

Equipment for Manipulation of Beehives

MANIPULATION of beehives imposes considerable physical strain on the operator. The supers of combs, as well as being heavy, are usually stuck together with bee glue and wax, which at times makes the work most difficult. In this article I. W. Forster, Apiary Instructor, Department of Agriculture, Oamaru, describes some appliances which can be used to facilitate some phases of hive manipulation.

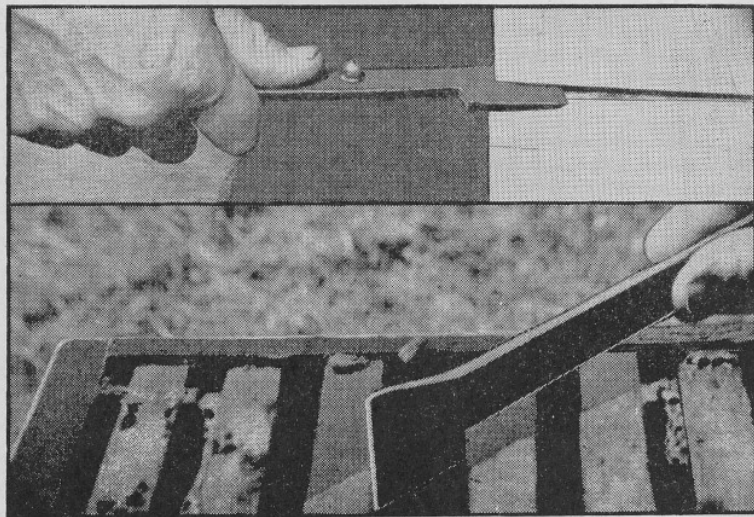
THOUGH to the uninitiated the removal of supers from a hive may appear to be simple and straightforward, it can be quite difficult.

A full super of honey will weigh some 80lb. and is often firmly fastened down by wax built from the bottom of the combs on to the top bars of those in the box below. Also the boxes themselves may be firmly glued together with propolis, which is a sticky material that bees gather from the buds of certain trees and use for blocking chinks, varnishing surfaces, and sticking the component parts of the hive together. To avoid angering or killing the bees in the hive the boxes should be broken apart with as little jarring as possible and lifted straight up in preference to being slewed or twisted.

The Hive Tool

A good hive tool is an essential part of a beekeeper's equipment and the use of such a type as the one illustrated will greatly facilitate the ordinary manipulation of frames and boxes.

A hive tool should be made of stout metal, and spring steel about $\frac{1}{8}$ in. thick is recommended. The spur A is for thrusting under the end lug of the frame and levering upward. The shoulder B rests on the top bar of the adjacent frame and acts as a fulcrum. This upward pressure should not be applied with too much force until the frames have been otherwise loosened or the top bar may be prised from the frame. This loosening is best done by moving the frames sideways with the square lug C. This projection is inserted between the frames, with the hive tool held parallel to the top bars; the tool is then twisted toward the right angle position to force the frames



