his attainments. He has none of that show and bluster of some bee-keepers who, having obtained moderate success, would have us believe

that theirs is the only method that is certain to arrive at success. By their fruits ye shall know them; and so let the Hoffman frame be judged.]

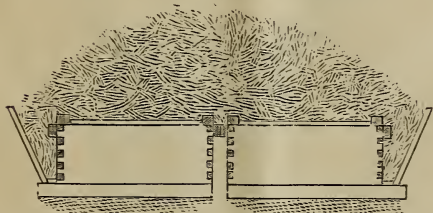
OUTDOOR WINTERING.

HOW DR. MILLER HAS PACKED SOME OF HIS.

Last winter I wintered a few colonies of bees outdoors, the first I wintered out for years. It was a successful experiment, although the winter was a mild one. Usually the winters are very severe here, and I'm not sure that any way of wintering out would prove better than cellar-ing. Still, on some accounts I'd like to be able to winter out, and this winter I will try the winter cases on a few colonies. If they do not prove satisfactory, I will repeat on a larger scale. I think, the experiment of last winter.

Partly because I should like suggestions concerning it, and partly because I feel sure the plan is a good one for some whose winters are not too severe. I will describe it.

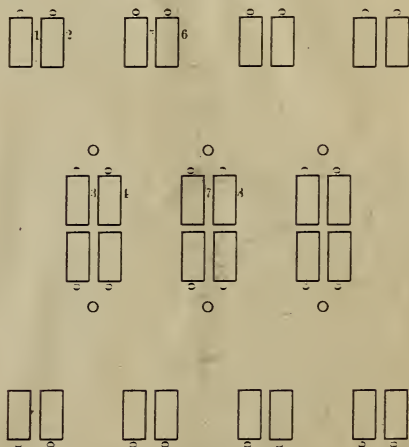
Two hives were placed back to back, then two beside these, back to back, and this might be continued so that there would be two long rows of hives, the backs of the hives of one row standing against the backs of the other row. There was nothing particularly new in the manner of packing, and a glance at the cut showing a transverse section will make it easily understood. A strip was laid across the front part of the deep bottom-board, making a winter passage for the bees under it, without allowing the packing to choke up the entrance. Then a board was set in front, its lower edge resting on the front ends of the bottom-boards. The board was set in a slanting position, so that the upper edge was much further from the hive than the lower, and stakes driven in the ground supported the board. Then the whole was covered with straw taken from the horses' bedding. Perhaps clean straw or prairie hay would be better. It is much easier packing, as well as warmer, to have a number



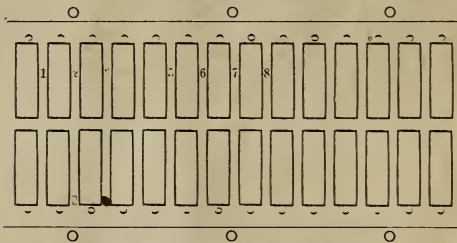
HOW DR. MILLER PACKS HIS HIVES FOR WINTER.

of hives standing together; but the trouble is, that you don't want them to stand that way during the summer, and it makes trouble, fall and spring, for the bees if you change their position. I think it can be managed to make little or no trouble. If you want to try my plan I'll tell you how I'll do it if I try it again on a larger scale. Next spring I'll set the hives in one of the out-aparies, in the way you see them in the picture of the summer arrangement. Of course, only a small section of the apiary is there shown; and through the middle you see the hives placed in groups of four, the entrances facing in opposite directions, one pair of hives standing back to back to the other pair. Between each two groups is a vacancy large enough to admit another group, and in front of this vacancy at each side stands a pair of hives with the entrances facing outward.

Throughout the summer they remain in this position, but for the winter they must be got in position as shown in the cut of winter arrangement. You will see at a glance that all that is necessary is merely to move back the two outside rows to fill up the vacancies between the center groups. For example, 5 and 6 will be moved back into the space between 4 and 7. When moved back into the two solid rows shown in the winter arrangement, they are ready for packing as previously described. The position of the hives is such that changing from summer to winter arrangement will not greatly disturb the bees. You may move a hive directly backward quite a distance, and the bees will readily find it, for it is directly in the line of their flight, requiring them to go only a little further in the same direction. But if a hive is moved forward it troubles them a great deal more, so that in moving them out in the spring it can not be done at a single operation. It will be necessary to move them perhaps only a few inches the first time, and after a few days a few inches more, and so on.



SUMMER ARRANGEMENT.



WINTER ARRANGEMENT.

It is pretty well agreed that large entrances should be allowed for winter, but it is not well to have strong winds blow without any hindrance, directly into the entrance. So I would have in winter a close board fence two or three feet high on each side, in front of the hives. The round O's in front of the hives in the central groups show where the fence-posts will be set. If eight-frame single-walled hives are used, these posts will be about five feet apart. The nails in these boards will not be driven entirely in, and then in the spring a claw-hammer will easily draw them out. Would such a fence make trouble in some places by making snowdrifts over the hives?

The boards of this fence must be put out of

the way during the summer, and, with a little extra trouble, they can be made to serve a good purpose. Let the posts stand $5\frac{1}{2}$ or 6 feet out of the ground, all sawed off to the same height. From a post on one side to the post on the opposite side put a piece of 2x4 scantling edgewise, fastening it there. On this the boards can be lightly tacked, making a good shade for the central groups of hives. If this is not contemplated it will not be necessary to put the posts so close together.

What are the objections to this plan, and what improvements are suggested?

Marengo, Ill., Dec. 4. C. C. MILLER.

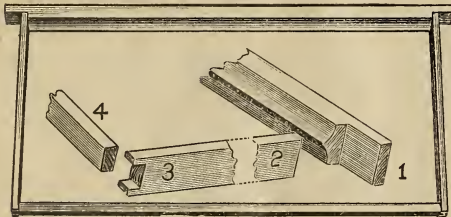
[The only objection to your plan, friend M., is, that it is a great deal of work to move the hives back and forth, put up a temporary board fence, and put on and remove the straw. Wouldn't your straw become wet when exposed to the weather? You might thatch it as they do straw roofs, but that which comes from the stable would be rather too broken, would it not?]

RECENT DEVELOPMENTS.

BROOD-FRAMES FOR 1892.

By Ernest R. Root.

For the past two or three months we have been studying on general improvements on aparian supplies—improvements that are real, and that have been suggested by experience, rather than those that have been evolved from theory or fancy. Among the first is something in the line of top-bars, with the loose and Hoffman frame. The thick top-bars have given very general satisfaction, and have sustained all the claims of its advocates, when used in connection with the proper bee-spaces—i. e., a scant $\frac{1}{4}$ inch. In experimenting this summer, and comparing reports carefully, we found it was not necessary to have the top-bar any thicker than would be required to prevent any possible sagging that would change the bee-space—the essential features for the prevention of burr-combs being rather in the width of the bar, depth of bee-space, and exact spacing. With these conditions properly met, we can reduce, a small trifle, the thickness of the top-bar. The following cut shows our last thick-top brood-frame.



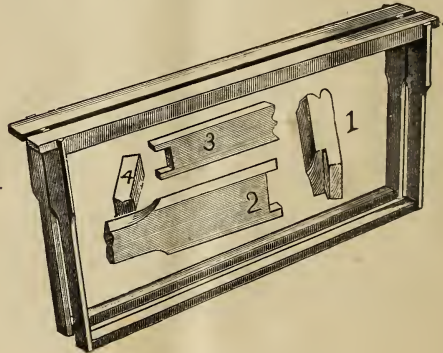
IMPROVED THICK-TOP FRAME, WITH MOLDED COMB-GUIDE.

Fig. 1 in the cut shows the new top-bar, and how the comb-guide is left in relief, as it were, by a set of molding-knives. The cut hardly does justice to it, however. The bead of the comb-guide projects down $\frac{1}{8}$ inch, so as to leave room for fastening foundation, and for guiding the bees. Such a comb-guide is always permanent, and never gets "left out" in filling orders; and while the side of the top-bar is only $\frac{3}{8}$ deep, the molded guide gives it the stiffness of a bar $\frac{1}{2}$ deep. In a word, the new top-bar is $1\frac{1}{16}$ scant

in width, $\frac{3}{8}$ deep to the comb-guide, and $\frac{3}{8}$ deep at the sides.

It seems almost a wonder that somebody did not think of this before; and, even if he did, why he did not put it into practical operation. We stumbled on to it accidentally. A party ordered some sections with this style of top-bar; and while we were contemplating this feature, the thought struck us. "Why not adapt it to brood-frames?"

Another feature of the new frame is the bottom-bar. It is $\frac{3}{8}$ thick, and only $\frac{1}{2}$ inch wide, the end-bar being mortised to receive it. Why so narrow a bottom-bar? For the simple reason that bees build combs down to them better. We have always noticed that the Harbison sections, having a very narrow bottom-bar, the comb was almost invariably built clear down and on it; while in ordinary sections there is pretty apt to be a bee-space under the comb. This fact did not lead us to adopt or recommend that style of section—oh, no! using a narrow starter, *a la* Dr. Miller, at the top and bottom of an ordinary section accomplishes the same result more cheaply; but it *did* influence us to adopt a similar bottom-bar for brood-frames. D. A. Jones and other prominent bee-keepers have long advocated and used a narrow bar, for this very reason.

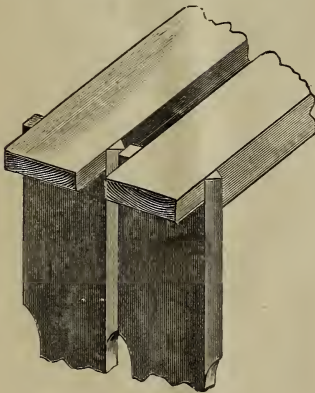


THE NEW HOFFMAN FRAME.

The cut above shows that we have adapted the same top-bar to the Hoffman frames. This, in view of the fact of what we have said against the straight top-bar for this frame, may appear like a retrograde step, even if it does not show that we have changed our views. Now, if you will listen just a minute we will try to make the whole thing plain. We would not change the Hoffman top-bar as he uses it in his hive, one iota; but when the same is adapted to a Langstroth frame in a Langstroth hive, a certain insurmountable difficulty comes in the way. It is this: The projection on the Hoffman frame—that is, that part which rests on the rabbet is $\frac{1}{2}$ inch long. This would leave, after the bee-space is taken out back of the frames, only $\frac{1}{4}$ inch to rest on the hive-rabbet; and this space is so very narrow that there is very little danger of killing any bees; but the standard Langstroth top-bar leaves $\frac{3}{8}$ inch between the end-bar and the end of the top-bar—that is, $\frac{3}{8}$ inch projection. After taking out a $\frac{1}{4}$ -inch bee-space this leaves a bearing surface of $\frac{1}{2}$ inch on the wood rabbet. With projecting top-bar $1\frac{3}{8}$ wide and $\frac{1}{2}$ inch deep, the chance of killing bees is quite considerable, as experience told us last year. Now, then, this problem confronted us: The Hoffman frame is a good thing, and bee-keepers want it. But to make it entirely satisfactory the standard L. top-bar must be shortened $\frac{1}{2}$ inch or else we must use a *straight* top-bar on a tin rabbet.

