

COMMERCIAL HONEY HOUSE EQUIPMENT

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In considering equipment for the commercial honey house in the Australian industry at this time it is necessary, at the outset, to define the context in which it will be used.

Australian commercial honey producers have been somewhat slow to move from their traditional mode of extracting the crop in mobile caravan-style honey houses. Any reluctance to change to factory style extracting on a location central to the chosen area of operation is probably a combination of such factors as :

The relatively low financial returns offered by honey production in recent years

Unwillingness to borrow capital

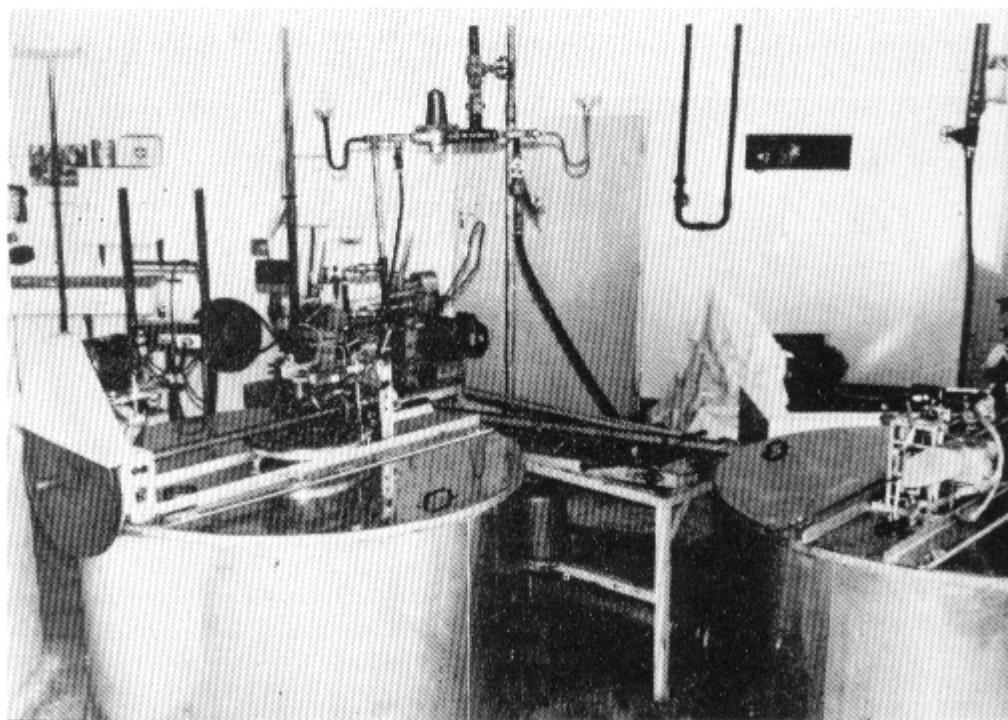
Hesitation in rethinking their operations in the light of current costs of production and of the decreasing availability of beekeeping labour

Of these 3, I consider the last to be most significant.

Such a conservative outlook is all the more surprising as surely our beekeepers as a group are in other ways among the most individual and enterprising and opportunist members of the community. It is to be hoped that any prosperity brought by the now-prevailing higher prices for honey will encourage more Australian beekeepers to give serious consideration to establishing central extracting plants.

This then is the situation now existing and the following remarks are made with the requirements of a central plant very much in mind.

Location. Gone are the days when beekeeping was a sideline of general farming. Better roads and motor vehicles have given us greater mobility and we may live where we choose. But if we choose to live in town we can have the advantage of a house in a good



Mr. M. Charlton's Honey House

area and our Honey house, storage and workshop can be located on an industrial block. The growth rate of any good town tends to make both of these properties an investment as well as supplying security for financial assistance when required. There is no need to have shed buildings at the back of your home. These may well lessen its value. Likewise there is no need to have beehives around extracting premises and beeproofing of buildings is no problem. So that the ideal would seem to be a *factory type building on a good industrial site serviced with water, sewerage, electricity and telephone and located in a good town which has adequate engineering workshops and supply facilities* of the many kinds needed for motor vehicles and extracting equipment.

There are also other advantages in being located close to available part-time labour. We will discuss this later on.

Buildings. On level ground for preference as this gives better opportunity for future extension as well as for outside storage. Internal loading docks should be set so that the truck table top is level with the main floor to permit easy unloading of honey without interference from bees. If all good such as honey supers are stacked on pallets they can easily be loaded and unloaded with 2-wheel barrows.

If you are planning for more than 1000 hives, you should also plan for eventual use of fork lift trucks. This means a level floor throughout the building, with adequate room around the vehicle area, with high doors and walls to make use of vertical storage and again an internal beeproof loading area.

