

# THE OWOSSO TIMES.

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WHOLE NO. 1224

## THE BEET SUGAR INDUSTRY.

### Its Importance to Michigan Farmers Clearly Shown.

### SKETCH OF THE GROWTH OF THE INDUSTRY FROM EARLIEST BEGINNING.

### Over a Hundred More Factories the Size of the New Owosso Factory Would be Required to Manufacture the Sugar We Still Import.

AN ARTICLE WRITTEN BY J. G. MAC PHERSON AND RE-PRINTED FROM THE NATIONAL GRANGE SOUVENIR.

Sugar is one of the chief and valuable food staples of the civilized world, and in a measure its production and increased use marks the progress of nations.

It comes from two principal sources, namely, the sugar cane which thrives best in the tropics under nature's endowment, and the beet root which reaches its highest development in northern climates through intelligent labor and skillful methods of husbandry.

The history and growth of the cane sugar industry we need not touch upon, as the interests of our American farmers are interwoven with the sugar beet and with the permanent success of this new star that has lately arisen on the horizon of American agriculture.

The birth, growth and development of the sugar beet in Europe, where it first originated, is an interesting chapter of progress, evolving, as it has, from low conditions, stage by stage, until it now has attained a high state of plant life through the science and skill of man.

In Europe much has been accomplished to improve beets, both in quality and yield. The former has been done through "breeding up" from the seed of the "mother beet." In 1878 beets worked in Germany contained 9.24 per cent sugar, in 1889 the average was 13.34 per cent, and in 1901 as gleaned from European reports, the average was up to 14 per cent sugar in the beet.

The mechanical and chemical development of the beet sugar industry in Germany has doubled the weight of sugar produced from a given quantity of beets in the last fifty years.

Dr. Wiley, of the Department of Agriculture, a noted expert, wisely says of the sugar beet that, "it is a plant of the highest culture, representing the highest skill, and highest agriculture; illustrating more than any other plant what science applied to agriculture can do for the human family."

The beet sugar industry originated in Germany through the experiments and research of the distinguished German chemist, Marggraf, and his pupil, Franz Karl Achard. Marggraf, in 1747, made known the result of his investigations by declaring that sugar could be extracted from certain varieties of beets. He found that red beets contained 4.6 per cent and white beets 6.2 per cent, sugar. Later, his pupil, Achard, devoted his time especially to the extraction of sugar from beets, with the result of producing sugar on a comparatively large scale in 1799. The efforts of Achard remained fruitless until 1805, when Baron de Koppy took up his ideas and methods of operation and put them into effect by erecting on his estate, near Strehlen, Germany, the first beet sugar factory on record. Soon after, the second factory was erected by Achard on his estate, and later on, schools for instruction in the method of cultivating beets and the manufacture of sugar were founded by the government. The great Napoleon at this time commenced to inquire into these German experiments, resulting under his patronage, in the erection in 1811 of the first beet sugar factory in France. Thus we see that Germany and France were the pioneers in this new field of agriculture, that has since grown in Europe to gigantic proportions, and today is acknowledged to be their leading agricultural industry.

The entire beet sugar crop of Europe for the fiscal year or campaign of 1893-4, was 304,000 metric tons, (nearly 2,305 pounds per ton,) whereas for the campaign of 1901-2 the production was 6,710,000 metric tons, or an increase of nearly 23 fold, or 2,300 per cent in 48 years.

The world's crop during the same period for both beet and cane sugar, has risen from 1,481,000 to 10,710,000 long tons or an increase of 637 per cent in the world's production.

Covering this same period of 48 years there has been an increase of 201 per cent in the production of cane sugar, and an increase of 3,263 per cent in the production of beet sugar.

Beets in 1840 supplied 4.35 per cent of the total sugar product of the world, and in 1901 over 64 per cent, the greater portion of which was produced in Europe, in fact all of it, excepting 184,000 short tons furnished by the United States.

The value of the beet sugar crop for 1901, at \$75 per ton, was over five hundred million dollars, which amount went mostly to swell the coffers of Europeans.

From these figures we can readily see the magnitude of the beet sugar industry in Europe, and the constant source of wealth it is to her people.