Now, when we come to change the length of the standard top-bar, we confront a big difficulty. The new frames would drop down at one end in the old hives with the wide rabbet; and old frames already in use would not go into the new hives with the narrow rabbet. Such a change would make "everlasting rows" with bee-keepers. In fact, it is utterly out of the question to shorten the Langstroth top-bar in order to get the advantage of a Hoffman top-bar. Well, as hinted, there was another way in which we could get around the difficulty, and that was to leave the top-bar the same length as it is, and use a tin rabbet, the purpose of the latter being to prevent the killing of bees and at the same time secure a more perfect lateral movement of the frames. The only purpose of having the Hoffman top-bar wider at the top is to prevent bees from putting chunks of propolis between the straight top-bars in wood rabbets; but by using the tin rabbet of the improved pattern, we solved the difficulty.

The improved Hoffman frame will therefore go in old L. hives as well as in new ones; and while it can be used on old wood rabbets, it is very much better to use it on tin bearings. The new top-bar is more cheaply made; and, besides, it is exactly like the top-bar used in the loose frame previously described. The bottom-bar is likewise made the same. The end-bar is a true Hoffman, the top being mortised out to receive the top-bar, and the edge being brought to a V point. This renders compression unnecessary, and at the same time reduces bee-killing, even by careless bee-keepers, to a number hardly worth considering. How the end-bars come in contact is shown more exactly in the accompanying engraving.



ENLARGED VIEW OF THE NEW HOFFMAN FRAME.

One side, it is to be observed, is square, while the other is brought to a V point. In nailing these frames together, if you will always observe to put them up the same way—that is, the V edge toward you, and next to your left hand while you are holding the frame—you will never have any trouble by the V edges coming together. The following diagram shows just how they should be. This is the way we nail our frames, and the way everybody else should do, in order to avoid confusion.

The improved Hoffman can also be made for less money. While the old one sold for the L. hive for \$2.00 per 100 at retail, the new ones cost only \$1.70, or 20 cts. more than the loose frames.

You will notice that we have dispensed with the old knife-edge finger-cutting tin rabbet. We have made one a great deal stronger—

something that will not bend over and be creasing into the top-bars, thus preventing smooth and easy lateral movement of the

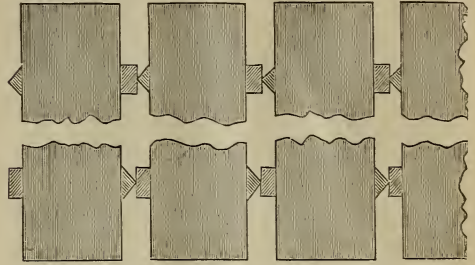
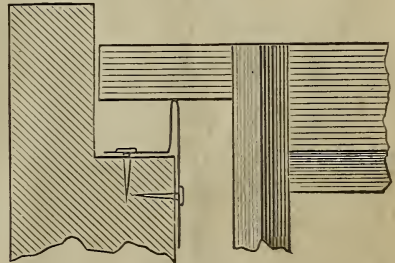


DIAGRAM SHOWING A TOP VIEW OF HOFFMAN FRAMES.

frames. The next cut is self-explanatory. Now, there are some very bad propolizers that will fill a rabbet level full of propolis in eight or ten years. Well, this is a rabbet that can be cleaned out with a sharp instrument and not bend its edges over; but with most bees—certainly with all pure Italians—there will be no trouble from propolis being accumulated to any extent in the rabbet, even in years.



OUR IMPROVED TIN RABBET.

The new Hoffman frame has all the stability and convenience for moving that the old one does; and, besides, it has some features peculiar to itself. In fact, the frame is so much ahead of the old loose frame that we have decided, even though it costs a little more, to put it in all our hives. It is certainly better for beginners, because it will give them straight combs, and show just how far to space the frames. Old bee-keepers—in fact, all—have the option of choosing the loose or any other frame. This decision has been further strengthened by the fact that the Hoffman frame seems to be generally elected in the orders a few weeks back for next season's goods.

HASTY'S APIARY.

AN EXPLANATION OF THE CUT ON P. 914, DEC. 1.

Many thanks to Rambler and GLEANINGS for dealing so kindly with my apiary. The camera, although sometimes provokingly truthful, will occasionally tell little fibs in the interest of politeness, just the same as other folks. When it feels like it, it will report a miscellaneous heap of traps and rubbish, which really looks "like sin," as merely picturesque, and almost "a thing of beauty." Witness the right foreground in this photo.

When we look at apiary views we almost always feel vexed more or less because we can not be informed what this, that, and the other thing is, and what it is for. Although the ex-

planation can not now appear with the picture, I will run over the scene a little.

The first thing in the center foreground is a light case that goes with me from hive to hive when I am at work. The Clark smoker, like a fat captain, is perched on the tin hurricane-deck over all; and the different decks and midships of the case proper are supposed to contain all the small tools and "calamities" that can be wanted when at a hive. Two comb-holders cling to one end of the concern. The disadvantages of this case are so great that I never recommend it to others; but it looks as if I should never be able to tear myself loose from it unless I invent something better.

Next to the right is my solar wax-extractor. Not being in use at the time, it has a muslin cover drawn over it. Next comes a low object occupying considerable space. This is my honey-ripenner, for ripening extracted honey. Possibly this may be worth a description some time—at least I think no one else has any thing like it. The top is encumbered with hive-covers and rubbish. Beyond it is a pile of board frames covered with poultry-netting, such as I use to keep the chickens from scratching up my posies and things.

Scattered about "permiscus" through the apiary are patches of my pet flowers, of which the phlox is my especial "ladye love." No flowers appear in the view, except some masses of portulacca—shut up close as a miser's fist, under the hot sun of mid day.

The trees in which I am climbing are chest-nuts. I planted the nuts with my own hand when I was nearly a man grown, and now they stand and preach to me how old I am. One would think so many swarms would alight in the tops as to be annoying. Rather curiously, few swarms alight in them, either high or low; while a solitary apple-tree, a little out of view to the left, gets something like one-half of the entire grist of swarms. The last tree-top seen in the left background is a North Carolina basswood, sent me as an August bloomer. It proves to bloom *earlier* than our Ohio trees. Its mate (just out of view) was sent me from the same place, and is evidently of a different variety. It refuses to bloom at all so far, only a few buds appearing and dropping off. Probably this represents the August bloomers. The foliage seen in the left foreground is a large trumpet-vine of our native species. Planted beside a tall post it is unable to get up 60 or 80 feet, as it would like to do, and so it makes a low tree of itself, because it can't do any thing else. As it blooms most of the summer it answers very well as an ornamental tree when so treated. The disadvantages are, that such quantities of such large flowers keep the ground unpleasantly littered in falling off. It also sprouts up so persistently at long distances away as to make a good deal of work.

The apiary itself is laid off in 16 groups of 9 places each, with wide streets between groups. The view shows five groups. As we look cornerwise across them the streets in both directions are scarcely to be discerned. The plan thus admits of 144 hives; but there were enough vacancies at the time the view was taken to reduce the number to something less than a hundred.

Rambler has done up the asparagus, so we will proceed to do up the hives. The open space to the left of the center front is the east end of the center street, running east and west. This divides the apiary into halves, the south division being wholly out of view. The first hive we come to is of the type most prevalent in the apiary—an ordinary Langstroth hive, made for ten frames, but contracted to seven by a dummy and inside board. It has a heavy

slant roof telescoped on; and for bottom it has whatever comes handy. The upper story contains wide frames with sections. About the only peculiarity visible is the shading. You see it is shaded with a piece of cotton cloth tacked on the south and west edges of the roof. 'Spects there ought to be a shade-board on the top too; but there isn't. If your eyes are sharp enough you can see one more peculiarity, and that is a big letter A on the front. This means that the queen is a relative of all the other queens who have A over their portal. The next hive bears F, as the queen is of another family. As a means of developing and understanding one's bees I consider this "wrinkle" important. I would recommend it to all who are willing to strive for improvement in strains and families of bees. The third hive as we pass along the street to the west is a big chaff hive, not varying very much from the Root pattern. This, you see, has a heavy shade-board on. It took me many years to find out that these hives needed a shade-board; but they do need it badly, partly owing to the fact that the roofs are of very thin lumber. Another thing that it took me a ridiculous number of years to find out is the nice, clean, convenient shelf to lay things on, which I have by most of the hives. Why! just lay your things down on the level, smooth-clipped tops of my bunches of asparagus. Even a frame of brood with bees adhering can be laid down there without harm; and dripping honey leaves no inconvenient daub. If we should pass clear through this street, all the hives in the range next to it on the north are like the one we inspected last. They are placed here because there is no asparagus to shade this range of places. There used to be a row of asparagus here also; but I laboriously destroyed it because I wanted to widen the street, and because I wanted a freer range of vision into the middle of the groups, and (shall I be ashamed to confess it or not?) because I wanted a nice vantage ground for some posy-beds.

I was lucky in having the ground actually pretty well hoed when the Rambler arrived. It isn't always so—more's the pity. How weeds do grow when one is busy, and can't get time to sail into them! And how, when they are getting the worst of it, they seem to take counsel together, and send in some new kind that knows how to take the disadvantage of a fellow! There is a little, soft, innocent-looking weed that makes me almost furious. Its tactics are to come up late in the fall, after I am done hoeing, and make its growth under the snow, or during the odd warm spells in winter and spring, till it has the ground covered like a buffalo-robe. About that time the ground gets peeled about an inch deep with a sharp shovel, and whipped bottom side upward—and I guess that must do for description, unless some of the comrades see something they want to question about.

E. E. HASTY.

Richards, O., Dec. 7.

THE SHANE APIARY AT HOME, AGAIN.

HEDDON'S HIVE-STAND; HIVE-GROUPING IN APIARIES, ETC.

By Ernest R. Root.

As I promised in our last issue, I will now tell you something more about putting five hives in a group; but before I proceed I hardly know whether to use the personal pronoun I or the editorial *we*. As this article is to be exceedingly personal and egotistical, I believe I will say *I*, even if it *should* please my friend Dr. Miller.

