

be permitted to accomplish something along this line, but not yet being supplied sufficiently with the needful financial equipment—the "sinews of war"—to begin the fight against the honey-adulterators, it was deemed best to simply wait until there is in hand ample "ammunition" to insure the entire annihilation of the enemy when once the war is begun.

It seems to me that the very first thing we need to do is to rally round the standard of the United States Bee-Keepers' Union, a veritable host of determined, never-say-die honey producers who are willing to go in for the whole war, whether it takes all summer, or any number of summers to eternally destroy our common foe, the abominable adulterators of earth's purest natural sweet!

I might continue these suggestive hints, but it is scarcely necessary. Every one of you is ready to go forward whenever this Union shall but give the starting word. Let us hope that at this convention such action will be taken along various lines as shall prove the bright harbinger of better things in our pursuit.

In conclusion, permit me to say that though the presidency of this Union was thrust upon me at the last meeting, I have endeavored to discharge its duties to the best of my limited ability. I trust that wherein I have failed to measure up to your anticipations you may be lenient; and that at the close of my term of office I may have the pleasure of welcoming as my successor one who shall lead us all to a higher height of success, until the great and ennobling industry of bee-keeping shall be unto its devotees all that it rightly deserves to be.

GEORGE W. YORK.

Chicago, Ill., Aug. 14, 1897.

PURE AIR, VENTILATION, AND ARTIFICIAL HEAT, IN THE WINTERING OF BEES.

During the summer of 1895, I had the good fortune to visit the apiaries and home of one of our foremost, and most enterprising Canadian bee-keepers, Mr. C. W. Post, Trenton, Ontario.

Mr. Post expressed great confidence in artificial heat for cellar wintering. He was kind enough to give me his ideas, and the system he thought it would be well to follow, and as a result, a very thorough test was made during the winters of 1895-96, and again during the winter of 1896-97.

I am perfectly well aware that a great many have applied fresh and pure air in the wintering of bees, and with greater or less success. I am also aware that artificial heat has been applied, the instances on

record, are however, less frequent, and I do not know of any, who for a series of years, has made a success of this, nor do I know of anyone who is constantly using artificial heat and fresh air to replace the air made impure by the bees. A combination of these will lead to success. In the application of pure air the great difficulty has been regularity of current, and regularity of temperature. When cold outside, it is necessary to exclude, or partially exclude outside air to keep the cellar the proper temperature, this we know leads to foul air. If this cold fresh air is allowed to enter, the temperature falls, and the bee-keeper is often at a loss to know which of the two evils is the lesser.

Again, when the outside temperature is about the same as the inside, there is a tendency to stagnation, and the atmosphere in the cellar becomes vitiated, the bees are correspondingly restless and proportionately worn out and aged. Subearth ventilation has been tried, but in this, the above difficulties have presented themselves to a lesser or greater degree, and many have used them for a time, in the end abandoning these methods.

To cheer and comfort the fraternity, (if comfort can be derived by having brethren in tribulation) I may in passing say, that Dairymen who require accurate temperatures and degrees of moisture in ripening cheese have experienced all our perplexities, and those advanced in their calling are studying this question as we are.

What we required, is to be able to control temperature, and to secure a cheap and practical power by means of which we can secure a steady ventilation, or in other words, draw or push atmosphere. For some years, my thoughts ran in the direction of electricity and although it is not yet within the range of the practical, I believe the time is not far distant, when by a system of storage batteries, we will at a nominal outlay, through wind mills, develop electric power which can be used as required for power, heat and light and by means of electric currents, ventilators will open and shut, heat be applied automatically, as temperatures rise and fall in the cellar. But for the present, by means of artificial heat we have the power to force currents in whatever direction we may desire. The same heat also serves to regulate the temperature, and here, we have an element within the reach of the practical.

The first test was conducted under the following conditions:—A large stone cellar was divided into five parts, four of these was used for the bees, and these repositories communicated with one another by means of doors, and also by means of openings in