The following interesting account of the life work of Edgar J. Hollister is sketched by Mrs. Grannis, who has had the opportunity of personally ob-Hollister's retiring modesty regarding says that it would be possible to present many more stimulating incidents of difficulties overcome. All in all, his life work is doing much not only for American agriculture, per se; but for the advancement of the idea that brainwork-farming pays, and that there is as promising a field in this line of endeavor as in any of the mercantile or industrial occupations.

Through Toil to Truimph. By Anna C. Grannis.

It is a far cry from a Canadian farmer boy in the sixties to the Dean of Agriculture to-day in a rising institution in the West, yet, by the application of science to practical farming. such a change has been wrought by Edgar J. Hollister, a soil expert of wide reputation.

No agricultural college opened its friendly doors to this young pioneer. nor was the Canadian government so deenly interested at that time as now, in its farming population. Books on the subject were few and fell woefully short of the mark, yet he knew neither discouragement nor dismay.

A call from western Ontario, his birth place, came in 1873 and in response, some time was spent in setting out peach orchards, the work losing its irksomeness because of the study which accompanied it. Moreover, at this point a company was engaged in reclaiming some twenty-five thousand acres of land by the drainage of an inland lake. The young man assisted in some of the surveys and was in touch with the chief engineer of the work. His enthusiasm was aroused by the anticipation of the results which would come from the addition of such a large acreage, which hitherto worthless, was now, by reducing it to cultivation, to be made productive.

After some further years of study and preparation Mr. Hollister became interested in the organization of a comlarge tract of swamp. The land was cleared of brush and reclaimed to cultivation, buildings erected, machinery installed and a system of farming, very nearly perfect, was established. Fields of six acres were made to produce an income of \$3,-000.00 each, while others of four acres produced \$1.800.00. Of the latter \$1.-200.00 was net; while thirty-five acres was made to yield \$14,000,00 gross at an expense of \$8,000.00. Of course, these were special crops such as cel-

ery, onlons and other vegetables SLOW PROCESS OF NATURE. In some instances five years is the period allowed for the reclamation of land by the slow process of nature after the drainage has been obtained. Even then these lands may fall to produce paying crops, because of their deficiency in essential elements such as lime, potash, phosphoric acid and magnesia. These are some of the forces which go to make stability in plants. It is true that such lands contain a large percentage of nitrogen. accumulated from the decomposition of vegetable matter annually produced in low places. However, this nitrogen which would produce growth were it available, is in an unknown quantity and available only when sufficient moisture is present, yet does not produce the same results upon crops as nitrogen derived from other sources, such as bone, dried blood or barn-

yard manure. To make these lands productive immediately after drainage, it is necessary to correct their acid condition by the use of lime and by disintegration of the soil particles, thereby increasing their powers to retain water and absorb oxygen. These forces together, will act on potash and the three abso-

Hollister proceeded upon the theory that, climatic conditions being equal, certain crops are adapted to certain soils, and that planting those which serving some of the results of his will bring the greatest revenue will wonderful activity. Except for Dean enhance the value of the land, inspire his own performances, Mrs. Grannis the people with enthusiasm and entural Institute of Winona Lake, Incourage development in all lines of trade. For example, Kalamazoo, Michigan, was once surrounded by bogs and flats worth scarcely \$10.00 an acre. After the incoming of the Hollanders, who began raising celery on these supposedly worthless la \$600,000.00 was brought annually to the town by the sale of this vegetable. In ten years' time the land increased in value to \$900.00 an acre.

> In 1899, a trip was made to Colorado where the people were farming under irrigation, and here the growers



DEAN E. J. HOLLISTER.

were taught the economical use of water and the method of creating a favorable environment for plants. A visit was made to Maryland, where experiments with soil and plant life added still further to the experimenter's fund of knowledge, but in 1901, most difficult and seemingly impossible work was to come, i.e., the reclaiming of tidal lands on the north shore of Long Island Sound. The Department of Agriculture already had had a man in the field, who had reported the feasibility of reclamation but by slow processes, and that investigation revealed too many failures.