The picture opposite shows what I did after I

had taken a view of the whole apiary, such as was shown in our last issue. You see, I stationed the camera, drew the slide, set the pneumatic shutter, and then poised myself on one of the hives, the only connection between me and the camera being a rubber tube. Attached to said tube was a rubber bulb which I held in my hand. I thought I wouldn't wear any veil, so folks would think I worked with bees without one; and then, striking an attitude as nearly natural as I could over the hive, I squeezed the little bulb. The camera gave a click, opened its eye, stared for a few moments; and, after the signal from the bulb, closed its eye and the picture "was took." But, oh dear! I didn't let the thing look at me long enough, for I see the picture is a little dark in the shades.

Well, now, don't pay any more attention to photography. I just want you to notice how convenient it is to have five hives in a group—sit on one and look into the other. Why, it is just fun compared with the old way. When I wish to look at the next hive, all I have to do is

caught me with these thoughts in mind; and if you look sharp you will see cross-lines over the frames that indicate transferring-clasps. Somebody has said that a string wound around the combs would be better than any thing else, because, if you forget it, the bees will gnaw the strings in two, and remove them; but not so with the tin clasps.

There is another thing in the engraving which perhaps you did not notice. The hives are all on Heddon hive-stands, and are elevated out of the grass, and are up to convenient working distance, and, of course, they will be nice and dry the year round. To give you a little better idea of the stand in detail, I made the camera stare at one of the hives by itself, and you will see it on the next page.

The stand proper is simply a shallow box without top or bottom, the sides and ends of which are $4\frac{1}{4}$ inches deep and $\frac{1}{2}$ inch thick. The ends are nailed on to the sides. The lumber is simply the culls from supers—that is, pieces that are too poor to be used for supers to



THE JUNIOR EDITOR ENJOYING THE CONVENIENCE OF THE HEDDON HIVE-STAND AND THE SCHEME OF FIVE HIVES IN A GROUP.

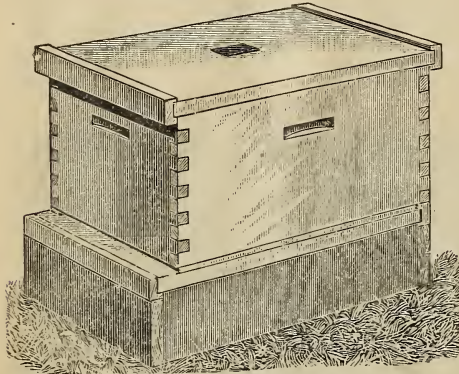
to turn around and sit down. Maybe I diagnose the condition of the colony by looking over the top of the frames. Perhaps I am not satisfied, and I pull out one frame, and that will give me a clew to the whole condition. It so happened I was not doing either in the picture. You will remember that we transferred the combs from some old loose frames into the Hoffman. To hold the combs secure in the frames we used the old-fashioned transferring-clasps. You may think it very shiftless; but both the boys and I were too busy to think of pulling out the clasps after the combs were securely fastened, and I am ashamed to confess that they are on the frames yet. The camera

the Dovetailed hive. The front and back boards are dropped down $\frac{1}{4}$ inch, so as to leave room for the cleats of the bottom-board, which project down a little.

This idea I obtained from Heddon's old original eight-frame hive. I happened to be looking over some of our old castaway hives in our museum, and my eyes ran across this. The same thing is illustrated in connection with the old style Heddon hive in February GLEANINGS, 1885, page 85. This stand is about as cheap and convenient as any thing I know of. I like it because it raises the hive up six inches above the ground, while most of the other stands leave them pretty well in the grass.

There is one thing more in the picture which perhaps you did not notice. Although showing a little dimly, there are little slates arranged in different positions on the hives. The position of the first slate on the right means that the colony has an untested queen. On the next hive, at right angles to and just back of it, the slate indicates a virgin. In the cut, just above the slate in the center of the hive, it shows that there is a tested queen inside. We use, with a great deal of satisfaction, a code which I reproduce herewith. The key shows the meaning of each position, in small type below.

The apiarist and I have been delighted with this arrangement. Whenever he is sick or away, I can almost tell from the office just what is in every hive; and if an order comes



DOVETAILED HIVE ON A HEDDON HIVE-STAND. in by telegram, in the absence of the apiarist I take a birdseye view, from the office window, spot the hive I want, rush downstairs, and proceed directly to the place. It makes me feel almost provoked to think that we did not use it years before we did; and I am sure that no queen-breeder or honey-producer can afford to get along without some similar arrangement. It may be very easily varied to suit the requirements of every bee-keeper, whether it be the rearing of queens or the production of honey.



POSITION OF SLATE TO INDICATE THE CONDITION OF THE COLONY.

1. Queenless; 2. Cell; 3. Hatched virgin; 4. Laying queen; 5. Tested queen; 6. Caged queen to be introduced; 7. Caged queen out; 8. Something wrong; 9. Hive needs supers and more room; 10. No slate—hive with empty combs, ready for a swarm.

or both. To make the record doubly sure, we write in leadpencil on the slate. If the slate is moved, by accident or otherwise, its position may be known at once by its record. I have heard some queen-breeders say they could remember what is in every hive, but I doubt it; and I pity their customers who get their queens. Memory is not reliable enough to tell whether a queen is tested, virgin, or laying.

But, to return. A good many people do not know how to hold the Clark smoker properly. I am just conceited enough to think I do, and I am holding it in the picture in the right position, valve side down. This way it does not clog up the blast-tube so much when it rests; and when it is on the hive it is all ready, when picked up, to throw a jet on the frames without "whopping" the smoker over.

LADIES' CONVERSAZIONE.

MISS WILSON AT CHICAGO.

HER VIEWS ON THE NORTHWESTERN CONVENTION.

I attended the convention at Chicago, and enjoyed it very much. The attendance was large, and every one seemed happy. Quite a number of ladies were present. I wish there had been more. Among the many weighty subjects discussed was the grading of comb honey, in which I was specially interested, Dr. Miller and I having had frequent little skirmishes on this very subject.

All seemed quite anxious to have some system of grading adopted, including the commission men present—Mr. R. A. Burnett and Mr. Mandelbaum, of S. T. Fish & Co. But the great difficulty seemed to be to find any two of the same opinion as to what constitutes first-grade honey, second-grade, etc.

After a great deal of discussion the following system of grading was adopted, as nearly as I can remember:

First grade. The sections to be perfectly filled, all the cells capped, the combs straight, and securely fastened to all four sides of the section; section and comb white, and free from propolis and travel-stain, and the honey of uniform color.

Second grade. Sections and comb white, and free from propolis and travel-stain; but the comb may be uneven, although it must be perfectly filled and capped, and may contain as many as three cells of pollen to the section.

Third grade. Sections must be two-thirds filled, whether capped or otherwise, and may be much travel-stained, and of two or more colors in a case.

I will not vouch for these being correct, as I did not take any notes. Slightly travel-stained sections were not put in any grade; but the omission was allowed to pass, in the hope of a revision and straightening-up of things at Albany, as so much trouble was experienced in arriving at any conclusion.

I did not suppose it such a difficult task to grade honey, and was quite surprised at the redhot discussion it provoked, although in a perfectly good-natured manner. Had I been asked whether I knew how to grade honey, I should have given an unhesitating answer in the affirmative; and I still think I know how to grade honey for Dr. Miller, for I have had a most thorough training. But after learning what I did at the convention, I fear I might run against a snag the very first thing, if asked to grade in any other locality, for I would have said all first-class honey must be perfectly white, while it will be seen by the grade adopted that first-grade honey may be of any color, from white to the darkest, only so it is all one color. Mrs. Harrison, Mr. Dadant, Mr. Walker, and others opposed its being perfectly white, as,

in their locality, Spanish needle, an amber-colored honey, which forms a large part of their crop, is, in their estimation, just as good as the best white honey.

There were quite a number at the convention who expressed it as their opinion that, according to the first grade adopted, there would be very little first-grade honey put on the market. I would not grade as closely as Dr. Miller does. Personally, I can see no reason for throwing a section out as second class simply because the comb is not straight. I also believe that a section that is only slightly travel-stained, say just tinted on the lower edge, ought to be allowed as first class. Neither would I rule one out that has only three or four cells uncapped in one corner of one side, if all the rest of the section were perfect. Nor would I rule out a section if the wood were somewhat stained with propolis, providing it was carefully scraped.

Suppose you receive an order from a man for a lot of first-class honey, and you send him buckwheat. Do you suppose he would be satisfied with it? I don't. We have no fault found with the way in which we grade our honey, but I am not sure how long we could say that if we were to send dark honey as first-class, and that is allowable providing we send a whole case of it. You may say it is to go as first-class buckwheat. I am afraid we are going to get into hot water if we undertake to have so many different kinds graded, and that it will be much more difficult to tell first-class honey than it is at present when each one is allowed to grade according to his own notion. Still, I believe it would be an excellent thing to have a standard system of grading.

Marengo, Ill., Nov. 24.

EMMA WILSON.

MRS. AXTELL'S LETTER.

CURES FOR BEE-STINGS.

Nearly every one has his or her cure for bee-stings. May it not be that none of them amount to much, as the poison is injected into the flesh so far that remedies on the outside do not reach the poison? It looks reasonable that, the sooner the sting can be withdrawn, the less poison is thrown into the system. I have noticed the little sting working away for some moments after the bee had left it when thrust into my clothes, still injecting poison. If my hands are not full I always quickly scrape the sting off with a finger-nail, but more often I rub the sting off by rubbing my hand down my side rather than wait to free my hands to scrape it off with my nail, as each moment of delay makes much difference in the amount of poison thrown into the system; therefore a person who is quick in his movements does not get so much poison as one who is more deliberate in his movements; yet, because one moves quickly he will be stung more often. Once at a bee-convention near Oquawka, this State, an old man, an editor, came in; and when an opportunity for him to speak was given he told of a preventive for bee-stings, as practiced by a friend of his, and that was to catch a pig or hog and rub his hands all over on the pig, thus leaving the scent of the pig on the hands. I never had faith enough in the preventive to try it, but I have sometimes wondered why bees were more inclined to sting one person than another, especially when the one stung the least was the grosser in his make-up, often having a rank smell to his breath. Possibly the breath was a repellent, like the fumes of tobacco blown from a smoker. Some of the antidotes to bee-stings are soda moistened with vinegar, and applied as a poultice. Mashed onion, moistened clay

or black earth, crushed plantain-leaves, a slice of fresh meat, are good. Scrape the wound with a sharp knife two or three times, then rub it as little as possible thereafter. The more it is rubbed the more will it swell.

As the poison is formic acid, it looks reasonable to use an alkali as a remedy, if any thing is used. After any or all the above remedies are applied, the pain will cease, and so it would, perhaps, just as soon if nothing is used, especially if the person keeps right on with his work so as to forget the sting. The latter remedy is what I use; and the harder the sting pains, the more rapidly I try to work; but with timid persons, especially new helpers at bee-work, they are better satisfied to apply some remedy.

