

Honey Processing Equipment

By J. RENTOUL

Development of Equipment

A most interesting address was given at the field day of the South Auckland Branch of the N.B.A. on March 2nd, by Mr. J. Rentoul, manager of N.Z. Honey Ltd., on the problems facing him in processing and packing honey for retail sale on the local market.

His perseverance and expert knowledge of honey resulted in his achieving remarkable success in developing equipment that gave N.Z. Honey Ltd., the most up-to-date and most efficient honey-processing and packing plant in the world. This plant has only recently been completed, and was perfected just prior to the purchase of the assets of N.Z. Honey Ltd. by the Internal Marketing Department (Honey Division). The plant should enable the Division to pack on a basis that will permit it to give a better article at a lower price than is possible to the private packer.

At the conclusion of his address, Mr. Rentoul was given an enthusiastic ovation for his success in perfecting new and original equipment for the processing and marketing of honey.

The address was as follows:

The Early Methods

The handling and packing of honey in a set or granulated form in a commercial way was pioneered by New Zealand. The biggest packers of honey, when the late N.Z. Co-op. Honey Producers' Assn. started to market its honey in the United Kingdom, was the United States. This country uses honey in a liquid form. Canada was not then a factor in the honey business. In the United Kingdom the sale of honey at that time was scarcely a commercial proposition. A few small packers and a large variety of home-packed honey sold by individuals made up the business. The pack seemed to be either liquid or granulated, just as it happened. It is still largely so, but the commercial packers have grown a bit. Canada is now the biggest packer of honey in a granulated form.

The ideal result in packing set honey is to get a pack smooth in texture, and that will not set too hard in cold weather. The grain problem was the most difficult, as the firmness of the honey can easily be controlled by storage temperatures. Practical experience in handling granulated honey in this country led to certain

practices being followed, the scientific soundness of which was confirmed by Dr. Dyce, of Canada, in a thesis founded on scientific research and written sometime after the method of procedure had been established here. While we know that honey would granulate best at cool temperatures, Dr. Dyce states a temperature of only small variations from 57 deg. F.

When the Honey Producers' Assn. started to pack, the method used for melting was rather primitive. Tins were put on a rack in a closed chamber which was heated by oil lamps. Sometimes there would be a leaking tin and a cleaning up job. If the lamps smoked it was just too bad. One of the first things I remember in my connection with the Honey Producers' Assn. was inspecting hot water heating systems in wool drying stores and other places. I think Mr. Jordan was then the packing expert for the Honey Producers' Assn. The result of the investigation was the installation of vats through which ran hot water pipes. On these pipes rested the tins of honey with the lids off and the opening downwards. As the honey softened by contact with the hot pipes it ran on to the bottom of the vats which sloped towards the centre from where a pipe conveyed it to the tanks on the bottom floor. With a little judgment in the placing of the different varieties of honey in the vats the blending was automatic.

This method was satisfactory in some respects, but not in others. It was satisfactory in that the honey was not deteriorated by overheating, and that it produced a product that never set brick hard. It was faulty in that it could not alter the nature of the grain to any extent, and that it resulted in considerable amount of froth imprisoned in the honey which would gradually rise to the top, making the honey unsightly.

These vats were in use up till recently, but, instead of the honey being allowed to run down as it softened, in recent years it was kept in the vats till it melted right out. The increasing improvement in food-stuff packing made it imperative, if honey was to increase in popularity, to put our packs out with the honey in the most acceptable condition. It was quite evident that to get rid of grain and froth, the honey had to be melted and regranulated, and that the melting should be done in such a way that no deterioration should arise

from over-heating or prolonged heating. The deterioration of honey from overheating is viewed so seriously in Germany, where knowledge of these matters is on a very high level, that honey for consumption is not allowed to be sold if heated to over 122 deg. F.

New Melters Invented

The melting vats we had were not designed for melting honey, but were used for that purpose. They were slow in action and were also awkward to fill, and an electrically heated chamber was added to the outfit, to get increased output. The same fault, however, applied to both, the heating was too prolonged, resulting in overheating the melted portion while waiting for complete melting of the solid cores of honey. Also the colour was more or less darkened.

A suggestion to let the honey when softened run on to sieves in a hot chamber and hold it there till it melted, proved quite impracticable. One of the difficulties was that the top of the great mass of honey held up by the sieves would melt and dry up to the candy stage.

I will not weary you with a description of the experiments that I found necessary in the development of a method that would do the job. Eventually having conceived the right method, I proceeded to build a model in wood of the interior of a melting chamber, that, when copied in metal, this model did not require one alteration.

The whole thing is not a spectacular affair. Outside it is like a large box with a switch board and some contraptions on the top. The inside view shows a rack built of plated angle iron with the shelves for holding tins and the accompanying trays running in a downward slope to both ends on a carefully calculated pitch. The principle of operation is that the honey runs from the tins through small holes in a more or less melted condition, and when it finally passes through sieves before running down to the tanks, any unmelted crystals are held back till melted. It will be seen, therefore, that the honey is melted at a minimum temperature and is a minimum of time in the heat. The chamber is electrically heated with a closed circuit, so that there is no loss through evaporation. It could be used successfully for drying moisture out of honey by slightly opening the doors.

Incidentally, there is quite a problem in a job like this in getting effective transference and diffusion of heat. This is a general and con-

ditioning difficulty. The inside measurement of the chamber is 7 feet high, 7 feet long, and 6 feet 6 inches wide and capacity is 108-60 pound tins. While most of the honey is down in twelve hours, sixteen hours are allowed for clear draining.

(To be continued)

Honey Flow Daily Record

Mr. T. Barr, Brydone, Southland, writes on March 2nd: The following is the record of the scale hives from 1st to 6th February. Since that date the weather has been fine, but too dry. The bees managed to keep the scale balanced, putting in no surplus.

	No. 1	Hive	No. 2	Hive
	1	5lbs.	10lbs.	
February	2	3 "	6 "	
"	3	3 "	6 "	
"	4	3 "	5 "	
"	5	3 "	4 "	
"	6	1 "	— "	

Many Orders from Advertisement

Enclosed, please find payment for one year's subscription to the "N.Z. Honeybee," also for my advertisement in January's issue. A large number of orders were received from all over the Dominion as a result of the advertisement.

For this locality, the season has been an exceptionally good one for queen rearing, but the honey flow was interrupted by a very dry period; then later, when the weather changed, several cold snaps were experienced, resulting in a crop much below that which was anticipated at the beginning of the season.

I am very pleased to hear that the "N.Z. Honeybee" is gaining ground. It must be most gratifying to you to know that the number of subscribers is steadily increasing. Wishing the journal every success. — C.T.G. Richmond, Nelson.

Blenheim Honey

Our early honey is always about the same as the sample I sent you. It seems to be a bit of a mixture first, of willow and fruit bloom, then dandelion and wingthistle. The Vipers Buglions and mention is later; it comes on loss you mention is later, and in the lighter land on stubble, and in Marlborough is taken from white clover, lucerne and bugloss in certain parts. The latter seems to like dry, shingly country; if I ever get a pure sample of it, I will send you a bit.