In spite of this, Mr. Hollister had sufficient knowledge, gained experimentally, to suggest success, added to which was the further information gained during a four years' residence in Washington, D. C., for the express purpose of consultation and co-opera-tion with the experts of the Department of Agriculture. An experiment was first made on a small tract on the south side of Long Island, where the salt bog had simply been taken up and thrown inside of a dike, con structed of lumber sufficiently strong to withstand the tide. This bog was made smooth and even, and chemically treated in the month of August. By t of October the surface was covered with a beautiful growth of tame grass six inches high, might certainly be termed, "A Quick Process Route." Work on a sixty-acre tract on the north side was begun n June and completed in December of the same year. On this land, covered the previous autumn with salt water. nine hundred bushels of turnips were produced on two acres during the first season. Rye, oats, celery and vegetables throve on the same tract. The following year twenty acres were seeded to meadow land in April By August it was covered by a beautifal terf, strong enough to hold up cattle pastured thereon. The remaining portion of the sixty acres produced luxuriant crops of vegetables and corn. A year later the meadow yielded four tons of hay to the acre lute essentials to plant growth are ni- and was considered a great demon-

WINONA BOYS SELECT-ING WHEAT FOR SEED. WINONA PARK SCHOOL FOR GIRLS.

trogen, phosphoric acid, potash, and stration of the productiveness of the phosphoric acid and make them

available as plant food. Mr. Hollister visited Florida and secured a tract of land which for five years was used experimentally. A.I. was not found practical to improve, the results were, however, very satis-

factory In 1895, in Canada, the next field of operation, a phenominal success re-

lands under applied science.
MAKING SEA LAND PRODUCE.

Another equally successful experiment was conducted by this "Wizard of the Soil" on this same tract, viz., though he was in one case much handi- the transforming of a five-acre tract capped by inadequate drainage, which of sea sand to a loamy condition. The of sea sand to a loamy condition. The is about one-tenth in bloom—is better Asia. soil was first treated with chemical for the colts. In any event, horses that fertilizers and in the fall rye was are fed alfalfa hay must be given sown, which covered the ground in abundant exercise. winter and made a full growth the This following spring.

the sand lot planted in rye. It Will be seen that in this process nature was stalks. Then the sand, by the natural change in the physical condition of the soll. The work of this interesting man

attracted the attention of many people pursuing scientific agriculture, among whom was H. J. Heinz, the pickle manufacturer-57 kinds-who is interested not only in the culture of the vegetable kingdom but in the 'tel' otual growth of boys, and through his activity Mr. Hollister was elected Dean of Agriculture at the Agriculdiana. Here he was seen last summer, handling his crops of embryo farmers who seemed imbued with his enthusiasm and whose first barvest received encomiums from five thousand visiting farmers, who unantmously adopted resolutions endorsing the work. EDUCATING FOR SMALL ARMS,

A plan is now taking tangible form, which will lead to the establishment of small farms comprising five to twenty acres each. On these farms young men will be taught combined cientific and practical agriculture. They will also demonstrate the possibility of getting an income and genuwhich may well be envied by the salaried man or the man of moderate capital in the city. It is believed too, garden crops. hat this work will have a wholesome \$100.00 in the revenue of each farmer rows should be 2% to 3 feet apart, when multiplied by five million, would and the hills 14 to 18 inches apart in establish the prosperity of the Ameri- the rows. Lay off the rows with a can Nation, the bulwarks of which one-horse plow or lister, and drop the are its farming population,

work of reclamation of a large tract seed to a depth of about 4 inches, using of salt meadow on the Connecticut a hoe or a one-horse plow for the purcoast which, when reclaimed, will be pose. One to three weeks will be used for the purpose of intensive farming, thereby firmly establishing depending entirely upon the tempera the fact that these lands may be used ture of the soil. The ground may even wealth and happiness to the people. Thus each day reveals some new

progress, and farming, that once harm will result, and growth will be seemed a hopeless, hapless drudgery, gin as soon as the soil becomes sufis being shown a golden highway to ficiently warm. an ever increasing success.

the Great Plains region. The results ground free from weeds. Much de-attained by experiments, while of inin the region mentioned, may well be the plants to hold them erect and pro-

a crop of corn sown broadcast. The hay for pigs, it is considered better to corn was plowed down in the fall and cut it early, so that a larger proportion of leaves may be saved and consequently a larger proportion of protein conserved. While late cutting, after being assisted by moisture and sun- the leaves have fallen somewhat and light to change sand into rye and corn the stem hardened, is better for horses; for pigs, especially growing pigs, the crop should be so harvested process of decomposition of these as to save the largest number of grains, brought about a complete leaves. Experience teaches also that the third or fourth crop is better for pigs because it is softer and more palatable. It is always wise to provide some sort of a trough or rack with a

floor in it for feeding alfalfa to hogs. Alfalfa in its green state, or when used as hay or ensilage, is a first-class poultry food. Poultry will pasture on t during the summer and thrive. It is sest for poultry to use the last cutting of alfalfa, as it is softer in texture, has a larger proportion of leaves, less woody matter, and is more succulent than any other cutting. While poultry of all classes will eat alfalfa hay, or at least the leaves from it, and thrive, is undoubtedly a better practice to chop or grind it and mix it with a grain ration. A good practice is to steep the alfalfa hay in hot water and it stand for several hours before

The Irish Potato.

