The type of *Hydrochœris* is *H. hydrochœrus* Brisson=*Sus hydrochœris* Linn. (12th Ed.), which becomes *Hydrochœrus hydrochœris* (Linn.) 1766.

The type of *Tapirus* is *T. tapirus* Brisson= *Hippopotamus terrestris* Linn., which becomes *Tapirus terrestris* (Linn.) 1758.

The type of *Cuniculus* may be fixed on *C. cauda longissima* Brisson, which becomes *Cuniculus alactaga* (Olivier) 1800.* *Cuniculus* is one of the few genera in which Brisson did not indicate the type by repeating the generic name for the first species. It was made up of a heterogeneous assemblage comprising no less than six modern genera and five families of Rodents as follows:

Cavia Pallas	1766	(*Caviidæ*)
Lemmus Link	1795	(*Muridæ*)
Cœlogenus Cuv.	1807	(*Dasyproctidæ*)
Dasyprocta Ill.	1811	
Anisonyx Raf.	1817	(*Sciuridæ*)
Allactaga Cuv.	1836	(*Dipodidæ*)

According to the A. O. U. Code, therefore, *Allactaga*, having been left in *Cuniculus* until all the others had been taken out, must stand as the type of *Cuniculus*.

The type of *Glis* is *Glis glis* Brisson= *Sciurus glis* Linn. (12th Ed.), 1766, which becomes *Gtis glis* (Linn.) 1766.

The type of *Pteropus* is *P. pteropus* Brisson =*Vespertilio vampyrus* Linn., which becomes *Pteropus vampyrus* (Linn.) 1758, replacing *Pteropus edulis* Auct.†

The type of *Hyœna* is *H. hyœna* Brisson= *Canis hynœa* Linn., which becomes *Hynœa hynœa* (Linn.) 1758.

The type of *Meles* is *M. meles* Brisson= *Ursus meles* Linn., which becomes *Meles meles* (Linn.) 1758.

The type of *Lutra* is *L. lutra* Brisson= *Mustela lutra* Linn., which becomes *Lutra lutra* (Linn.) 1758.

C. Hart Merriam.

* *Dipus alactaga* Olivier, Bull. Soc. Philomatique, II., No. 40, 1800, p. 121; also Tilloch's Philosophical Mag., Oct., 1800, p. 90.

† See *Gray*, List of Specimens of Mammals, British Museum, 1843, p. 37; and particularly *Thomas*, Proc. Zool. Soc., London, 1892, p. 316, foot note.

NOTES ON AGRICULTURE (I.)

ELECTRO-HORTICULTURE.

The latest results drawn from experiments with electric light upon vegetation are by Professor Rane in Bulletin No. 37 of the West Virginia Experiment Station. Investigations along this general line began in 1861, when Herve-Mango demonstrated that electric light can cause the formation of green material (chlorophyll) in plants and produce other phenomena, as turning toward the light (heliotropism). Prillcaeux, in 1869, showed that assimilation in plants goes on in the presence of artificial light. Dr. Siemens experimented largely with arc lights, both within and at other times outside of and above the plant houses. Professor Bailey, who at Cornell University has tested electric lighting extensively during the past few years, in reviewing Dr. Siemens' work, writes: "He used the term electro-horticulture to designate this new application of electric energy. He anticipated that in the future the horticulturist will have the means of making himself particularly independent of solar light for producing a high quality of fruit at all seasons of the year . . . . whatever may be the value of electric light to horticulture, the practical value of Siemens' experiments is still great." After years of trial Professor Bailey stated in one of his reports: "I am convinced that the electric light can be used to advantage in the forcing of some plants."

In the fall of 1892 Professor Rane introduced the use of the incandescent light in place of the arc lamp, and his recent report with its illustrations from photographs of plants, etc., has features of interest to all who are interested in science, as well as the

market gardener. He finds that "the incandescent electric light has a marked effect upon greenhouse plants," it being "beneficial to some plants grown for foliage, such as lettuce. Flowering plants blossomed earlier and continued in bloom longer under the light" than elsewhere. Plants like spinach and endive "quickly ran to seed, which is objectionable in forcing these plants for sale. Most plants tended toward a taller growth under the light." The fact of plants responding promptly to electric light is widely demonstrated, but that it will be an economical method of growing crops is not so clearly shown.

SOIL TREATMENT OF ORCHARDS FOR DROUGHT.