TO KEEP GRAPES.

Bee-keepers and their families are generally great lovers of fruit, and I notice that, as a class generally, they have fruit upon their tables when it is to be had. I will mention how we found grapes to keep well for a long time, even until near Christmas. Pick them carefully, so as not to bruise them or rub off the bloom (that is, the thin white floury substance upon the outside). If any are mashed, pick those off, but do not handle them much. Lay a layer of cotton batting in a shallow box, then, as picked from the vines and looked over bunch by bunch, lay them upon the batting so as not to handle over twice. Now cover over with batting. Lay on top a thin board (our honey-boards are what we use), and cover over with batting; then lay on grapes close together, but not to pile up. Now cover these with batting and tuck up carefully so as to exclude the flies and the air as much as possible. This will cause them to keep sound and plump for a long time—much more so than if hung up, or with paper between them, as some recommend. Some use bran, but we prefer the batting. Set the box or boards away in a cool place where there are no mice to work in the batting. The cellar would be preferable, some say, but we kept ours upstairs where there are no mice. They should not be jostled or handled much after being thus prepared. They will spoil soon after being taken from the batting, as they fall from the stems if jostled.

Another way to put up grapes is to prepare a syrup rich enough to sweeten them well, according as one prefers. Pick over the grapes and put into a jar; heat the syrup to boiling, and pour over the grapes; let cool, and heat again. This time the syrup will have increased enough to cover them. Pour off three times, and scald before getting quite cool the last two times; then seal it up in a can or jar. This treatment will preserve the grapes whole. They look beautiful, and taste very nice. The Niagara, a white grape, looks well thus treated, as it has a tough skin that is not easily broken.

Grape butter is nice made from half grape and half apple. Press the grapes through a colander; stew to a rich sauce, all the while stirring if on the top of the stove. When nearly done, add nearly as much sugar by weight, if to be very sweet; less sugar will make good sauce, or it may be cooked in the oven in a crock with but little stirring.

Roseville, Ill., Nov. 10. MRS. L. C. AXTELL.

CAN BEES BITE?

Womanlike, I should like to have the last word. Dr. Miller says, "Bees have a biter," and I say that they have not; and I'll keep on saying it until I have the last word, until I am convinced that they have a "biter." They have a picker but no biter. They will pick away at the fuzz on muslin until they make a

hole; and if they get hold of a raveling they will take a long pull and a strong pull, and a pull all together until they get it out of the hive. Why don't they bite it off? They will pick away at the entrance of a hive, if it is too small, until they raise a fuzz, or nap, upon the wood, so they can grip hold of it and pull off the fine fibers. The bee can not tear open the skin of fruit, or it would do it and feast on the rich juice within. Look at the skin of a grape. It is so smooth that a bee can not get a grip upon it to tear it open. Why are they never drowned in wooden feeders when they would be in tin? Because they can not grip hold of tin or earthen ware as they can of wood.

Peoria, Ill., Nov. 25. MRS. L. HARRISON.

OUR QUESTION - BOX,

WITH REPLIES FROM OUR BEST AUTHORITIES.

QUESTION 198. *What becomes of the greater portion of eggs and newly hatched larvæ in breaking up a colony of bees to form nuclei?*

I think the bees eat them.
Wisconsin. S. W. E. FRANCE.

Gone where the woodbine twineth.
Vermont. N. W. A. E. MANUM.

I don't know. I think the bees throw them away.
Illinois. N. C. J. A. GREEN.

I suspect the bees eat what they can not care for.
Ohio. N. W. H. R. BOARDMAN.

I am just as ignorant as "darkest Africa" on that subject.
New York. E. RAMBLER.

I always thought it was eaten up; but I am not sure of it. It certainly soon disappears.
Illinois. N. W. C. MRS. L. HARRISON.

Whenever there are not enough bees to protect or care for the unsealed brood, it dies and is removed.
New York. C. P. H. ELWOOD.

They are usually fed, and develop. There are usually enough nurse-bees to care for them, and ought always to be.
Michigan. C. A. J. COOK.

If the nuclei can not take care of the eggs and newly hatched larvæ, why, the bees eat it up and that is what becomes of it.
Michigan. S. W. JAMES HEDDON.

I think they are eaten by the bees, as it seems to me they do usually when seriously disconcerted in their plans of brood-rearing.
California. S. R. WILKIN.

I give it up. Tradition says bees eat eggs; but I've had colonies starve, leaving eggs in the hive. I think likely they suck the larvæ out.
Illinois. N. C. C. MILLER.

If eggs or larvæ perish by chilling they are pulled out of the cell by the worker bees. However, if enough bees are given to the nuclei but very little brood will be chilled.
Ohio. S. W. C. F. MUTH.

"I don't know." and "I don't know" that I care. The eggs are not large enough to sell at

the grocery, and the larva is not a merchantable commodity. The bees may eat both eggs and larvæ for all I care, and may be they do. I have thought they did, but never caught them at it.

Ohio. N. W. A. B. MASON.

The bees are accused of eating them up; but until somebody gives us positive evidence on the point, perhaps we should not be too sure. The confusion, and lack of home feeling incident to dividing, may cause them to be neglected till the eggs are worthless and the small larvæ dead.

Ohio. N. W. E. E. HASTY.

My idea is, that what are not preserved are eaten up by the bees. I have often seen bees eating eggs, and, in times of scarcity, larvæ are eaten; while, if the colony is reduced to starvation, or nearly so, the pupæ are taken from the sealed cells, sucked dry, and thrown out of the hive.

New York. C. G. M. DOOLITTLE.

I am not positive as to the manner of their departure, whether they mostly die from neglect or whether, cannibal-like, the workers devour them; but when nuclei have been deprived of their queen their strongest instinct seems to be to provide themselves with another. Their interests are liable to suffer till this is accomplished.

Wisconsin. S. W. S. I. FREEBORN.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE VALUE OF FRENCH YELLOW-OCHEP PAINT;
BY A PRACTICAL PAINTER.

Friend Root:—I want to say, as a practical painter of 27 years' observation, I never found any paint to bear exposure to the weather better than genuine French yellow ocher mixed with pure linseed oil and japan, prepared for outside work, in proportion of six to one. Apply two thin coats, dry thoroughly, and cover with another, colored to suit you. I prefer a pale straw color as being the most durable. I used to think paint applied in autumn lasted one-sixth longer than if applied in the spring, or one-third longer than if applied in the summer. I still think so. Paint fence-posts where they come six or eight inches above, and also below the surface, with two coats of linseed oil and finely pulverized charcoal, and you will find any sound timber makes a durable post. Posts should be well seasoned.

Allegan, Mich., Dec. 5. W. H. GARDNER.

SENDING QUEENS TO AUSTRALIA.

In reply to my advertisement in GLEANINGS, August 1 and 15, I have this month received three queen-cages—two from J. F. Michael, German, Darke Co., O., and one from Walter S. Ponder, Indianapolis, Ind.; but, I regret to say, with the exception of one of Mr. Michael's cages, where there were four living workers, every thing was dead. Still, the unfortunate bees had not had a fair chance, as Mr. Michael sent his first cage on Sept. 2, and the other on Sept. 8, and both, of course, arrived here on the same day (Oct. 16), thus making their passages 38 and 44 days respectively. Mr. Ponder sent his in a small cage, $2\frac{3}{4} \times 1\frac{1}{2} \times \frac{3}{4}$, with only one $1\frac{1}{2}$ -inch opening $\frac{1}{2}$ inch deep—a very neat pretty cage, certainly, but I think hardly suited for such a long journey. Mr. G. M. Doolittle has

succeeded in sending me three of his extra select tested queens, with which I am very much pleased indeed.

E. NEAS WALKER.

Redland Bay, Queensland, Australia, Oct. 30.

[A part of Mr. Michael's failure was due to the fact that he did not send the queens so as to be just in time to go on the steamer that sailed direct. Those who send queens to the islands of the sea should endeavor to deliver their queens to the port on the day or day before the steamer is to sail. If you have no means of ascertaining this, write and we will let you know. Mr. Doolittle's queens were sent in our kind of cage, as per our instructions, and went through in good order. It simply shows that, if any one follows faithfully our method, he will be pretty apt to have success.]

FOR THE FIVE-BANDED BEES.

Ewing's experience with the five-banded bees, as given in GLEANINGS, page 930, is just the reverse of mine. About two years ago I bought a fine yellow queen of Mr. Hearn, and in due time had a colony of the brightest yellow bees I had ever seen, and the only one among 100 that I had the courage to open without smoke or veil. I was so well pleased with these beauties that it has been my queen-rearing colony ever since. I do not really think there is any Cyprian blood in this gentle mother.

A. B. BAIRD.

Belle Vernon, Pa., Dec. 5.

[We are glad to get this testimony, friend B. Although some of the five-banded bees have been pretty strongly tintured with Cyprian blood, as we know by experience, not all of them have been so. Those bred by Mr. G. M. Doolittle and Mr. Hearn we know were bred by selection from pure Italian blood.]

BEE-KEEPING NOT ALL GOLD.

I tell you, Mr. Root, bee-keeping is not all gold. I had 6 spring count; increased, by buying one, to 11 stands. Honey I received was about 30 lbs.—an average of 5 lbs. to a stand, spring count. I have laid out between 50 and 60 dollars in cash. Will that pay to keep bees? I look forward for brighter days in bee-keeping.

JOHN SLAUBAUGH.

Egton, W. Va., Nov. 26.

[Your bees will probably pay you better if you give them more of a chance. No, indeed, bee-keeping is not all gold; but it pays in general as well as farming. There is a hue and cry among certain classes that farming does not pay, and the same may also be said of a great many other rural industries; but that does not prove that none of them ever pays.]

TO SHARPEN SHEARS.

Friend Root:—Your directions for sharpening shears are excellent, and will put the shears in first-class order, I know. The only trouble with it is, that not more than one person in fifty will take the trouble to fix them in that way, but will use dull shears as before. To sharpen shears in three minutes, put them in a vise, and file the edge until the edge is wired the whole length. This do to both blades. Now carefully shut the shears, which will take the wire off both blades, and leave them in the best possible condition for cutting. Of course, the rivet must be right, and the edges should touch the whole length.

C. W. COSTELLOW.

Waterboro, Me., Nov. 25.

JONES'S AVERAGES.

Friend Root:—As you made a request some time ago through GLEANINGS for me to make a

report as to the daily average of my scale hive during the basswood flow, and the average amount taken per colony during the season, also the number of colonies kept in the vicinity, I herewith take the liberty of sending you the amount gathered by my scale hive the past three years, showing the daily gain, as well as average gain, per day, and average amount per colony, and the number of colonies kept in the vicinity during each year.