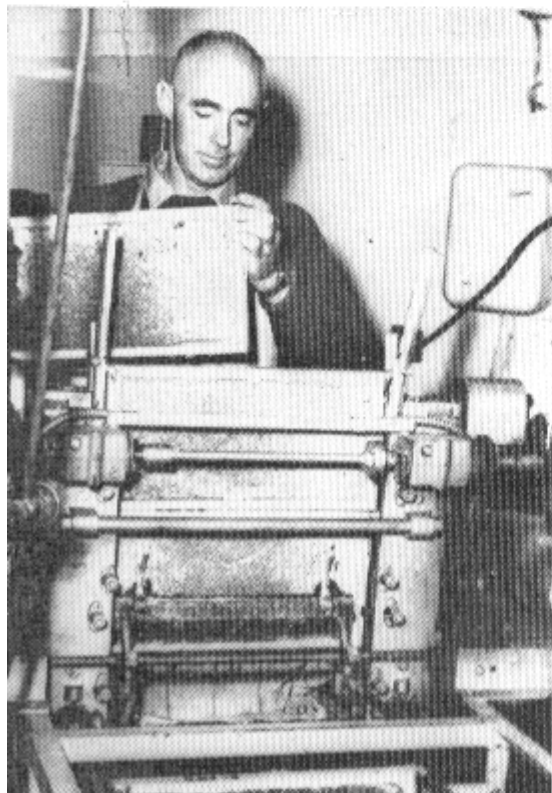
Concrete floors should be protected against the etching action of honey and water — commercial preparations for this are available for inclusion in the concrete or for surfacing afterwards. Good floor drainage must also be planned. Drainage towards doors and central grating-covered drains seems to give best results.

Interior layout. There will be 7 main areas to consider:

1. Space for incoming *full* supers of honey
2. The extracting area
3. Storage for outgoing empty supers and for winter storage of surplus supers
4. Storage for honey containers — empty and full
5. Workshop and spare parts area
6. Wax room
7. Lunch rooms, toilets and office

Let us take these one by one in more detail and with consideration of equipment to be used.

Incoming storage should be handy to both the unloading area and the extracting area. It may consist of a hot room although some operators are successfully doing without a hot room by injecting dry heat or steam directly into the drum of the extractor. But in a hot room it is necessary to ensure even heating throughout and this is usually best achieved by ducting warmed air to the floor and creating a draught which will move it throughout the room. Good air turbulence by fans seems to be essential. The capacity of the incoming storage area must at least as great as that of the vehicle bringing in a full load of supers of honey.



Mr. M. Charlton working at the uncapping machine

Extracting area. Here the space needed will depend on the equipment to be used. A good guide can be obtained by drawing the proposed building to scale on paper and then making scale cut outs of the equipment to be installed.

These can then be placed and moved on the plan of the building to find the best layout and ensure ample passage way around all equipment. Ideally the extracting area should be enclosed and with a ceiling and with walls plastered to 6 feet and painted throughout *and well lit for day and night use.*

This is the heart of the extracting setup and food such as honey should be handled in a way which does it *nothing but credit.*

Outgoing storage. This should be inbetween the extracting area and the loading area so that there is free movement of supers from truck through processing and back to truck.

Container storage. It will help if the honey and empty containers can be stored in an area sufficiently apart from the supers to that, when they are being moved, they do not get in the way of the work-flow of the supers. Inside storage is desirable to avoid heat darkening of honey in hot climates and some kind of roll-on system for drums by means of a ramp makes drum loading very easy.

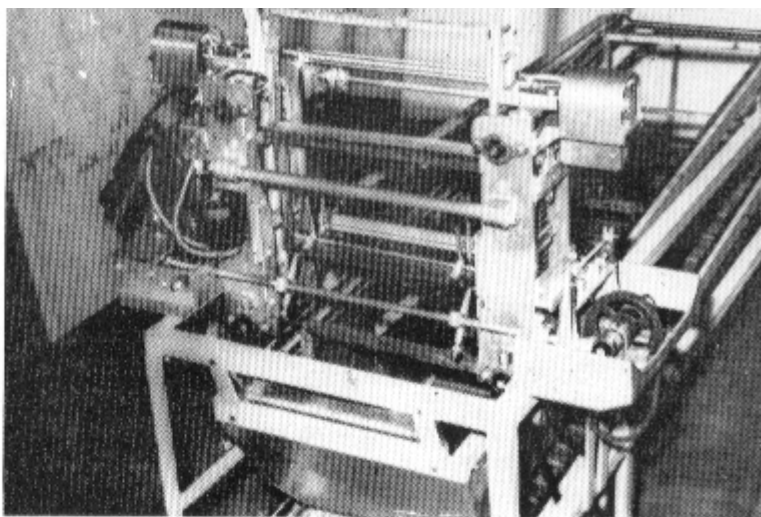
Workshop. Modern honey factories need a workshop for tools and spare parts. Of necessity this tends to become an untidy and not attractive area. If you can have a separate room and close a door on it you will know where things are and the whole place will look much better.