BEET SUGAR INDUSTRY IN THE UNITED STATES.

Until 1879 the history of the American beet sugar industry was a record of failures.

The first experiments in extracting sugar from beets were made in Pennsylvania in 1830, with no record of sugar manufactured.

In 1838-9 David Lee Child conducted small works at Northampton, Mass., and made 1,300 pounds of sugar, but ceased to manufacture on account of cost.

Similar experiments were tried during the '60s and '70s in some of our western states, resulting in failures from one cause or another.

In 1888 Alameda County, California, possessed the only sugar factory in operation in America. Its capacity was 90 tons beets daily, and its sugar output for that year was 1,910 tons.

In 1890 after the passage of the McKinley bill, Nebraska built her first factory, which was the second or third one in this country.

In 1891 there were three factories in California and two in Nebraska, five in all for the United States.

Ten years later or in 1901, there were in operation 38 factories and three rasping stations, distributed through eleven States of the Union, having a daily working capacity of 26,200 tons of beets, and representing an invested and working capital of over thirty million dollars. At the present time for the campaign of 1902-3, there will be in operation 44 factories and three rasping stations, combining a nominal daily capacity of 30,300 tons and representing an investment of thirty-four million dollars.

These factories, providing they have the beets, can, during a full run of 130 days, make more than three million tons of beets, grown on 350,000 acres, and of a value to the farmer of sixteen million dollars. To harvest this crop will require at intervals, 160,000 farmers with helpers, this estimate from Michigan results.

With an approximate yield of one ton of sugar from an acre of beets, these 44 factories now operating in this country can produce under favorable results, 350,000 short tons of sugar, or about one-seventh of our present consumption, having a market value of thirty-one million dollars. With an actual labor cost or farmers' pay-roll of \$35 per acre, the work on 350,000 acres will amount to over twelve million dollars. This amount will furnish 60 days' employment to 163,000 farmers at \$1.25 per day, or one day's employment to 9,800,000 men.

With an actual labor cost of \$13 for every ton of sugar produced, the factories will pay out in wages and salaries for 350,000 tons sugar manufactured four and one-half million dollars.

This amount expended furnishes employment to nearly 13,000 workmen and skilled operatives for 180 days at \$2 per day, or one day's work to 2,275,000 men, at \$2 per day.

### THE BEET SUGAR PRODUCT OF THE UNITED STATES.

Campaign 1893-3, 6 factories, 12,018 tons (3,240 lbs. each.) (per Willett & Gray.)

Campaign 1895-6, 6 factories, 29,330 tons (3,240 lbs. each.) (per Willett & Gray.)

Campaign 1897-8, 9 factories, 40,399 tons (3,240 lbs. each.) (per Willett & Gray.)

Campaign 1900-1, 34 factories and 3 rasping stations, 76,859 tons (3,240 lbs. each.) (per Willett & Gray.)

Campaign 1901-2, 39 factories and rasping stations, 184,606 tons, (3,000 lbs. each.)

Campaign 1902-3, 44 factories and rasping stations, (estimated) 300,000 tons, (3,000 lbs. each.)

The above figures mark the progress of the past ten years without any further comment.

### SUGAR CONSUMPTION IN THE UNITED STATES.

Per Willett & Gray's Report.

The total percentage of increase in consumption for 20 years beginning with 1881, is 138.77 per cent and the average increase per year is 6.94 per cent.

The consumption per capita has increased during the same period 57.69 per cent, showing an average of yearly increase of 2.88 per cent.

If conditions remain practically as they are, there will be an average annual increase of 7 per cent in the consumption over 1881, which was 993,532 long tons. This increase is due, on one hand, to growth in population; and on the other, to the average annual increase in consumption of about three pounds per head.

In 1870 our per capita consumption was 33 pounds.

In 1881 our per capita consumption was 44.2 pounds.

In 1901 our per capita consumption was 69.7 pounds.

Our nation is the second largest consumer of sugar in the world, England taking first rank with a per capita of 91 pounds, and Italy among the lowest, with six pounds.