1891.	
July 12.....	12 lbs.
" 13.....	19 "
" 14, too wet.....	0 "
" 15.....	12 "
" 16.....	24 "
" 17.....	15 "
" 18.....	21 "
" 19.....	16 "
" 20.....	17 "
" 21.....	13 "
Total for 9 days, 149	

Daily average, 16 lbs. This was not the end of the flow, but I failed to keep the tally; 130 colonies in my yard, and over 200 within one mile. Amount taken per colony, 83 lbs., all extracted. In each year my scale hive has contained the much-abused hybrids. Score one for the hybrids, even if they do sting.

1890.	
July 12.....	14 lbs.
" 13.....	16 "
" 14, full.....	8 "
" 15.....	15 "
" 16.....	20 "
" 17.....	16 "
" 18.....	15 "
" 19.....	16 "
" 20.....	16 "
" 21, full.....	8 "
144 lbs.	

This colony swarmed; after, I kept no account of it. Daily average, 14 ¹/₃ lbs. per day; 100 colonies in my own yard, and 100 more within one mile. Amount taken per colony, mostly extracted, 80 lbs. These amounts were taken in the time of basswood only.

1889.

The following daily record shows the amount of honey gathered per day by one colony during the basswood flow of honey for the year 1889:

July 11.....	7 lbs.
" 12.....	16 "
" 13, too damp.....	4 "
" 14.....	19 "
" 15.....	20 ¹ / ₂ "
" 16, lack of room.....	10 "
" 17.....	19 "
" 18.....	19 "
" 19.....	26 "
" 20.....	19 "
" 21.....	22 "
" 22.....	15 ¹ / ₂ "
" 23.....	21 "
" 24.....	25 "
" 26.....	9 "
" 27.....	0 "
Total, 250 lbs.	

Average, 16 ²/₃ lbs. per day. There were 275 colonies within half a mile of my bees; with our own average amount taken per colony, mostly comb honey, 52 lbs. F. B. JONES.
Howard Lake, Minn., Dec. 4.

NOTES OF TRAVEL

FROM A. I. ROOT.

But the fruit of the Spirit is love, joy, peace, longsuffering, gentleness, goodness, faith, meekness, temperance: against such there is no law.—GAL. 5:22, 23.

MITCHELL, SOUTH DAKOTA.

Nov. 22.—In consequence of delayed trains I reached here Sunday morning, just before daylight. Of course, I do not propose to travel on Sunday; but when a train is late, we sometimes *have* to travel a little. I confess I was tired, and somewhat homesick. The latter was caused, probably, by the profanity and blasphemy of some of my fellow-travelers who seemed to think it a fitting way to usher in God's holy day. As it is bleak winter here, I got a room with a fire in it, slept two hours, then took a bath, and dressed for church. I was almost the first comer at the bright new Congregational church, and the pleasant "good-morning" from the janitor made me feel at home and among friends. Dear reader, are you looking out for the stranger when you attend your place of worship? Oh what a *nice* lot of people came there that morning to worship! How their faces and their ways contrasted with those I had met with the day before! I had decided this time not to push myself forward, but to wait and see whether the Holy Spirit would make it plainly manifest that I was wanted among these people who were all entire strangers. In the Bible-class, a lady who sat opposite looked hard at me several times, and her face seemed in some strange way more or less familiar. After meeting I found that she and her husband, C. M. Peck, were from Medina Co., O. He is in the employ of the American Sunday-school Union, and goes all over South Dakota, starting Sunday-schools, holding meetings in schoolhouses, reviving the weak schools, starting them when they have run down and been stopped, and, when destitution prevails in winter time, he distributes clothing, shoes, etc., and sometimes food as well. He is, in fact, a general missionary, going everywhere in his field doing good, and finding out the general condition of affairs. Is it at all strange that he is a man generally loved and respected?—one of God's *anointed* ones, is the way I should tell it. While eating my dinner after our pleasant Sunday-school, the genial young proprietor of the Mitchell Hotel laid his hand on my shoulder in a homelike way, and whispered that I was asked to address the 4 o'clock meeting at the Y. M. C. A. rooms. I talked 40 minutes, mainly in regard to the damaging effects of profanity and blasphemy on any town or community, and upon its ruinous results to both soul and body. Some of my hearers told me afterward I had not been doing quite justice to Mitchell, and Dakota in general. Like Iowa, the State is under prohibition, and there is not only no saloon in their pretty town, but not even an indication of one, and no sort of bar anywhere about any of the principal hotels.

Years ago a pleasant-looking man came to me one Sunday morning and asked permission to go with me to jail. Of course, I gladly assented, and, when there, I asked him to talk to my class of prisoners. I shall never forget that talk; and when I found that this brother held an important government office here in the city I felt glad again. R. N. Kratz is a "twin brother," if I may be allowed the expression, of brother Peck. As there is nobody in jail in Mitchell, and, for that matter, in the country round about, friend K. talks to the boys who are *not* in jail. Come to think of it, I guess he

gets them *before* the jail does, and takes them to the Y. M. C. A. rooms instead. Everybody around Mitchell seems to delight in speaking well of him; and although the government gives him quite a large salary, it was whispered to me that he uses nearly if not quite half of it in working for Christ Jesus. Will some of the good brothers who read GLEANINGS make a note of the fact that not *all* the men who hold offices that give good salaries are *bad* men? Well, a revival is going on now at the Methodist church here. It really does seem as if these Methodist people were *always* having a revival. Well, what do you think? Why, the minister sent word to me that he would like to have me conduct the work in the *inquiry* room in the Methodist church, toward the close of the service that evening. I don't know whether he knew I was a Congregationalist or not—may be he thought it didn't matter. Well, brother Peck got into that room in some way, and he is a Congregationalist *too*, mind you, and a good one, and he followed my exhortation with the most earnest personal work, first with one of the seekers and then another; and then brother Kratz, who is a *real* Methodist, backed us both up. Well, I tell you it was a grand Methodist revival. A young man who was near me said he could not "fully surrender," and I told him to surrender all he could, and trust Christ Jesus for the rest. His pastor came up behind me and indorsed what I said, and our young brother was soon happy, and smiling through his tears. Almost every one who came into the room gave their names to the minister, to be taken into the church. When we disbanded I was astonished to find it was 10 o'clock; but the pastor had 20 names of young people on his paper, but I believe it included a few who received baptism in the morning. It seems a little funny, but my last Sunday evening in Medina was spent in a Methodist revival meeting.

When I awoke this morning my next-door neighbor in the hotel was singing softly to himself, "Other refuge have I none." I found a young lawyer sitting by the stove reading "Ben Hur," and Mrs. Peck says every Sunday morning he goes through the hotel office and invites all to come to church; and he "gets them" too, frequently a whole long seat full. Now, dear reader, if one were inclined, and in the mood, he might find fault—yes, a good *deal* of fault with several things around here—yes, even with the Methodist revival, and with a good many things your humble servant said and did; but people here are not in a fault-finding mood just now, for *don't you know*—"the fruit of the Spirit is love, joy, peace, longsuffering, gentleness, goodness, faith, meekness, temperance"?

GETTING TURNED AROUND.

I came into Mitchell in the night, and all day Sunday was cloudy, so it is not strange that I got north south, and *vice versa*. Everybody told me my mistake, but it did no good, and I went all over the city, and took "landmarks," as we say of the bees when they take their first flight. Monday morning friend Peck took his Sunday-school horse, "Maud," and carried me out in the country. When the sun came up, that straightened me. I believed the sun, when I couldn't believe anybody else. Well, we came into the town from a new direction, and I took new "landmarks" with the sun in the east, where it should be. I visited many people, and stores and offices, and learned location; but, alas! when I crossed the territory I had explored on Sunday, there seemed to be *two* Mitchells, or two A. I. Roots, and I couldn't exactly say which. The depot is at the end of the street; but as I sit here writing I can not ac-

tually say whether it is up street or down street. I suggested to a friend that my mind was mixed up in the matter, but he corrected me by saying: "No, Mr. Root, your *mind* is all right, but it is your *feelings* that are misleading."

Now, here is a great truth. Our feelings—or, if you choose, our animal instincts—are often very powerful, but they must not be trusted. Reason and *right* should direct and manage feelings, for feelings are only like the dumb brutes around us; they are to be taught and led, and should *never* be allowed to obtain the mastery.

THE ARTESIAN WELLS OF SOUTH DAKOTA.

You know I have been all my life interested in every thing pertaining to wells and springs. Well, I knew there were some wonderful artesian wells somewhere in this locality; but it was an agreeable surprise when I learned there were two in Mitchell that supplied the city with water, and 18 in the county, in actual operation. Besides this they are now at work on a large one which they hope will run a dynamo for their electric-light plant. I became acquainted with the workmen, and found the boss was present at my talk to the Y. M. C. A., so we were old friends at once. Now, don't think me visionary when I say there really seems to be a sort of connecting link between the revival meetings I have spoken of and these wonderful artesian wells. You know what I said in our last issue about the promise, "If ye abide in me, and my words abide in you, ye shall ask what ye *will*, and it shall be done unto you." The wonderful fertility of Dakota's vast acres has only needed water at the right time; but the past has shown that the needed rain is often lacking. Just in the nick of time the discovery of these wells came in. Already has *over 60 bushels of wheat* per acre been obtained by means of irrigation with water from these artesian wells. This 24th of November I am writing in the town of Woonsocket, famous on account of having, at least at one time, the largest artesian well in the world. It is six-inch bore, 725 feet deep, and gives 4000 gallons per minute. A steam-gauge shows 153 lbs. per square inch, and it will throw a two-inch stream *200 feet high*. The force has been estimated equal to a 200-horse-power engine. I have just had a real pleasant visit with the proprietor. The town has had a noted well for about two years. Our friend, who owned a steam flouring-mill, offered them \$1000 a year for the use of it for power; but as they refused he put down the well I have described, at his own expense, near the mill. It cost him altogether about \$5000, but the mill is now running night and day, entirely without engineer or fireman, and he will save almost the cost *in one year*. With natural gas we need an engineer; but this is power direct—yes, direct from the hand of Him who said, "Ye shall ask what ye *will*, and it shall be done unto you." After the water has carried the mill it is just as good for irrigation; in fact, one of the problems has been to get rid of the surplus water. As I write, the boys are shouting and laughing while they skate on a beautiful lake formed by the surplus artesian water. It seems almost ridiculous to think that little water-motor can move the pulley that carries the great driving-belt of the ponderous machinery of that grist-mill.