Wax room. Much the same applies here — it is an area which is hard to keep as clean and nice as you would want where food is being produced.

Lunch rooms ,office, toilets and wash room. These seem costly extras when you start, but are all part of an efficient factory — even if the office is only a desk in one corner. If you employ labour these will probably be required by legislation so give them a place in your plan.

Equipment. Here my guidelines may differ from other beekeepers but I do say — choose your equipment so that it will have the capacity to handle the best crop you are likely to make — not the average crop but that *really* good one. You may seldom need this capacity but when you do, it will be when you are really making money. You will need to kepp ahead of the bees either by supering or by having adequate extracting facilities or better still by both.

You can arrive at the capacity of the equipment you need by a calculation of the number of hives you operate, the number of honey supers available, an estimate of the number of days the bees will take to fill these supers — and of course the number of hours extracting time each day.



Uncapper

Wax centrifuge



This means, for example, that if your 1 000 hives will yield an average of 2 supers each in 8 days, then on a 5 week flow you will be extracting, in each 8 hours working time about 250 supers or over 12 000 lbs (5,500 kg) honey and this is not counting Sunday if you take that off work.

Our own outfit was planned to this capacity of about 35 supers an hour when we had about 800 hives in 1960. Now that we operate over twice this number it is still efficient enough because, in peak periods we can run a night as well as a day shift.

Now I am not suggesting that you will keep up this rate day after day or even achieve it for 1 hour, but there will be runs when all the supers are chock full and your plant, even for a short time, will need to be able to handle this maximum rate otherwise you may have to stop and wait for it just when you don't want to.

And I think that most of you will agree that if a plant is planned to cope with more output than is usually needed then it is not often under stress and gives longer service life.

So select every piece of equipment so that, at all stages, from uncapper or melter, through extractors, pumps, strainers and centrifuges they are all balanced with one another to handle the desired output with no bottleneck occurring.

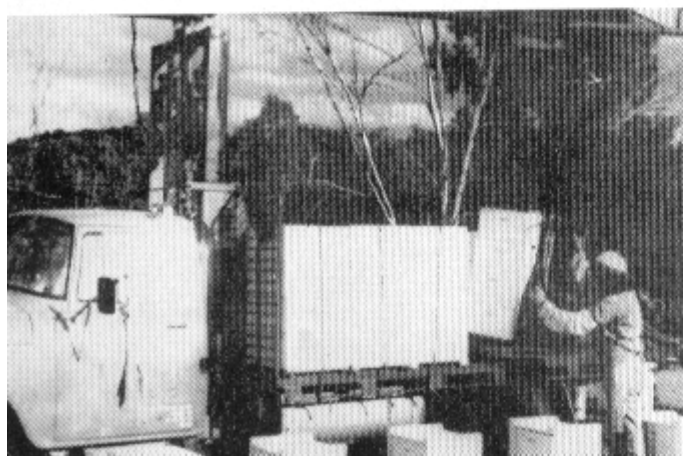
Next I would say keep the equipment simple so that the operator does not have to be a mechanical genius to keep it working. This is partly because it will need less maintenance but also because it is my view that extracting should not be considered part of beekeeping — it is an unskilled factory job for any able man or woman. *If we are to use our skilled beekeeping labour to best effect then it can mostly be employed better outside the honey house.* In this situation I believe that we should have our extracting plants suitable for casual and part time labour. A part time extracting team coming in to do the work at nights or weekends allows a much better use of our beekeeping skill which we consider to be "getting the hive at the right strength at the right place at the right time".

And the final aim in extracting should be to finish the day with the honey in its drums, the wax in its moulds and everything cleaned up ready to start next morning.

Finally let us look at the equipment now available. In the last 25 years there have been almost no major changes in our extracting processes. In fact there has been little since the invention of the movable frame hive made extractors possible. We still cut the caps off the comb and spin the honey out centrifugally and separate wax from honey by settling. Even the Cook-Beals honey-wax separator is only settling by centrifugal rather than gravitational force.

However equipment has become more automated and efficient and certainly of bigger capacity — and kept pace with the larger numbers of hives which we now seem to need to operate.

Loading hives in Mr. M. Charlton's
apitery



Also in the handling of our honey, better controls of heat and the wider use of stainless steel in extractors, pipe lines and other equipment has materially helped us to produce a better quality product.

So that, although most of us will start in central extracting with what we already have, I propose to conclude with a few slides of some up to date equipment now in use.