### SUGAR CONSUMPTION OF UNITED STATES FOR 1901.

Country	Short tons
Domestic Cane and Beet	492,781
British Possessions, Hawaii, Porto Rico, and Philippines	428,703
Foreign	1,738,107
Total	2,660,591

### TOTAL IMPORTS OF SUGAR DURING CALENDAR YEAR OF 1901.

Reported by Treasury Bureau of Statistics.

Country	Short tons
From Cuba	651,493
East Indies (chiefly Java)	243,328
West Indies and other Cane Countries	561,450
Europe—Beet Sugar	296,872

Total imports (exclusive of Insular Possessions) 1,853,000

To produce at home the sugar now imported, it would require an investment of local capital in additional factories beyond those now operating of one hundred and seventy-five million dollars.

With an average yield of one ton of sugar from one acre of beets, it would require the continual cultivation of 1,850,000 acres to produce the sugar we now import. Further, this vast acreage would be diverted from cereals and afford relief from over production in old line crops, which fact directly interests every American farmer. To harvest the beets from this great acreage it would require 866,000 farmers for 60 days at \$1.25 per day, or it would furnish one day's labor at \$1.25 per day to 52,000,000 men. The farmers' pay-roll would be in this case, sixty-five million dollars.

To produce the sugar from these beets it would furnish employment to 67,000 workmen, skilled and unskilled, for 180 days, at \$2 per day, or one day's labor to 12,000,000 men.

The pay roll for the factories in this case would be for wages and salaries, twenty-four million dollars.

The stimulus given to this special branch of agriculture is due in a great measure, to the experiments, efforts and published documents furnished by the Department of Agriculture at Washington.

This branch of our government has expended thousands of dollars to encourage and educate our farmers in beet culture, and to find for them a fresh source of wealth and a new field for dollars.

The best and staunchest friend of this infant industry, and of all other interests touching the American farmer, is the present Secretary of Agriculture, the Hon. James Wilson; a farmer himself and far seeing statesman, he has never lost faith in this nation's ability of growing on its own soil every pound of sugar consumed by its people.

### THE BEET SUGAR INDUSTRY IN MICHIGAN.

There is no State in the Union better adapted for the development of the beet sugar industry than Michigan. With an equable climate, tempered by the waters of the Great Lakes, it is particularly free from drouths, violent storms and other climatic disturbances.

Possessed of a rich soil, great natural wealth and intelligent citizenship, near the great consuming centers, with unrivalled transportation facilities, both by water and rail, it is one of the many states in which this new industry should flourish.

Pursuant to the platform of the republican party, adopted at St. Louis, Mo., June, 1896, "Favoring such protection as will lead to the production on American soil of all the sugar which the American people use." And upon the strength of this promise, emphasized in the enactment of the Dingley law of 1897, local capitalists of Bay City, Mich., organized a company in the fall of that year, constructed a factory and had it in operation, fall of 1898, at Bay City, Mich. This was the first factory in the State and is known as the Michigan Sugar Company.

The Michigan Experiment Station introduced the first beet seed in this State in 1897.

The progress of the industry in four years' time is certainly wonderful, as a few statistical figures will show.

There are 17 beet sugar factories now in this state, including the factory at Charlevoix, Mich., now being constructed, with a combined daily capacity to work 9,300 tons of beets.

The investment in these plants, on the basis of \$1,000 for each ton daily capacity is \$9,300,000 and working capital on basis of \$100,000 for a 600 ton plant is \$1,550,000.

Total investment by Michigan sugar companies; ten million eight hundred and fifty thousand dollars.

### ACREAGE AND BEET SUGAR PRODUCT OF MICHIGAN.

Campaign	Factory	Acres	Lbs.
1898-9	1	3,200	8,271,406
1899-0	9	27,000	32,927,017
1900-1	10	28,000	36,061,265
1901-2	13	66,400	106,307,800
1902-3	17	102,231	168,134 per cent.
A net of 59,000			178,000,000 (est.) (metric)

The returns just received from the 17 factories for season 1902 show, 20,379 contractors, or farmers, raising beets, covering 102,231 acres, but owing to the wet and unfavorable season it has been thought best to discount this acreage by 12 1/2 per cent, leaving net acreage for 1902, 89,000 acres, against 66,400 acres for 1901, or 4 1/3 acres per contract for 1902, against 3.9 acres for 1901.

