

keepers of Ontario have no right to feel discouraged.

A very free discussion followed on the subject of unripened honey, the attending evils, and the possibility of finding and fixing the standard of the percentage of water to be found in the ripened and marketable grades. On motion, a committee was appointed to look after this matter, to collect samples of honey capped in the hive, find the percentage of water in them, and report at the next annual meeting.

The paper of Mr. J. W. Sparling, Bowmanville, on the "Management of Apiaries in Spring," was to the point and showed his acquaintance with the subject. Mr. Sparling believes that spring management should commence the previous autumn; to a great extent its success depended on the condition in which the bees were put in winter quarters. Plenty of stores, young queens, and early setting out were strongly advocated in the paper and in the discussion which followed.

Professor Shutt, of the Central Experimental Farm, Ottawa, was listened to with special attention, his subject being on the relative values of comb foundations.

Prof. Shutt has during the past three years been conducting a series of experiments along these lines. His results show that the bees seem rather to prefer the heavier grades, utilizing a much larger percentage of the wax supplied than in the lighter grades.

Mr. John Newton's paper on "Outline Work during the Extracting Season" was a very practical one. He considers it best to use the strongest and best colonies for the production of comb honey, and that a lower grade can be used to advantage for the production of honey for extracting. By allowing it to remain in the hive until ripened and capped both the body and flavor are improved. This paper called forth many valuable hints and suggestions on the management and production of extracted honey.

The value of the solar wax extractor for rendering the cappings and separating the honey from them was favorably commented on; by keeping the basket and the drip pan clean, and shaded from the rays of the sun, the color and flavor of the honey is protected.

Combs, when extracted, should not be put back in the hives until evening, as they will interrupt the work of the colony by attracting the bees and causing them to remain in the hive until they have cleaned out the dripping combs. It is better to have a special set of combs for the surplus, and not to interchange with the brood chamber. Combs kept free from pollen are little troubled with the bee moth.

A paper by Mr. W. T. Cogshell, West Graton, N.Y., on "Our Apiaries," was well received and considered. Mr. Cogshell commenced beekeeping in 1892 and has now thirteen apiaries.

"Harvesting Comb Honey" was a subject very carefully dealt with by Mr. J. B. Hall, Woodstock. Among the essentials for success in this department he would count, bees—strong colonies of them, and of the right strain and giving them full sheets of comb foundation.

Mr. W. M. Orr, Provincial Superintendent of Spraying addressed the as-

sociation on his line of work, and of the injury done to beekeepers by farmers and fruit growers sometimes spraying when the trees are in full bloom, thereby poisoning the bees, though the law strictly forbids spraying at such time under penalty. He referred to the interest taken in the matter by the Hon. John Dryden, the Minister of Agriculture. Mr. Orr also alluded to the San Jose scale which has been spreading to such an alarming extent among the orchards of this country.

The association passed a resolution requesting the government to make a strict inspection of nursery stock and fruits sent into this country, and in this way to prevent, as much as possible, the further importation of the pest.

A resolution of thanks to the Hon. John Dryden was also passed for the interest he had taken in the Beekeepers' Association, and for instructing the sprayers not to spray the trees when in bloom.

Mr. C. W. Post's paper at last annual meeting was re-read and profitably discussed.

The question drawer and the discussion arising in answer to the questions was by no means the least interesting part of the programme. Carniolan *versus* Italian bees was decided in favor of the former, and blind full sheets of foundation comb were preferred to only starters. As a result of a question and discussion *re* the exporting of honey to Great Britain, the association passed a resolution endorsing the action of the government in appointing a man to look after our agricultural products there.

The officers for the ensuing year are: President, M. B. Holmes, Athens; Vice Pres., W. J. Brown, Chard; and Vice-Pres., J. D. Evans, Islington; Sec's, Wm. Couse, Streetsville.

Mr. R. F. Holerman was last year recommended and Mr. John Newton, of Thamesford, was this year added as being proper candidates for the situation of apiarist at the Dominion Experimental Farm, Ottawa.

The association adjourned to meet in Guelph in 1898.

AGRICULTURAL AND EXPERIMENTAL UNION.

The annual meeting of the Experimental Union began with the annual supper at the college on the evening of December 8th. The morning of the next day was spent in visiting and examining the different departments of the college. The business of the Union began with the afternoon session. There was a goodly attendance of ex-students and visitors. In the absence of the president, D. Z. Gibson, B.S.A., Willow Grove, through sickness, Robert Harcourt, B.S.A., was appointed chairman. The secretary's report showed that the work of the Union had been very successful during the past year. Under the head of new business Prof. Reynolds suggested that a new line of work be taken up by the Union; this was soil physics. He suggested that samples of the first nine inches of the surface soil should be sent to the college from several points in the province for the purpose of comparing the effects of different methods of cultivation, of different crops, soils and weather conditions on the soil

moisture. Later a committee, with Prof. Reynolds as convenor, was appointed to take up this work.