There are some other wonderful things about Dakota. It is never muddy anywhere. The roads, even off across the prairies, after they are just a little traveled become almost as hard as an asphalt pavement. Even when the water from the wells comes over the road, the bottom remains hard and solid. Now, you smile incredulously when I tell you that the same black

soil, when plowed, becomes fine and smooth, with just a *little* harrowing. Much of the plowing is done in the fall, because the ground never packs. It is always too loose, if any thing; it is also never too wet; and I judge they are right in saying that tile drainage is not needed. Wheat is 68 cents; corn, 25 cents for *two bushels*; 28 cents for 70 lbs. of shelled corn. Eggs are, however, 20 cents a dozen. You see this just "fits" poor people. Potatoes are 20 to 25 cents. It looks odd and lonesome to see no forests. The bare ground touches the sky in every direction. There are few if any fruit-trees, except plums, yet small fruits all do finely. With irrigation, and the large amount of sunshine that Dakota has the year round, it should do wonders, and has done wonders already.

While I write, a lady tells me that, when the town well was first drilled, they had trouble in controlling it, and it came near flooding the town. It was near Christmas, and the water kept freezing and piling up until it began to look as if they would all be driven from their homes. Many of the cellars were filled with water. Just think, reader, if you can, of over *200 barrels per minute* on a comparatively level country, and no means for it to get away! You can get a very good idea of one of these wells by looking at the picture I have already referred to. The water is too hard for washing, but many of the hotels use it in the rooms. In winter they cut cakes of ice and melt it, and this water is soft enough for any purpose. The mineral seems to separate and flow away by freezing.

Now, then, I am going to astonish you still more. See this, from a neighboring town, which I clip from a special issue of the *Dakota Farmer* for May, 1891:

Innumerable fish are thrown up in the water from the well. These are usually from an inch to two inches in length, having eyes, and, to all appearance, are the same as are found in fresh-water streams. In the pond of water formed by the well these fish have grown to be eight or ten inches long. With ordinary care they thrive in aquariums; and should any one doubt this, by paying for a fruit-jar and the express charges, I will send him samples of the hourly installments from 1274 feet below the surface. Where do they come from? Certainly not from surface water in this or any adjoining counties. Possibly from the Missouri near Fort Yates, where large quantities of water disappear in coarse sand between strata of fossiliferous rock of the Jurassic formation. J. W. PARMLEY.

Ipswich, Edmonds County.

Woonsocket is another nice pleasant Dakota town. How very kind and friendly everybody seems! and how ready and willing to drop their own work to assist me in hunting up every thing in regard to artesian wells!

Has the world so changed, or is it *myself* that is changing? O my dear friend, please believe me when I try to tell you that it is our own selves and not the world that *needs* changing. When He abides in us, and we in Him, *marvelous* things shall come to pass. I love this nice pretty room where I am, and I love these people who are trying hard to keep a nice good hotel. An ungodly and profane runner said the Dakota towns were full of empty buildings. Well, I have *found* some of them. They are the buildings that have *screens* before the windows so you can not look in and *see* what they have to sell, and what they are doing inside. And there is *another* building that is empty too. It is the one with *iron bars* across the windows—iron bars to keep our boys from getting out—boys reared in this land of liberty! May God be *praised* for these empty rooms in the Dakota towns! As I go up one street and down the other, large, clean, and clear glass windows

let the full light of day into every shop and store, and tell to the passerby, as plainly as possible, all the proprietor has for sale.

Good-night, dear reader. I am going to pray for you; yes, for every one who cares to read these words I am writing. The waters of the artesian well are hissing and babbling and bubbling near my window; and would it be strange if I *dreamed* of this new and great gift, right from the Father's hand?

Nov. 25.—I have just visited the farm of C. E. Hinds, $1\frac{1}{2}$ miles from Woonsocket. On the highest point of his land he has a three-inch well that gives 500 gallons of water per minute. Around the well is a reservoir holding a million of gallons. His men and teams did it at odd spells, at a cost not exceeding \$80.00. A series of ditches and flumes, when needed, take the water to every part of his farm. A man appointed by the government visited him, and gave him instruction in managing the water. He secured about 250 bushels per acre of potatoes, by running water between the rows, and 60 bushels of oats per acre. He is full of enthusiasm, and is preparing for wheat next season. Only spring wheat is raised here.

Quite early in the morning I was down by the outlet of the flouring-mill. The water was steaming at such a rate I knelt down and put my hand in it. I then procured a thermometer, and found it 61 degrees. I told the people that if this water were led around their rooms in coils of pipe, it would warm them enough for all ordinary work; but no one had any faith in it. It would cool off, they said. I looked over the town a little; and as the sun came up and it began to thaw, I pointed triumphantly to where the snow was all thawed off from the black ground, wherever a water-pipe ran, and these pipes are as much as a foot under ground in places. Our readers will remember that water is always running in these, and so no protection from frost is needed. As the water is always running, one of the problems is to get rid of the surplus. The millmen have been obliged to construct over three miles of ditch to get the water into the river; and at one time the artesian wells came very near flooding the town. When the well was first opened it threw out 40 or 50 carloads of sand and stones. This sand was carried away by the townspeople and railroad folks for building purposes. It throws sand and stones now whenever the pipe is opened full width; therefore they do not like to do it, lest the stones should injure the water-motor. If this surplus water were run in pipes under the beds of greenhouses and cold-frames it would warm them up enough for lettuce, radish, spinach, onions, and a great variety of hardy vegetables. For poultry-houses I believe 60 degrees would be better for the fowls than a warmer temperature. What a field for the egg business!

While investigating the matter of the temperature of the water I must have become somewhat enthusiastic. I found I could not get the thermometer down into the steaming, rushing water, where it came from the mill, without getting down on my knees. A light snow was on the ground, but I felt sure it would brush off readily. Imagine my confusion, when I had passed clear through the town, to hear Mr. Hinds, the banker, say:

"Mr. Root, I think you must have been down on your knees somewhere this morning." And when I looked down, there was a great patch of snow and grass on each knee.

Nobody knows just how many artesian wells there are now in this region—certainly more than 100 deep wells, with high pressure, and more being drilled every day. After the well is once drilled, no power on earth can compete

with them for cheapness and regularity of speed. Speed-testers show that the rate is almost exactly the same, day after day; and for flouring-mills this is a very important feature.

All through Dakota, at the hotels and railroad ticket-offices, I found very pretty framed notices of the various Sunday services, and also prayer or Endeavor meetings, during the week. This is of very great convenience to the traveler, as I know by experience, for he may inquire of many individuals, and then not find what he wants. Dakota people are very loyal to their State, and quite sensitive in regard to any thing reflecting on their climate, resources, people, or intelligence. They don't like to talk about the blizzard of some years ago; but when a storm or cyclone does damage in the East, they comment quite freely on the fact that the older States are really *more* unsafe than new Dakota. A disastrous storm has just been reported over many of the Eastern States, and special damage is reported in New York city. While in Woonsocket on the evening of the 23, I heard some one going about and inquiring the name of the mayor of New York. I, with the rest, pleaded ignorance; but the next day I found the following in a Dakota daily:

TO AID SUFFERERS.

WOONSOCKET'S MAYOR TENDERS SYMPATHY OF A PRACTICAL NATURE TO STORM SUFFERERS.

Special to The Daily Press.

WOONSOCKET, NOV. 24.—The mayor of Woonsocket has wired the mayor of the city of New York as follows:

"The council has voted \$1000 for the aid of storm sufferers. Indian summer out here."

The magnitude of this joke becomes more apparent when we remember that Woonsocket is only a little village, comparatively. That about the Indian summer is put in because Eastern papers have so much to say about the intense cold and great winds of the west.

SIoux FALLS—THE CITY OF JASPER.

Thanksgiving day.—While waiting for a train I visited Col. Drake's springs, where two millions of gallons of the brightest, purest, clean soft water flow from the jasper rock every 24 hours. At some former time a good deal of money was expended here; but just now the place shows much evidence of decay and neglect. A large circular stone reservoir is around the iron pipe, and the water stands perhaps a foot above it; yet it is so clear the pipe is plainly visible while its volumes of crystal coolness gush forth. In many parts of Dakota, even out on the prairies, great rocks are seen of jasper. This is a very hard reddish stone, much like the carnelian that was so fashionable for finger-rings years ago. At Sioux Falls the river flows over these jasper rocks, and has, in ages past, worn them down in many wonderful shapes. The falls is a succession of irregular steps, 90 feet in all; and the flinty quarry furnishes the most beautiful building-stone without limit. Many fine buildings (including the magnificent new court-house) ornament the city, made entirely of jasper. The Illinois Central R. R. depot is such a gem of stone architecture, all of jasper, that I took it with my Kodak. It will appear in a future issue. Right near the falls an immense flouring-mill, all of jasper (as well as the milldam too), startles the passerby. The flume that carries the water to the wheel is of boiler iron, and large enough to drive a horse through. The capacity is something like 500 barrels of flour a day; and yet, after this abundant harvest it is standing idle! When I inquired why this was, the answer came, *litigation!* Does any one know what *sin* costs us as a people, *in hard cash?*

Very few farmers make any use of manure in

Dakota. It is either banked about the houses, used to fill sinkholes, or carted out on the commons to waste. One obstacle is that it makes this dry light soil still dryer; but artesian wells and irrigation will remedy that. Or letting it rot in properly constructed piles will fix it. Those who have taken the trouble to use it have found that it increases the yield almost if not quite as much as in the Eastern States. The tendency is to farm such very large areas that they can't take time to spread manure. The same with keeping grass and weeds out of these immense cornfields. I feel sure it is a mistake, just as it is in the older States. Many are husking corn as our train passes. The wagon is taken into the field, and the corn thrown in as it is husked from the standing stalks. To prevent the ears from flying over, a light panel, or fence, is attached to the box on the opposite side. After the corn is off, cattle are turned in, and they seem to greatly enjoy twisting the small ears that are left, and taking what they choose of the fodder. This is, of course, a wasteful way, but it is cheap. In many fields the furrows are so long one can hardly see where the end is. In some localities the ground is already plowed almost as far as we can see. The coal-black soil makes it look almost as if the land had been burned over. Sioux Falls is called the largest city in South Dakota, and, if I am correct, Mitchell next.

Timber-planting has been rather a failure, except in favored localities. The dry summers are probably too hard on the trees; and the cottonwood and elm, that were used mostly, are trees that seem to demand rather damp low ground. I have seen some very fine timber-belts where some of the trees are nearly if not quite a foot through. The railroad company have planted trees extensively for snow-breaks; but as these are needed only on ground higher than the track, the location is unfavorable for the cottonwood and elm. Firewood is \$9.00 a cord; and the coal principally used, \$10.00 per ton. Dakota is at present rather lacking in fuel. The number of great fur coats, looking almost like huge buffalo-robos, seems to indicate the severity of the winters usually.