With this acreage at 9 tons per acre, the crop for 1902 will be 800,000 tons beets, with a value to the Michigan farmer of over four million dollars.

With a yield of one ton sugar per acre of beets, the production for campaign 1902-3 will be 800,000 short tons, with a market value of eight million dollars.

At an average labor cost to farmer of \$35 per acre—his expense practically all—the total item for farm labor is about three million dollars.

This amount for farm labor will furnish employment to 41,333 Michigan farmers for 60 days at \$1.25 per day, or one day's labor to 2,480,000 men at same wages.

With an actual labor cost to the manufacturer of \$1.50 per ton beets to produce sugar, the total item of wages and salaries paid by the factories will be, approximately, one million two hundred thousand dollars.

The factory pay-rolls will furnish means to 3,750 workmen and skilled operatives for 160 days at \$2 per day, or one day's labor at same wages to 600,000 men.

Thus there will be paid this season in Michigan, over \$4,000,000, for labor of 43,000 farmers and factory employees.

The 20,379 contractors raising beets during season 1902, represent the same number of families, and on the basis of five members to a family, there are 102,000 persons directly interested in the agricultural end of this Michigan industry.

The money paid out for beets and labor goes to the many and not the few. It is widely distributed, quickly circulated, thus benefitting all lines of trade.

The Michigan sugar product for 1902-3 will more than take care of the consumption of that article by her citizens, estimating her population at 2,500,000 and present consumption at 70 pounds per capita.

Four years ago every pound of sugar consumed in this state was purchased outside, at a cost of over seven million dollars.

This money went out of the state and country, in the main to swell the coffers of foreigners.

Now we are producers and every dollar remains, all accomplished within four years.

The by-products of sugar beet factories, spent pulp and crude molasses, are almost a wasted element in this country, having little value and, in many instances, a source of expense to get rid of by the manufacturers.

In early years these secondary products attracted little attention in Germany, but today, after thorough and practical experiments, a high estimate is placed on them by the German farmers for feeding purposes.

The spent pulp is used either in the fresh state, from silos, or in a dry form after being prepared through a process of kiln drying which preserves it for many months and allows shipping long distances.

Eight and one-half tons of the wet will make one ton of the dry pulp, the latter selling in Germany for about \$20 per ton.

Taking 50 per cent of the weight of beets sliced as representing the wet pulp, we arrive at the following estimate as to the quantity and value of the Michigan output for 1902, providing our American farmers knew its value for feeding purposes. The 50 per cent of 800,000 tons beets gives us 400,000 tons wet, or 47,000 tons dry pulp, making the latter worth nearly one million dollars.

The waste or crude molasses, which is 3 to 5 per cent of the weight of beets, is valuable in Germany for mixing with cattle feed and making alcohol. In Michigan it had no value until last year. Consul General Mason, of Berlin, reports that it has a selling value in Germany of \$1.13 per 100 kilograms (220 pounds) in carload lots. In the making of alcohol from these crude syrups, more or less potash salts are recovered, which are of value as a chemical fertilizer.

The Michigan Chemical Co., a recent organization, built last year at Bay City the first alcohol factory, and operated it last winter, using the waste syrups from Michigan factories. The factory and tank car line represents an outlay of several hundred thousand dollars, and the alcohol business is certainly a remunerative one to our government, for this company paid on its first season's output an internal revenue tax of \$1,166,000.

This industry in Michigan is doing much towards inaugurating good roads in many counties of our State, especially in Saginaw and Bay counties, where vast sums have been spent to improve our highways. The cost of hauling the products of the United States to market or the nearest railway station is estimated by the report of the Industrial Commission at \$900,000,000 yearly. This amount exceeds the entire cost of operating the entire railway system of the United States. This enormous cost comes largely from our poor highways for which our country is noted.

Much more could be said about the direct and indirect benefits spreading from this young infant of only four years' growth in the State, but space forbids.

The unfortunate agitation in congress last winter, when this promising agricultural industry was signaled out to pay the whole "moral debt of gratitude" this nation owes Cuba for making her free and independent, has had for the present a serious effect upon its development in this country. Many new and prospective companies in different states are now "hung up" awaiting the favorable or unfavorable action of congress.