The president's address was read by the chairman. In it reference was made to the more prosperous outlook before the agriculturist at present. He said that between eighteen and nineteen hundred successful experiments had been conducted and reported. Even if unsuccessful, the training in experimental work would be beneficial to the experimenter. He also referred to the increased grant which was obtained last year, it is now \$1,200, and he believed the members of the Union were giving good returns for the money spent in carrying on their work. This year there were 2,835 experimenters.

Mr. C. A. Zavitz, B.S.A., gave his report on the crop experiments conducted by the members of the Union during the past year. The following is a condensed summary of these experiments. Five varieties of oats were experimented with. The Odenbucker produced the greatest yield (51 bushels per acre), but from the reports the Siberian would be better for general purposes. The former was a little weak in the straw.

Peas: Four varieties were tested. Early Britain gave the best average yield (23.8 bush.), except at the O.A.C., where White Wonder did the best.

Spring Wheat: The Wild Goose wheat gave the best yield (22.2 bush.), but Herison Bearded was the best all-round wheat.

Winter Wheat: Dawson's Golden Chaff gave the best yield (33.9 bush.). The objections to the milling qualities of this wheat are not well founded.

Barley: Mandscheuri gave greatest yield and best all-round barley (38.9 bush.).

This year for the first time experiments with beans, rye, buckwheat, grasses and clovers were sent out to be conducted by ex-students.

Beans: California Pea gave the best yield (18.7 bushels).

Japanese Buckwheat gave best yield which was 36.5 bushels per acre.

Potatoes: Pearl of Savoy gave the best yield (280.3 bushels). This variety also possessed the best cooking qualities. Stray Beauty was the earliest variety.

Mangels: Evan's Improved Mammoth Saxifrage and Simmer's Improved Mammoth Long were the two best red varieties, the average yield was 31.1 tons. Carter's Champion Yellow Intermediate was best among the yellow varieties, and considered the best all-round mangel (34.2 tons per acre).

Turnips: Purple Top Mammoth gave the greatest yield (36.1 tons), but Heartley's Brown Top was considered the most profitable to grow.

Corn: Cloud's Early Yellow produced the greatest weight, but it was too late in ripening for many districts. Mammoth Cuban was next, but it was too late for northern districts. Wisconsin Early White Dent was reported as the best all-round variety. It produces a heavy yield and is comparatively early. Compton's Early proved the earliest variety and best suited for northern counties. Evergreen Sweet was the best of the varieties of sweet corn. From the reports of trials in which the corn was fed in a green state there did not seem to be much difference in the feeding value of the sweet corn and our common corns.

Green fodders: mixtures of several kinds were tried, a mixture of 1½ bush. oats and 1 bush. peas per acre gave the greatest amount of green food.

Grasses and clovers: those who tried this experiment reported most favorably of Meadow Fescue as a desirable grass to grow. Lucerne was the best clover, but required careful handling, while being made into hay.

Dr. Goldwin Smith, of Toronto, gave a short address, and afterwards five minute addresses were made on the subject of important features in connection with successful farming under present conditions, by the following ex students: Messrs. C. A. Kiel ('84), Chatham; T. Lloyd Jones ('97) Brantford; G. A. Brodie, B.S.A. ('89), Bethesda; J. A. Campbell ('77), Simcoe; and W. W. Cooper ('93), Kuppen. Mr. J. B. L. Campbell, Prescott, sent a short paper on the subject. A lively discussion followed, during which Prof. Creelman called attention to the comparatively short lives that farmers have, as shown by statistical tables, and attributed it to the neglect of proper care of the health. A nominating committee was appointed and the meeting adjourned.

The second day's meetings were good ones. The vice-president, Mr. George Harcourt, B.S.A., Toronto, occupied the chair. The treasurer's report was received and showed the finances of the union to be in a satisfactory condition. The nominating committee then made their report and the following officers were elected for the ensuing year: President, George Harcourt, B.S.A., Toronto; vice-president, H. L. Becker, Hamilton; secretary and editor, C. A. Zavitz, O.A.C.; treasurer, H. L. Hutt, O.A.C. Committees were also appointed for the prosecution of experimental work during the year.

Mr. Rogers reported the result of the dairy experiments carried on during the year by members of the union. The report showed that valuable work had been done. One experiment showed that the cooling of cream immediately after separating tended to produce butter of a better quality. S. P. Brown, Birnam, led in the discussion on this paper and made a number of real good points.

Mr. Zavitz then finished his report on the grains grown during the year, a synopsis of which is given with the first part of his report above.

Mr. Geo. McKerron, superintendent of Farmers' Institutes in Wisconsin, then gave an interesting address on "Economic Cattle Feeding." It was one of the best addresses on this subject that we have had the pleasure of listening to; it was so practical, yet scientific but easily understood by all. We hope to give this paper at an early date to our readers.

At the afternoon session Mr. F. C. Harrison reported the result of his experiments with foul brood. He had obtained samples from almost every country in Europe, and found the pest the same in all cases.

He tried to find out the vitality of the germs, and found them very tenacious of life. He had exposed them for days in different ways, under about the same conditions as would be found in the bee hive. He found that diffused light, or light as found in an ordinary room or in the bee hive, would not kill the germs, nor would frost.