When the sun comes out through the clouds so as to light up the prairie in the far distance, the effect is very striking, especially when it strikes the great fields of corn. Once I saw some like the mirage on the desert—glittering sheets of water, with islands and trees, and the conductor told me such appearances were not uncommon. None of the passengers seemed to see it except myself, and I fear it is because they are not, as I am, *in love* with nature and nature's God.

Nov. 26.—At Sioux City I saw the wonderful corn palace; but it was during a snowstorm, and after dark, or I should have taken a Kodak picture. It is a structure of magnificent proportions, and a gem of architectural beauty, the ornamentation all being done with *corn*—yes, corn—red, white, and yellow ears of corn, whole and cut up in thin slices. It looks something like the handsome Indian beadwork; but the corn gives it a tinge suggestive of autumn and home on the old farm. I inquired for religious meetings, thinking there would be some on Thanksgiving night. At length I heard a band playing, and thought it must be to call people to the theater; but the tune seemed strangely familiar. Yes, it was one of our revival Methodist hymns. Why shouldn't they play on horns at a theater, any way? Alas, dear friends, our theaters are not, at least yet, for Christ Jesus, and they *dare not* play a gospel hymn. It was the Salvation Army, and I felt glad to be one of the crowd that gathered round them, out in a snowstorm on Thanksgiving

night. The music alternated with testimonies from those who had been saved; and although I once enjoyed the music of the theaters, never was *any* music before so inspiring as this from these humble people who sang praises to the Lord of all. A bystander told me they were doing a great work among the Swedes and Norwegians, and many who would doubtless never have heard of the gospel otherwise. Many testimonies came from those who had been saved from drink. A quiet humble woman told of a painter who could not paint her house without his frequent drinks. She talked with him and he confessed his bondage, and said he would give any thing to be freed from it. She told him, as well as she could, of the "Lamb of God that taketh away the sin of the world," and now he has passed his second Thanksgiving, a redeemed sinner.

Thrashing-machine men are having a bonanza through the wheat regions, and it will be kept up all winter when the weather permits. In these regions of little rain, all kinds of grain, and even hay, are damaged comparatively little, even if left uncovered.

Between Sioux City and Council Bluffs we had our cars lighted with gas, and the light is sufficient to read even fine print with the greatest ease. We see the same arrangement overhead between Omaha and Denver. Near Columbus, Neb., we see the corn-cribs full to overflowing, and great heaps piled outside up against the crib. There are also *miles* of haystacks, and no fences to show where one man's farm ends and another one's begins. The conductor says it is wild grass, but about as good as timothy. The only farming that has ever been done on it is to cut the grass and bale and ship it. Baling-machines are now at work, and teams are drawing it to the stations on the good hard roads.

GRAND ISLAND, NEB.

Did anybody *ever* see so much corn? Every field is a cornfield, and every field is dotted with wagons, picking and drawing corn, and near every farmhouse, almost, are great *stacks* of ears. Surely no one on the face of the earth should starve if the corn can be carried to them. It is raining now; and were it *my* corn I should worry about its getting *wet*; but it doesn't seem to worry the people here. There is considerable timber here, that was planted out years ago, and it seems to have done considerably better than that in Dakota; but I don't believe any has been planted of late years. Very few beehives were seen through Dakota, probably because of lack of both clover and timber; but I am told bees do quite well through here.

We just passed a mill with bags of grain piled around the door clear up to the windows of the second story, and (it is raining) out in the rain too. People didn't stop hauling, and a thrashing-machine kept going. These people must be "hustlers."

GREELEY, COL.

Again, the second time in my life, I am permitted to gaze on the snow-capped peaks as they pierce the very clouds. Oh how I wish all the readers of GLEANINGS could be with me as I stand here alone and gaze spellbound! So near do they seem. I can hardly believe I could not reach them on foot before sundown; yet they all tell me it is 30 or 40 miles, even to say nothing of climbing to the summits, which are more than a mile above the level land.

Did you ever! The bee-keepers round about Greeley had called a convention, to be held this Saturday afternoon, before any one thought of seeing me here. It was quite a surprise to all of us, and we had a very pleasant time. Quite a number of ladies were present,

and a permanent organization was formed. I came into the place an utter stranger, but found a host of friends to say good-by to in only a few hours. In a couple of hours more I was in the great city of Denver. I registered at one of their fine hotels; but before bed time our good friend J. L. Peabody (whom some of our readers may remember as the maker of the Peabody honey-extractor years ago) insisted I should get my things and make his home *my* home. One would think, from the welcome I received, we had been acquainted for years.

Dec. 1.—Before I forget it I want to speak of the region around Greeley as being the potato-field of the world. To get the crop safely out of the way of the frost, they build great pits, or caves, that will hold, say, 10,000 bushels each. They are large enough so a team can drive right in and out. The top is covered with poles, then brush, then weeds and straw; over this they put a foot or more of dirt. The great body of air inside keeps it from freezing. I saw perhaps a dozen or more of these pits while traveling four or five miles with my good friend Chas. Adams. Friend A. has a pretty home away out among the alfalfa-fields, and round about him are something like 300 colonies of bees. Last year he had 17,000 lbs. of honey; but the past season has been comparatively poor. Honey sells here entirely by the section. At wholesale they get from 10 to 12½ cents; but it is retailed by the grocer at 15, 20, and 25 cents. They do not stop to weigh, and, as a rule, they do not split a nickel.

Not only the air but the soil is dry and clean the year round—no mud. A little two-year old was running all around bareheaded, rolling on the ground, and playing with the kitten, even when the snow lay in patches here and there. If they rolled in the snow it didn't seem to be cold, and several times I was really tempted to think that it was *dry* snow, even when melting. The dry prairie soil takes up the moisture very quickly.

I could hardly think it possible I should spend another such a Sunday as the one in Mitchell; but I found the great city of Denver not a whit behind in spirituality. I went to the jail and talked to about 200 prisoners. They had evidently been preached and prayed to, for a great part of them lounged carelessly away, even during the talk, as much as to say they had no particular interest in the matter. I wondered if it were not possible to reach these boys and hold their attention by some plain talk in their own language. I prayed for grace to win them, and at least get their full attention. I succeeded fairly well; and when I closed they were so near me I could easily shake hands with them. A great part of them were not hard-looking boys at all; and some of the faces I shall remember for a long time. Denver is a great city of 140,000 inhabitants, and something like 50 miles of street railways—cable and electric. Horse-cars are now almost unknown, and all new lines are electric.

Rev. K. A. Burnett is one of the most live and energetic evangelists I ever knew. It was my good fortune to make his acquaintance at friend Peabody's. He not only labors in all the churches, Y. M. C. A.'s, Endeavor meetings, etc., but he works all day long wherever he is. As an illustration, he heard a man swearing on the street and accosted him something like this: "O my dear friend! where did you learn to use such awful words? Surely your mother did not teach them to you, did she?"

The man stopped, stared at him, and said, "My mother! what do you mean? I want to tell you, sir, my mother was a good woman." The man was set to thinking, and was not offended. Well, now, I have a good point for

millionaires, at least one of them. John Wanamaker is one of two wealthy people who keep good brothers at work laboring hard every day to reprove sin and to lessen crime.

I have just got hold of a good point for market-gardeners. A man whom we visited bought five acres in the suburbs of Denver, for \$500. This was 14 years ago. He improved it and raised good paying crops on it year after year, near to market. Two years ago he sold *half* of the five acres for \$27,500. The lesson is this: A market-gardener can purchase land in the suburbs of any growing city; and if he is active, and has purchased wisely, he can *surely* pay the interest on the investment; and if the land does not advance he is not like the speculator—dependent on advance.



In the multitude of counselors there is safety.—PR. 11: 14.

MR. DOOLITTLE has succeeded in sending queens to Australia in our cages.

THERE is one thing that bee-keepers should remember—that choice comb honey always finds ready sale at a good price; but a poor article has to go begging for a customer.

WE wish our bees outdoors would *stay* in their hives on bright days, but too cold for flight. Many of them are lost, and unable to get back. There is this advantage in cellar wintering: Changes of weather do not lure the bees out on days that *seem* warm and pleasant.

A RUMOR is afloat that Mr. Frank Benton, now in the employ of the government at Washington, D. C., is about to start on another expedition under the auspices of Uncle Sam, to hunt up the *Apis dorsata* and other races of bees. If experience in this line of work is any requisite, Benton is the man.

JUST as the last forms of this issue are going to press we have only room to state that the North American at Albany was an interesting and profitable convention. We will have more to say regarding it in another issue, and also of the visit of W. Z. Hutchinson, C. P. Dadant, and Hon. J. M. Hambaugh, at the Home of the Honey-bees.

IT will be remembered that, in the beginning of the current year, there was quite a crop of bee-journals—some five or six. At least four, says the *American Bee-Keeper*, have dropped out of the struggle. We are glad to know that the latter has been a financial success from the start. It is the old, old story of the survival of the fittest—the best on top.

THE senior editor, while at Salt Lake City, had another attack of his old sickness. While we were a little worried for fear he might have another run of fever, we are glad to say that, from last accounts, he was so far improved that he was able to resume his journey. The folks at home desire, above all things, that he husband his strength—that is, let a good many things go unseen if need be.

OUR readers are of such a class that it is almost unnecessary to caution them against

"green-goods" circulars that are being sent through the mails. The blackmailers pretend to be your friend, and that, if you keep the thing a secret, they will give you a pile of counterfeit bills that can not be told from the genuine, for about a tenth of their donominational value, in *good* money. If you are fool enough to be "taken in" they will meet you at a certain point, show you the "green goods," which you would say look like the genuine. You purchase a box of them, and before you get away they manipulate the box and you get one of sawdust. This you discover, too late, and your good money is gone. Several of these schemers have been arrested; and their plans, which are essentially the same, have been exposed through the great dailies of the country.

OUR friend J. M. Jenkins, our Southern supply-dealer at Wetumpka, Ala., has been passing through deep waters. It is only recently that he lost a child; and now the companion of his home, his wife, is taken away by that dread disease, consumption. A letter just at hand tells its own sad tale:

Friend Root:—After a year's suffering, my beloved wife passed from death unto life this morning. She died as she had lived—happy, and full of faith and love and peace. "Blessed are the pure in heart, for they shall see God."
J. M. JENKINS.
Wetumpka, Ala., Dec. 2.

The brotherhood of feeling is so strong among bee-keepers that we are sure that we voice the sympathy of them all. Friend Jenkins is an earnest Christian, and knows *how* to take these trials.