IN many parts of our country crop growing is very uncertain, due to a lack of sufficient rainfall. This fact has led the Nebraska Experiment Station to make a study of methods of mitigating the ill effects of dry weather. Professor Card* reports results upon an old orchard, a third of which was mowed, a third pastured and the remaining third cultivated every two weeks. The trees in cultivated ground suffered much less from the drought and hot winds than those in sod, the foliage being more vigorous and without the wilting during the hot windy days common to the trees in the sod ground.

The fruit was larger and better upon the cultivated trees than elsewhere. An examination of the soil showed that for every 100 barrels of water in the first twenty inches of sod ground there were 140 barrels in the cultivated ground. The soil in all regions when drought is experienced needs a covering of mulch. It is not practicable to add a mulch of straw or other material, but the upper few inches of the soil when kept light and mellow serves as a mulch for all below. Therefore a key to the solution of the problem is to plow deep; even subsoiling will pay for some crops, and then mulch by means of a mellow layer upon the top produced by frequent cultivation.

* 'Some Obstacles to Successful Fruit Growing,' Bulletin 39 Neb. Experimentation Station.

THE RUSSIAN THISTLE.

No other species of plant has received so large amount of attention as has been given during the past two years to the Russian Thistle (*Salsola Kali Tragus* (L) Moq.). Not only the botanists have been interested, but law makers in legislative halls have paused in their party strife to listen to the demands of their constituents for enactments against this newly arrived and miserable plant pest.

Many of the Experiment Stations have published bulletins of greater or less size with full-page engravings of the thistle in its various parts or conditions of growth. Recently a large emergency poster has been issued by a Central-Western Station to be displayed in public places as a means of information and warning to all whom it may concern. The National Government has shared in this work by issuing a bulletin from the Department of Agriculture, while Congress was asked to appropriate vast sums to put down this rapidly spreading, prickly weed.

As the name indicates, this enemy to American agriculture came to our country from Russia, where it is called by a name having the meaning of 'Leap-the-field.' In German it is 'Wind witch,' and with us the same idea is embodied in the name of 'Tumble weed,' namely its capacity for traveling with the wind. When it matures in autumn the stem decays at the surface of the ground, and the large bushy, prickly plant is easily blown for long distances by the wind, and when twenty or so of these plants become entangled and formed into a giant ball the structure is quite formidable.

The new conditions of the far-prairie States, where a rich soil and open country

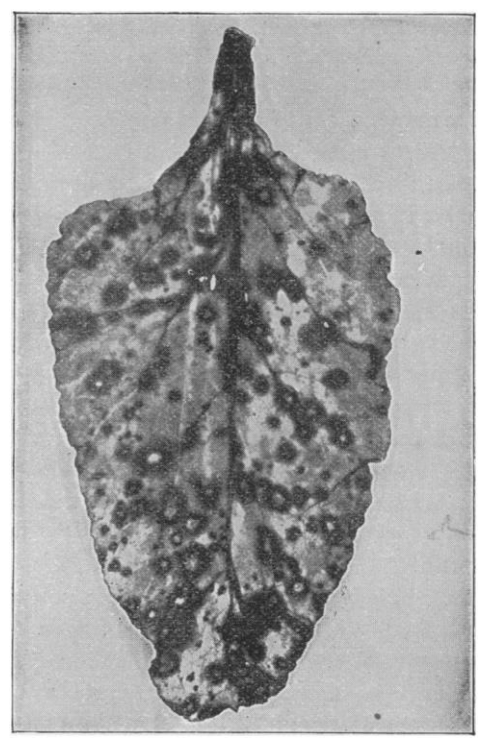
prevail, the spread of this pest has been phenomenal. From a single center in South Dakota, where it was brought in flax seed from Russia a few years ago, it has been disseminated in all directions, so that to-day it may be expected in almost any State in the Union. Its spread is not confined to to its natural methods, for with our lines of railway running in all directions the seeds are carried rapidly and for long distances.

As an outcome of the advent of the Russian thistle, there has been a wide and thorough awakening upon the subject of weeds which will result in a better understanding of these foes, their ways of migration to and throughout our country, and the best methods of subduing them.

THE BEET-LEAF SPOT AND ITS REMEDIES.

The last Bulletin (No. 107) of the New Jersey Experiment Station describes a fungous trouble of beets in the United States, the *Cercospora beticola*, Sacc., which causes a conspicuous spotting of the foliage. There seems to be no respect shown for any varieties of beets, for the writer has made special visits to the trial grounds of large seed-growers, and all sorts of beets, from the oldest to the newest kinds, were found with their foliage about equally injured.