A rich, sandy loam is best suited to the production of Irish potatoes, and, the fertilizers employed should contain high percentage of potash. The main crop of Irish potatoes for family use should be grown elsewhere, but a small ine happiness from their investments area of early ones properly belongs in the garden. The preparation of the soil should be the same as for general

In a recent bulletin on farm vege effect upon the farmers throughout tables, the department of Agriculture he country. An increase of even recommends that for late potatoes, the seed, one or two pieces in a place, in Mr. Hollister is also directing a the bottom of the furrow. Cover the required for the potatoes to come up, furnish employment and bring freeze slightly after the planting has been done, but so long as the frost does not reach the seed potatoes no

As soon as the plants appear above the ground and the rows can be fol-Value of Alfalfa to Farm Animals. lowed, the surface soil should be well The Bureau of Animal Industry of stirred by means of one of the harrowthe Department of Agriculture has re-cently published a study by I. D. should be maintained throughout the Graham of the use of alfalfa for the growing season, with occasional hand growing and fattening of animals in boeing, if necessary, to keep the estimable value to live stock growers last the soll may be worked up around



STUDENTS CLEANING OUT A DRAIN AT WINGNA

considered by stockmen in other sec- | tect the tubers from the sun after the

the experiments were the composition dead, but digging should not be deand digestibility of alfalfa, the calcu- layed too long, as the potatoes will lated cost of nutrients supplied by al- make a second growth in case wet value of alfalfa hay cut at different start seriously interfering with harperiods of growth, alfalfa as a pastur- vesting the crop. On a small scale, age, soiling, and hay crop, alfalfa meal, dig with a spading fork, and on a and the value of alfalfa, fresh and large scale, use either one of the speplant was also considered.

sfactory results as feeding stuff. The the vines. commercial article is made from se-

on alfalfa pasture, and while alfalfa is a damp place during the heated part too rich a food for mature horses un- of the summer, keeping best if covfor young ones, as it seems to contain which they can be placed in a dry just the elements necessary to develop cellar or buried in the open ground. Caution should be used, however, in Irish potatoes would be between 36 feeding alfalfa to horses, particularly and 40° F., but they w.il not withif they have not been accustomed to stand any freezing.
it. Like other concentrated feeds, it. A thousand bu seems to stimulate all the physical have been raised on one acre. How processes to such an extent that varimay appear. This is particularly noticeable in the urinary and perspira-

tory glands When alfalfa is fed to horses in considerable quantity the grain ration must be proportionately reduced and an abundance of other roughness furnished. When horses have attained a mature age and it is desirable change from other hay to alfalfa, this change must be very gradual, and the alfalfa selected for this purpose should be more advanced in growth at the time of cutting than that which is to be fed to cattle or sheep. As a general statement, very ripe alfalfa hay is the best to use for working and driving horses, while that prepared in the usual way-that is, cut when the field

For dairy and beef cattle and for crop was sheep, alfalfa has given very good resulted in eighteen months. Here Mr. plowed under in June and followed by sults. As regards the use of alfalfa a head.

vines begin to die. When the tubers Some of the questions considered in are fully ripe the vines will be quite falfa and other feeding stuffs, the weather should set in, and weeds will cured for different kinds of farm ani-cial digging machines or a turning mais and for poultry. The importance plow, which latter will cover up a this crop as a honey-producing good many potatoes. A late crop may be planted during May or early in Finely ground, kiln-dried alfalfa June in the North, and harvested late hay, called alfalfa meal, has given sat- in autumn, when the frost has killed

After digging the potatoes, they ected alfalfa and mixed with sugar- should never be ellowed to lie exposed beet molasses in the proportion of 75 to the sun, or to any light while in per cent. alfalfa and 25 per cent. mo- storage, as they soon become green and unfit for table use. Early pota-Horses and mules, it is stated, thrive toes especially should not be stored in less used in combination with some east over in a cool, shady shed until other roughness, it is an excellent feed the autumn weather sets in, after bone, muscle, and consequent size. The ideal temperature for keeping

A thousand bushels of potatoes ous disorders of the digestive system this, have raised 200 bushels on an equal plot? And there are some who can not grow 100 bushels on their acre.

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