It was intimated, at the Northwestern convention, at Chicago, Nov. 19 and 20, that commission men—at least some of them—are in the habit of quoting a lower price in their market reports on honey than that at which it is actually sold. There is a chance and a temptation here for a little dirty business, we know; and while we are sure that most of our commission men would be far above such deception or theft, there may be a few who are guilty of it. This is something that bee-keepers themselves can determine without very much trouble, if they have a mind to. If there are any such (and we hope there are none who do it), and we get the proof of it, we will give them a little free advertising—not of the agreeable sort, however. We have carefully looked into the responsibility of every one of our honey-merchants (those who report in GLEANINGS), and we do not believe that any of them are guilty of any such disreputable piece of business. If there are any such, however, let the facts be known. Of course, where a honey-merchant buys the honey outright, that is a different matter altogether. Our remarks apply only to those who sell on commission.

FOUNDATION AND FOUL BROOD, AGAIN: IS THERE DANGER OF INFECTION?

IN the *American Bee Journal*, page 713, Mr. S. Corneil, of Canada, a gentleman for whom we have a very high personal regard, both as a scholar, scientist, and bee-keeper, still insists that foul brood may be spread by foundation, although the whole bee-keeping fraternity seems to be against him. Prof. Cook has often said that, when science is at variance with practice and experience, we should reject science and accept practice; but experience says, "No, no!" If we understand the matter, science is not at variance with practice in the case in question. The long-continued heat to which the wax is subjected in the process of clarifying in making foundation is sufficient to sterilize

the most resistant germs, as Mr. Newman shows. Mr. Corneil, however, in commenting on this point, thinks we are liable to dip out infected wax that has been put in as a supply, that may have been subjected to a high temperature for only a short time. In reply to this we would say that this contingency is exceedingly improbable. All the wax, before we receive it, is supposed to be sterilized; and the chances that it should be diseased in the first place are not as one to a thousand. Another thing, the fresh supplies of wax are usually put in the night before, and there kept at a temperature of 180 all night. Seldom is wax added during the day to our large melting-vats, unless it be foundation clippings that are already clarified from dirt and impurities, and these clippings are certainly sterilized. The reason we put the wax in at night is to allow the dirt that may be in the cake to settle, and not because we fear the germs of foul brood. Mr. Corneil also thinks that the disease originated in our apiary, not from purchased honey, but from foundation which we had put in the apiary, said foundation having been previously made from infected combs. Friend C. misunderstands us. We never put foundation made from known diseased combs in the apiary until *after* we had had foul brood; so it is improbable that the disease could have originated in the way he suggests, in our apiary. The foundation under discussion was put in another portion of the apiary, in clean hives; and to-day those hives—every one of them—are perfectly healthy.

Mr. Corneil further argues that, inasmuch as the disease starts up in different parts of the country, and for which the source of infection is unknown, therefore the disease might come from foundation. We know of quite a number of apiaries where the foul brood originally started where foundation was unknown. It started in the apiaries of Moses Quinby and G. M. Doolittle before the days of foundation.

Again, foundation is being used more and more, and yet, in the United States at least, foul brood is becoming less and less frequent. If foundation carried infection, the disease would be on the increase; but, on the contrary, it is on the decrease.

THE DEATH OF A BEE-KEEPER AND A HERO— GEORGE H. ASHBY.

A VERY neat and tasty card has just come to hand, which reads as follows: "In loving remembrance of G. H. Ashby, died Nov. 16, 1891." Mr. Ashby was quite a prominent G. A. R. man, a bee-keeper, and a fun-maker at conventions. That his death was rather sudden is evidenced by the fact that he was one among the number who wrote they would be present at the North American at Albany. His name appears among the list of other bee-keepers, as published in our last issue. He was not only a bee-keeper of some note, but he was also a brilliant soldier in the late "irrepressible conflict." He bore in his side a bullet, and the effects of the war showed only too plainly upon his constitution. We all admire acts of bravery, no matter whether we are of the North or of the South; and just at this time it might be proper to give one little incident illustrating his life as a soldier.

While before Vicksburg, under Gen. Grant, he was captain of a company of artillerymen. But before this city was captured the besieged made one desperate attempt to route the Union forces. In this battle, Captain Ashby took a conspicuous part. The enemy were approaching, and it looked as if they were about to carry the day. While his company of men were shelling an advance column, word came to

Ashby that the shells were giving out. He promptly ordered a detail of soldiers to go to the cave where the shells were kept for safety, and bring out more. "But," said they, "the shells are all boxed up, and the screwdriver can not be found." It seems that the covers to the boxes of shells were *screwed* down, for it would never do to pry open or knock off the covers with a hammer, because of the liability of the shells to explode. Captain Ashby at once ordered the lieutenant, with a couple of men, to go and break the boxes open, as the enemy were fast approaching. They flatly refused to go, urging as an excuse that the thing was foolhardy, and that they would never come out of the cave alive. Quick as thought, Ashby ordered the lieutenant to take charge of the men, while he himself proceeded to the cave. He ordered a darkey, who stood near, to hold a candle.

"No, sah, boss; y' doan get dis yeah niggah in dat yer place, if you's gwine ter break open dem boxes wid dat yer pickax."

Captain Ashby would take no parley. At the muzzle of a revolver he bade the colored man obey. He held the candle; but his white teeth chattered with nervous fear like a pair of castanets. Then with pickax Ashby commenced breaking open the covers. As ill luck would have it, the pick struck a screw, and a quantity of sparks flew into an open keg of giant powder near by. The grains were so large that the powder did not ignite; but the colored man nearly swooned, and tried to escape. The revolver was again pointed at him, and again he was made to stand. Although the sparks flew right and left, Ashby, trembling and pale as death himself, continued his perilous work, and the shells were taken out and distributed to the artillerymen; and the result was, the enemy at that quarter were driven back. We believe this incident has never been made public. It was told to the writer on the cars, and he now gladly makes it public. The cool bravery of our departed friend will be applauded on both sides of Mason and Dixon's line.

HOW TO SEND QUEENS SUCCESSFULLY ACROSS
THE OCEAN, TO FOREIGN COUNTRIES, AND
TO DIFFICULT AND INACCESSIBLE
POINTS IN THE UNITED
STATES.

Some time ago we gave some instructions on the subject as above. The wonderful success we have been having during the past year, and the inquiries that are coming in from various sources, show that another article is required, covering more in detail some of the points already given as well as the later developments.

To save the reader the trouble of turning to our back numbers, we will repeat that our export Benton cage is $4\frac{3}{4}$ inches long, $1\frac{3}{8}$ deep, and $1\frac{1}{2}$ wide. In this block are bored three holes, $1\frac{1}{4}$ inches deep, through the shallowest way, and near enough together to leave a $1\frac{1}{2}$ -inch opening. One end is lined with paraffine. This is done by dipping a small sash-brush into paraffine, and painting the inside of the hole. The compartment on the opposite end is perforated on the two sides and end, by 12 brad-awl holes, 4 holes being on a side. To prepare the candy we knead together the finest quality of thick extracted honey, mixed at a temperature of about 160° , with pulverized sugar, till quite a stiff dough is obtained. This should be allowed to stand for two or three days. During hot weather it will become soft and "run." What we mean by candy that will run is, a lump or ball of Good (Scholz) candy, freshly mixed, which, after two or three days, flattens out and becomes soft; i. e., "it runs." We do not find it practicable to mix the dough stiff enough at

the first mixing so as not to become soft and daub the bees. Well, when the candy has been standing two or three days, and runs, instead of mixing in more *pulverized* sugar we knead in what is called "confectioners' sugar." This is a grade that is pulverized to a much finer state of division; and although we can stiffen up the dough with more pulverized sugar, unless the confectioners' grade is put in at the second mixing, the bees, as they eat out the candy, will leave fine granules to rattle out all over the cage. The admixture of the confectioners' sugar seems to make the dough a homogeneous mass.

After the second mixing, the candy is allowed to stand for a day or two more, and will then become soft, mealy, and moist, yet sufficiently firm not to run. Before putting the candy into the cages, if the weather is very hot we frequently knead in a little more confectioners' sugar, because we do not want the candy too moist. If it is made just right there is but little difficulty in delivering queens to almost any part of the globe—at least, our experience so far says so. Sometimes, for reasons we can not conjecture, the Good candy, even when made just right, becomes as hard as a brick, and then, of course, the bees will die of starvation.

Having made the candy just right, we fill the cages. If the cage is to go to the opposite side of the globe, we fill a hole and a half with candy. If it has to go only to England, Italy, or some other of the European countries, one hole of candy is sufficient; but when we put in a hole and a half of candy, it will be necessary to put a division in the hole that is half full, so as to prevent the candy from falling down. The division should have a large opening so the bees can readily get through.

The cage is now ready to receive the bees. It is useless to try to send queens a year old across the water, that have borne the labors of egg-laying through the season. Queens should be selected that are not over two months old, that are perfect in every way. There should be from 30 to 35 attendants, from two to three weeks old; that is, they should be young field bees—bees that are old enough to gather honey, but which have not yet borne the toil of gathering nectar. In putting the bees into a cage, select those that have their heads in cells of honey, apparently taking a drink, by the looks of their puffed-out abdomens. Thirty-five bees well filled will carry enough supplies to last them quite a little way on the journey. The cover is nailed on with wire nails. This is a strip of section stuff, $\frac{1}{2}$ thick, large enough to cover the cage.

For postage, put on anywhere from 95 cts. to a dollars' worth, in stamps of large denomination, when the cage is to be sent to Australia or New Zealand. In sending queens to the Sandwich Islands, only 3 cts. will be necessary; to Italy, 2 cts.; to any point in the United States, 4 cts. After you have put up your bees, take the cage to your postmaster, and let him attach the necessary postage. Be sure to put on the full address given by the customer, and print it in ink in plain Roman letters—don't write it. Sandpaper off the bottom of the cage, and then be careful not to use a fine-pointed pen, and you can make very neat and pretty work. If you are not very good at printing, get some bright boy or girl who is something of an artist in that line.

Now, there may be some who would rather buy these cages than to make them. We will furnish them complete, without candy, paraffined and with paraffine paper, for 10 cts. each; or when candy is included, 15 cts. post-paid. We would advise you to make your own candy, because in that way you get it fresh.

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5 Gregory on Cabbages; paper*..... 25

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The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

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10 Irrigation for the Farm, Garden, and Orchard, Stewart*..... 1 40

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

3 Maple Sugar and the Sugar-bush**..... 35

By Prof. A. J. Cook. This was written in the spring of 1887, by my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

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This is a new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a winding line and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

Ten Acres Enough..... 1 00

The Silo and Ensilage, by Prof. Cook, new edition, fully illustrated... 25

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This book, by Joseph Harris is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

2 The Carpenter's Steel Square and Its Uses, 15

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3 Winter Care of Horses and Cattle..... 40

This is friend Terry's second book in regard to farm matters, but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages and 4 cuts.

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