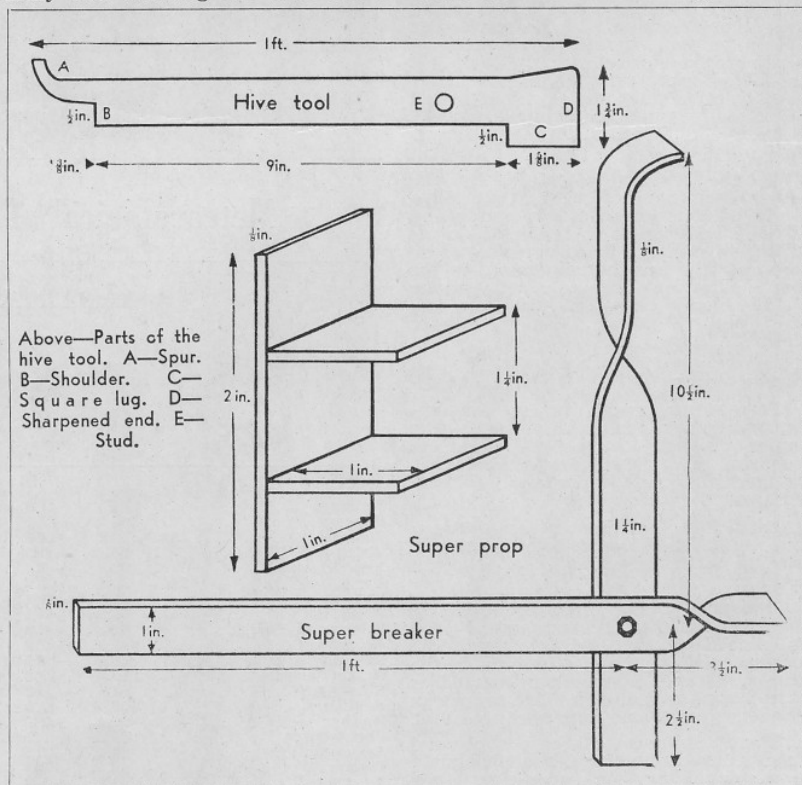
Uses of the hive tool. Upper—Parting supers with the hive tool. Note the stud for protecting the thumb. Lower—Parting frames with a hive tool lug.

apart. The end D is sharpened for prising boxes apart. It is important that a clean, sharp edge be maintained, as any burring greatly reduces the effectiveness of the tool.

Most beekeepers have had the experience of two boxes parting suddenly and allowing the hive tool to

jerk into the gap and bring their thumb into violent contact with the super. To reduce the risk of this a stud E is put through the hive tool, projecting $\frac{1}{4}$ in. on either side.

The difficulty of parting hive bodies with a hive tool is that the full weight must be taken on the fingers of the



Illustrations opposite: Equipment for easy manipulation of hives. 1—The super breaker in position for parting two supers. 2—Breaking the two supers. 3—The supers are parted and smoke is applied. 4—When a very obstinate frame has to be prised down with the hive tool the super can be supported with the super breaker, or, 5, it can be supported with the fingers of one hand. 6—The super prop in position. 7—A bee escape half inserted through the props. 8—The other end of the super is lifted and the escape is pushed into position. 9—Removing super prop with hive tool.

left hand while the super is prised up and in many cases held while the frames in the bottom box are levered from those above. It is also necessary to apply some smoke between the boxes, which further increases the time the super must be held in the raised position.

The Super Breaker

The super breaker illustrated on page 242 can be easily made from lin. x 1/4 in. mild or spring steel. (In the implement illustrated the lever is spring steel and the lifting arm is a piece of ordinary fencing standard.)

The two right-angled twists can be easily made by placing the metal in a vice, heating it with a welding torch, and then twisting it with a pair of pipe tongs. The pivot is a 1/4 in. bolt.

The super breaker obtains purchase from the hand holds. These must have a right-angled lower lip as in standard equipment. Boxes need to be fairly uniform to give a consistent spacing of hand holds, though the breaker will work within a reasonable tolerance.

The breaker is best operated in the manner illustrated by placing the short end of the lever in the lower hand hold and the lifting arm in the upper hand hold. The lifting of the handle then thrusts the top super upward. If used in reverse, with the lifting arm in the lower hand hold acting as a fulcrum for the lever, which is applied to the upper hand hold, the device is not nearly so effective.

Two hands may be necessary to make the initial thrust, but one hand can easily continue the lift, leaving the other free to wield the smoker or the hive tool should a particularly obstinate frame need prising down. It is seldom necessary to use the hive tool for this purpose, as when raised to its full extent the breaker, usually parts the two sets of frames with no difficulty.

As the leverage obtained by the super breaker allows three supers to be lifted if required, it is possible and usually convenient to break all joints in the hive at the first operation while the operator has the implement in his hand. This also allows a little smoke to be blown between each box and the entire colony brought under control.

Super Props

Two super props can be conveniently used in conjunction with the super breaker to save the complete removal of supers when screens, bee escapes, or queen excluders are being inserted or withdrawn.

