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Chaff Cushions and Absorbant.

Up to the present all experiments in wintering have been conducted with greater or less difficulty. The results have also been more or less unreliable and unsatisfactory, and they can only begin to be of value as they are repeated again and again. The reason is simple enough. Where we begin to deal with living things, there are so many *conditions* which begin to enter in, that only the greatest care can bring out anything of value. Take an experiment with breeds of cattle as to beef, milk or butter, would an experiment be of any value in which the first five cows within reach were taken up and compared. Certainly not. The individual the age and constitution would have a greater influence than the breed. So with bees, not the number of bees or even the age with the queen but the vitality of the bees should be considered. We should of course separate the powers of the queen and the honey gathering qualities, hence the great difficulty in determining the actual benefits to be derived from a certain system. We have however unbounded faith in proper experimental work. No doubt as the work is new, there will be mistakes made as others have made them in experimenting in other lines. But by going on, having friendly criticism and the co-operation of the most thinking and experienced men we may hope to raise a structure in the future to which intelligent men will look for information of value. The questions of absorbants as opposed to sealed covers has received a good deal of attention, but after all have we got at the root of the matter? may sealed covers not be best under certain conditions and absorbants best under others? Yet one or other be always best under the *best* conditions? How would this answer: A sealed cover is not best when the moisture is liable to condense on the under side of the quilt and moisture to a greater or less extent drop on the bees. We know that the warmer the atmosphere the more moisture it can contain; that when it strikes a cool surface it condenses and this is just what is likely to take place when there is a quilt or thin honey board without packing. The air passes in at the entrance and as it approaches and passes through the cluster takes moisture from it; continuing to rise it strikes the *ceiling* of the home of the bees, if there it finds a cool surface the temperature lowers and the moisture can no longer be held in solution and it condenses, just as it does on a window pane when it strikes the cool surface of the glass. But if there be plenty packing above to keep the surface warm it passes on and down, no moisture falling on the cluster. In such a case the temperature of the hive is likely to be higher with less effort on the part of the cluster and the advantage is the vitality of the bee is husbanded and the higher temperature in the hive as compared with the atmosphere outside is likely to give better ventilation, and the atmosphere outside is not absorbed but expelled either at a portion of the entrance, or we think better still when in the cellar, at the back, the hive being raised three eight inches from the bottom board. Now how about absorbants? We do