while the summit of the mountain is 2,650 feet. The list includes 570 native and 120 introduced species.

R. S. Cratty's 'Flora of Emmet County, Iowa,' enumerates the plants of a prairie area in northern Iowa. Here the surface is gently rolling, and there are no rock exposures within the county. The general surface has an elevation of about 1,500 feet above the sea, and its latitude is within a couple of degrees of that of the area covered by Mr. Kennedy's list. Mr. Cratty's list includes 532 native and 58 introduced species. Comparing the two we find that there are 42 species of trees in the Willoughby flora, and 31 in Emmet County. The representation of the principal families and larger groups is as follows (introduced species are given after the plus sign (+)):

	Willoughby.	Emmet.
Pteridophytes	63	9
Gymnosperms	9	1
Naiadaceæ	8	13
Vallisneriaceæ	1	2
Gramineæ	40+22	54+9
Cyperaceæ	76	53
Juncaceæ	11	6
Liliaceæ	15+3	15+1
Orchidaceæ	27	5
Salicaceæ	12	11
Betulaceæ	8	2
Fagaceæ	2	2
Ulmaceæ	2	3
Polygonaceæ	4+8	13+2
Chenopodiaceæ	1+1	2+2
Caryophyllaceæ	1+1	3+3
Nymphæaceæ	3+1	2
Ranunculaceæ	14+4	21
Cruciferæ	7+10	10+7
Rosaceæ	19	15
Pomaceæ	6+1	5
Drupaceæ	4	3
Cæsalpiniaceæ	0	1
Papilionaceæ	2+7	23+6
Euphorbiaceæ	0+1	2
Aquifoliaceæ	2	0
Hypericaceæ	5+1	2
Violaceæ	11+1	3
Umbelliferæ	6+3	11+2
Cornaceæ	4	5
Ericaceæ	22	0
Gentianaceæ	2	5
Asclepiadaceæ	1	8
Boraginaceæ	1	4+1
Verbenaceæ	0	3
Labiateæ	10+7	14+2
Solanaceæ	1	3+2
Scrophulariaceæ	3+3	14+1
Rubiaceæ	6	5
Caprifoliaceæ	10+1	6
Campanulaceæ	4+1	4
Compositæ	64+21	70+10

The small representation of Pteridophytes, Gymnosperms, sedges, orchids, violets and Ericaceæ, in Emmet County, and the larger numbers which it has of Naiadaceæ, native Gramineæ, native Polygonaceæ, Papilionaceæ, Verbenaceæ, Solanaceæ, and native Compositæ, are remarkable.

TREES AND SHRUBS IN CANADA.

A RECENT bulletin (47) issued by the Canadian Department of Agriculture contains the results of a large number of trials of trees and shrubs which have been planted at the experimental farms at Brandon and Indian Head, situated respectively in the provinces of Manitoba and Assiniboia. These farms are on the Great Plains of Canada, near latitude 50° north. After sixteen years of testing a large number of species, the following are the more important trees and shrubs which have proved quite hardy: box elder, Tartarian maple, western June-berry, paper birch, Siberian pea-tree, Siberian dog-wood, red-osier dog-wood, hazel-nut, hawthorns (several species), broom, Russian olive, green ash, honeysuckles (several species), balsam poplar, cottonwood, black poplar, aspen, western wild cherry, pin-cherry, Canada plum, Siberian crab-apple, mountain ash, bur-oak, buckthorn (several species), smooth sumach, roses (several species), willows (several species), buffalo berry, spiræas (several species), snowberry, lilacs (several species), white elm, white spruce, black spruce, Engelmann's spruce, blue spruce, jack pine, stone pine, Scotch pine, Riga pine and tamarack. The bulletin must prove most useful for Canadian planters.

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A NOTE ON WESTERN FARM VALUES.

NORTHERN and eastern Iowa comprise one of the most highly developed agricultural dis-

tricts in the entire west. The features of the system of farming which separate this from other sections are complete crop rotation and maintenance of soil fertility by means of live stock. Dairying and stock raising have a firm place in one of the most completely developed systems of cultivation in the Mississippi valley. In essential respects this section is comparable to the system of farming to be found at its best in eastern Pennsylvania, especially in the Susquehanna valley. Since 1895 prices of land have gone up throughout the central and northwestern states, to a level which no one could possibly have anticipated. Farm lands in Illinois (west central) sell from $100 to $150 per acre, along the route of the C. B. & Q. R. R. The tenant pays a rental of from $5.00 to $7.00 per acre and has made money at that. But he has in all probability not made money enough to induce him to invest it in farm lands there. The value of lands has reached a point at which he can earn more on his capital as a tenant than as an owner of high-priced lands. Consequently tenantry and landlordship are on the growth with the rise of the purchase price of agricultural lands.

One explanation of this rise in land values is the presence of surplus capital in the hands of farmers. A farmer who had his farm nearly or entirely paid for before the rise of farm prices since 1895 has been able, as a rule, to put money in the bank year by year. If he has not put it into securities which the financial centers of the country manufactured for consumption by the money-making public, he naturally may be expected to avail himself of opportunity to buy land as it comes into the market. This form of interest he knows something about, and he puts his savings in it regardless of the low rate of returns he knows he must get. But he knows it is sure. Take a corresponding case in land values in Pennsylvania. Farms are being sold in much of the most improved portion of that state at prices which represent little more than the value of the improvements. Farm land in a high state of cultivation is valued at less than has been the case for some years. Productivity has not declined and prices have improved with the general rise of agricultural prices. Where then does the cause for the difference in values in western and eastern farming lands lie?

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THE NATIONAL ACADEMY OF SCIENCES.

The autumn meeting of the National Academy of Sciences was held at Columbia University on November 15 and 16. No business of general interest was transacted at the scientific session. The papers presented were as follows:

W. H. Dall: 'Biographical Memoir of Charles Emerson Beecher.' (By title.)

W. K. Brooks: 'On the Affinities of the Pelagiac Tunicates.' (Illustrated by lantern slides.)

W. K. Brooks and S. Rittenhouse: 'The Life History of *Turritopsis*.' (Illustrated by lantern slides.)

W. K. Brooks and R. P. Cowles: '*Phoronis architecta*, its anatomy, life history and branching habits.' (By title.)

John Trowbridge: 'On the Electrical Resistance of a Vacuum.' (Illustrated by lantern slides.)

Franz Boas: 'Psychic Association in Primitive Culture.'

M. I. Pupin: 'Time Electrical Impulses.' (Introduced by R. S. Woodward.)

C. Barus: 'The occurrence of maxima and minima of atmospheric nucleation in approximate coincidence with the winter and summer solstices respectively.'

C. A. Bauer: 'The System of Magnetic Forces causing the Secular Variation of the Earth's Magnetism.' (Introduced by R. S. Woodward).

Russell H. Chittenden: 'The Influence of Low Proteid Metabolism on the Formation and Excretion of Uric Acid in Man.' (Illustrated by lantern slides.)

Edward W. Morley: 'Note on the theory of experiments to detect the second power of the aberration of light.'

Edward W. Morley: 'Report of a repetition of the Michelson-Morley experiment on the drift of the earth through the luminiferous ether.

C. S. Peirce: 'On Topical Geometry.'

N. Yatsu: 'An Experimental Demonstration of the Formation of Centrosomes *de novo*.' (Presented by E. B. Wilson.)