Each prop is a short piece of lin. x 1/4 in. mild steel with two ledges of similar material welded on at right angles.

One end of the super or supers is raised with the breaker and a prop is placed under each corner. The other end is then raised and the screen, escape, or excluder inserted or withdrawn as required. The props can then be prised out with the hive tool.

These appliances can be cheaply and easily constructed, and though simple and elementary in operation, they greatly facilitate hive manipulation.

RADIO broadcasts to farmers are made at the following times:—

IYA Auckland, 7.15 p.m.

7 April—"Storing Vegetables for Winter and Spring Use", by S. O. Gillard, Horticultural Instructor, Department of Agriculture, Auckland.

14 April—"Autumn and Winter Pasture Management", by R. B. Bakewell, Fields Instructor, Department of Agriculture, Pukekohe.

21 April—"The Language of the Bees", by D. Roberts, Apiary Instructor, Department of Agriculture, Auckland.

28 April—"Y.F.C. talk, by the Dominion president, New Zealand Federation of Young Farmers' Clubs.

IXH Hamilton, 12.33 p.m.

1 April—"Winter Management of the Dairy Cow", by V. E. Senior, Veterinarian, Department of Agriculture, Hamilton.

8 April—"Problems of the Month", by J. R. Murray, Instructor in Agriculture, Department of Agriculture, Hamilton.

15 April—"Meat and Wool Outlook for 1954", by A. B. Baker, Federated Farmers, Hamilton.

22 April—"Off-season Improvements in and around the Milking Shed", by E. P. Carter, Special Inspector, Department of Agriculture, Hamilton.

29 April—"Making Household Poultry Pay", by W. L. Jourdain, Poultry Instructor, Department of Agriculture, Hamilton.

IYZ Rotorua, 7.15 p.m.

1 April—"Off-season Improvements in and around the Milking Shed", by E. P. Carter, Special Inspector, Department of Agriculture, Hamilton.

15 April—"Hogget Diseases and their Treatment", by V. E. Senior, Veterinarian, Department of Agriculture, Hamilton.

29 April—"Methods of Increasing Production", by P. A. Dunne, Fields Instructor, Department of Agriculture, Matamata.

2YZ Napier, 7.10 p.m.

27 April—"Pastures and Their Management", by S. H. Henry, Instructor in Agriculture, Department of Agriculture, Hastings.

Regular Sessions

1XH Hamilton, Mondays at 8 p.m. (Frankton stock market report), Wednesdays at 12.33 p.m. (report from Ruakura Animal Research Station), Thursdays at 12.33 p.m., Fridays at 8 p.m. (stock sale review).

1XN Whangarei, Mondays at 8.5 p.m., Wednesdays at 8.1 p.m. (Northland stock market report), Fridays at 8.1 p.m.

1YA Auckland, Mondays at 7 p.m. (Auckland stock market report), Tuesdays at 12.35 p.m., Wednesdays at 7 p.m., Thursdays at 12.33 p.m.

1YD Auckland, Thursdays at 7.30 p.m.

1YZ Rotorua, Mondays at 12.33 p.m. (Waikato stock market review), Tuesdays at 7 p.m. (Hamilton stock market report), Wednesdays at 7.15 p.m. (Pig Council talk on fourth Wednesday of every other month), Thursdays at 12.33 p.m. and 7.15 p.m. (fortnightly).

2XA Wanganui, Wednesdays at 8 p.m. (Wanganui stock sale report), Thursdays at 8 p.m.

2XG Gisborne, Tuesdays at 8 p.m., Fridays at 8.2 p.m. (Gisborne stock market report).

2XN Nelson, Thursdays at 8 p.m.

2XP New Plymouth, Thursdays at 8.1 p.m.

2YA Wellington, Mondays at 7.15 p.m., Thursdays at 12.33 p.m., Fridays at 7 p.m. (Feilding stock market report).

2YZ Napier, Tuesdays at 12.12 p.m. (Hawkes Bay orchardist session), Tuesdays at 7.10 p.m., Wednesdays at 7.15 p.m. (Hawkes Bay-Poverty Bay livestock market report), Thursdays at 12.33 p.m.