With our labor and capital, with our climatic and soil conditions, with our energy and skill, is it not possible for us to grow on American soil, all the sugar we consume without sending abroad each year one hundred million dollars?

It is not necessary to make answer in the affirmative, for the rapid growth of the beet sugar industry in this country during the past five years gives the lie to the pseudo-economist, as it did twelve years ago when he declared that tin plate could not be produced in this country.

But to successfully continue its development we must have wise and beneficent laws, the fostering care and protection of our government to support us against bounty fed sugars, the "Cartels" of Europe, and against the inroads of sugar produced by semi-slave and contract labor of tropical isles.

We would respectfully refer the reader to the speech of the Master of the National Grange, the Hon. Aaron Jones, made last January before the Ways and Means committee in Washington, D. C. Without solicitation from the sugar beet growers or manufacturers, he appeared before this committee, not alone in their behalf, but for the general welfare of all American farmers.

Broad in view, unprejudiced and patriotic, his earnest plea was that an attack on any special agricultural interest was an attack on them all.

### Union Plains.

Mrs. J. C. Barney's mother and sisters visited her last week—Mr. John Graham is having a large stock barn built. Thomas Benton and Fred Rohrabacher are doing the work—N. P. Harder, of Newburg, was over to his farm Saturday—Calvin Merrill had one of his hands badly bitten by a vicious horse Tuesday—Mrs. J. C. Barney is in poor health.

Mrs. Austin's Cereals have the largest sale of any similar goods. Try them and you will understand why.

### Oakley.

Mrs. John Douglas was in Owosso Thursday—Viola Caldwell arrived Thursday from Canada for a visit with her grandparents, Mr. and Mrs. J. Douglas—Allie Forbes was home Thursday night—Mr. and Mrs. H. C. Wickham and Mrs. S. Wickham were in Owosso Thursday—F. C. Wickham, of Owosso, was in town Friday—From twenty-two fowls, since April 1, 1902, H. C. Wickham has sold \$10.44 worth of chickens and \$10.50 worth of eggs, making a total of \$20.94—W. W. Burgess and son, Glen, of Saginaw, were in town Saturday—Saturday the board of registration, of Brady, added eleven names to the register and removed thirty-two. There are 451 voters in Brady according to the register—Professor Goodrich, of Albion college, will occupy the M. E. pulpit Sunday. Everybody turn out—A party of hunters from Owosso were in town Saturday. Hunters complain that birds are scarce this fall—Fred Demun was in Owosso Saturday—Sam Dearman was in town Saturday—Mrs. Helen Anderson was in Owosso Saturday—Mr. and Mrs. Geo. Gute, of Owosso, visited in Oakley Sunday—Mrs. Jennie Ferguson spent Sunday, which are of value as a chemical fertilizer.

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### New Haven.

Mr. Horace Lemunyon expects to go north on a hunting trip next week—Mr. David Kurlle and family visited friends in Owosso, Sunday—Will Schantz will work for Fred Kurlle on the hay press this winter—Misses Libbie and Edith Schantz attended a Hallowe'en party in Chesaning—Gus Wildermuth and Herbert Alliton were in Venice, Sunday—Joe Drain has rented James Linsey's farm and will move on it in the spring—Geo. Signal is moving to Coruna this week—Mrs. F. A. Brown is on the sick list—James Dunton is working for Wm. Maulder at the carpenter trade this week—Charles Brenner has purchased a new hay press—Henry Cowell is buying apples to ship to his brother Eugene, in the Upper Peninsula.

*E. W. Grove*

This signature is on every box of the genuine Laxative Bromo-Quinine Tablets the remedy that cures a cold in one day



## All the Time

A good many people have a dread of wearing glasses all the time. If they only needed to wear them in reading, writing and sewing they would not object, but they do not want to wear them on the street. In many cases it is not necessary to do so. This is especially true of those who begin wearing glasses constantly. I always advise my customers honestly in this matter. If wearing the glasses for near work only is needed I will tell you so and tell you why. I do not want to influence any person to wear glasses a moment more than is necessary, but I will not hesitate to advise what is necessary.

**F. B. Holman,**  
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