The common name of 'Leaf Spot' well describes the general appearance of the beet leaves infested with this Cercospora, for they are at first more or less covered with small light or ashy spots, which later often become holes by the disappearance of the tissue previously killed by the fungus. Figure 1 is an engraving made from a sun print of a beet leaf, natural size, that was badly infested with the Cercospora. Full-sized leaves often become mutilated, and sometimes scarcely more than the framework remains. The fungus itself is quite similar in structure and habits of growth to those causing leaf spots and blights in other crops. The so-called 'rust' of celery is due to a Cercospora (*Cercospora Apii* Fr.), as likewise is the violet leaf spot (*Cercospora Violæ* Sacc.). These fungi consist of slender threads which run through the substance of the leaf, and, coming to the surface in groups, pass through the openings (stomata) in the skin, and in clusters bear long, slender spores in considerable numbers. These spores, when mature, fall from their points of attachment and soon germinate, thus spreading the fungus and causing other spots.



During the past season, under the special charge of Mr. J. A. Kelsey, spraying experiments have been carried out to check the Cercospora of the beet. A field of Mangolds, kindly provided by Supt. E. A. Jones, at the College Farm, was experimented upon with Bordeaux mixture.

As the season progressed the Bordeaux

mixture made so striking a difference in the plants that it could have been observed by anyone passing along the side of the field. The untreated rows had the foliage smaller, more upright and badly spotted with the fungus, while the sprayed plants showed a rank growth of foliage, nearly green throughout, more inclined to lop and much less spotted than the untreated plants.

The difference between the roots in the treated and untreated rows shown below in pounds was not so great as that seen in the foliage.

	Sprayed.	Unsprayed.
Roots,	416½lbs.	331lbs.
Leaves,	63½lbs.	49lbs.
Total,	480lbs.	380lbs.

This is an increase of nearly twenty-six per cent., or one-quarter in round numbers. Therefore, the conclusion is that whatever the crop may have been per acre in this case, spraying with Bordeaux mixture would have increased it one-fourth, or, for example, from nine tons to twelve tons.

BYRON D. HALSTED.

SCIENCE IN CANADA.

A NEW volume of the transactions of the Royal Society of Canada (Volume XII.) will shortly be issued. It will be the largest of the series and will contain a bibliography of the work of the Society, collectively and individually. This Society was founded in 1882 by the Marquis of Lorne, at that time Governor-General of Canada, and was organized, to some extent, on the basis of the *Institut de France*. It consists of four sections, of which two are scientific, one being devoted to the physical and chemical, the other to the biological and geological sciences. The system of *éloges*, introduced originally by the French Section (I.), has of late been adopted by the other sections also. Carefully conducted, this feature cannot fail to be of value to the future inquirer. An accurate catalogue of deceased members' works, with their dates of publication, etc., and an impartial estimate, ought to accompany the biography.

The scientific members of the Royal Society of Canada comprise several scientific workers and writers of continental, a few of European, fame. Except one year (1891) it has always met at Ottawa, a rendezvous which, though inconvenient for members living at a great distance, has some important advantages, such as access to the National Library, the Archives Bureau, the offices, museum and library of the Geological Survey and the Central Farm, with its laboratories, etc. All these departments are represented in the membership.

Not the least of the services that the Royal Society has rendered to Canada is that which arises from the affiliation of the principal local societies throughout the Dominion. Some of these are important bodies, which publish transactions of their own, and have done a fair share of original work. Among these may be mentioned the Natural History Society of Montreal, founded in 1827; the Canadian Institute (1851), the Hamilton Association (1856), the Nova Scotia Institute of Natural Science (1862), the Entomological Society of Ontario (1863), the Murchison Society, Belleville (1873), the Ottawa Field Naturalists' Club (1879), the Canadian Society of Civil Engineers (1888), the Natural History Society of British Columbia (1889) and the Literary and Scientific Society of Winnepeg (1879). It will be seen that this list practically covers the Dominion from Atlantic to Pacific, and when it is added that every one of these bodies is represented at the May meeting by a delegate, who reads a statement of the year's work, published in the ensuing volume, it will be admitted that the plan is not unfruitful. Some of these allied societies have organized their work into departments, and their reports in the proceedings of the Royal Society form a valuable record of scientific