2ZA Palmerston North, Mondays at 12.33 p.m., Fridays at 8.45 p.m. (Feilding stock market report).

3XC Timaru, Mondays at 8 p.m., Tuesdays (fortnightly) at 8 p.m., Wednesdays at 8.5 p.m.

3YA Christchurch, Mondays at 12.20 p.m., Wednesdays at 7.15 p.m. (Addington stock market report), Thursdays at 12.33 p.m. and 7.15 p.m.

3YZ Greymouth, Thursdays at 12.33 p.m.

4YA Dunedin, Wednesdays at 7.20 p.m., Thursdays at 12.33 p.m.

4YZ Invercargill, Mondays at 12.33 p.m., Tuesdays at 7 p.m.

Meteorological Records for January

Station	Height of station above M.S.L. (ft.)	Air temperatures in degrees (Fahrenheit)				Rainfall in inches					Bright sunshine hours
		Approx. mean	Difference from normal	Absolute maximum and minimum		Total fall	No. of days of rain	Difference from normal	Maximum fall		
				Maximum	Minimum				Amount	Date	
Kerikeri	201	67.6	+ 2.7	85.9	46.8	0.96	6	- 3.54	0.56	6	212.6
Auckland	160	68.0	+ 1.6	83.6	56.9	0.36	5	- 2.82	0.18	15	208.4
Tauranga	10	66.4	+ 1.8	83.6	46.2	0.64	7	- 3.30	0.26	15	251.0
Ruakura	131	64.3	+ 2.2	84.0	42.7	1.00	6	- 2.48	0.44	23	229.6
Rotorua	975	65.2	+ 2.4	86.9	44.2	1.24	9	- 3.12	0.28	15	226.6
Gisborne	12	64.8	+ 0.0	90.4	43.7	1.52	7	- 1.02	1.11	20	262.0
New Plymouth ..	160	62.8	+ 0.6	77.2	48.0	1.77	4	- 2.70	1.04	6	282.2
Napier	2125	59.6	+ 2.6	81.0	36.5	0.84	4	- 2.84	0.39	6	254.6
Karijai	5	65.4	- 0.1	91.0	44.8	0.23	3	- 2.38	0.16	10	289.3
Wanganui	72	64.9	+ 1.4	82.8	44.9	0.94	5	- 1.84	0.49	6	268.5
Palmerston North	110	62.6	+ 0.2	80.4	45.8	1.52	5	- 1.68	0.94	10	255.6
Waingawa	340	62.8	+ 0.4	87.0	37.0	0.76	8	- 1.64	0.35	6	268.5
Nelburn	415	61.6	+ 0.6	78.8	45.5	1.61	4	- 1.47	1.17	10	287.2
New airfield .. .	5	62.4	+ 0.8	81.8	42.7	1.39	4	- 1.45	0.71	10	279.6
Blenheim	12	62.4	- 0.2	81.5	43.3	0.42	4	- 1.57	0.24	10	270.3
Hokitika	15	57.6	- 0.5	73.7	45.1	6.62	11	- 3.10	1.85	5	258.5
Hanmer	1270	60.4	+ 2.7	88.0	35.0	1.35	9	- 2.18	0.52	10	254.0
Christchurch .. .	22	61.6	+ 0.2	83.4	43.3	0.25	4	- 1.98	0.15	12	223.5
Ashburton	323	62.2	+ 1.2	93.0	40.6	1.00	8	- 1.63	0.24	6	224.1
Timaru	56	60.6	+ 0.0	79.2	40.8	0.97	7	- 1.40	0.55	6	212.8
Alexandra	520	63.2	+ 1.5	93.0	36.1	0.93	6	- 0.91	0.66	5	267.0
Taieri	80	57.6	- 0.2	82.6	37.5	1.41	11	- 0.97	0.57	10	204.4
Invercargill airfield	0	54.6	- 1.6	74.5	32.9	2.51	15	- 1.22	0.64	2	194.8