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THE BEET SUGAR INDUSTRY OF THE UNITED STATES.

Mr. DICK presented the following

ADDRESSES BY MR. TRUMAN G. PALMER, SECRETARY OF THE AMERICAN BEET SUGAR ASSOCIATION, UPON THE PROGRESS OF THE INDUSTRY, ITS ECONOMIC VALUE TO THE NATION, ITS SPECIAL IMPORTANCE TO ARID AMERICA, AND THE LEGISLATION WHICH THREATENS ITS DESTRUCTION.

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The thirteenth annual session of the Trans-Mississippi Commercial Congress, one of the most important organizations of the kind in the United States, was held at St. Paul, August 19–22.

The congress is non-political and aims to represent and forward all the material interests of that vast territory which lays west of the Mississippi River. The beet-sugar interests were ably presented by Mr. Truman G. Palmer, of Chicago, the well-known beet-sugar authority, writer, and statistician, who was a delegate of the Los Angeles Chamber of Commerce and made the trip from Washington to St. Paul for that purpose.

Below we give Mr. Palmer's address in full, and we must say that it touches more important phases of the subject and gives a clearer and more comprehensive idea of the industry and its importance to American agriculture than any single paper we have yet seen.

THE AMERICAN BEET-SUGAR INDUSTRY.

[Address before the thirteenth annual session of the Trans-Mississippi Commercial Congress, held at St. Paul, Minn., August 19–22, 1902.]

The development of the manufacture of sugar from beet roots is one of the marvels of the nineteenth century, and represents an investment in factories alone, mostly in Europe, of between six and seven hundred million dollars.

To consider the beet-sugar industry intelligently, a word should be said concerning the history of cane sugar, the production of which supplied the world's markets for centuries before it was known that sugar could be produced, commercially, from beet roots.

CANE SUGAR.

The original habitat of sugar cane is unknown, but is supposed to be in the country extending from Cochin China to Bengal.

The art of boiling sugar is mentioned as early as the seventh century, the art of refining was discovered in the fourteenth century, Venice became the great European center of the sugar trade in the fifteenth century, and during that century a Venetian received a reward of 100,000 crowns ($111,940) for the invention of the process of making loaf sugar.

One of the earliest references to sugar in Great Britain is that of 50 tons being shipped to London in 1319, to be exchanged by a merchant for wool. At that time sugar sold for 43 cents per pound, and continued to be used only as a luxury and for medicinal purposes until the eighteenth century.

HISTORY OF BEET SUGAR IN EUROPE.

After the fall of the Roman Empire, the barbarians took to Bohemia a so-called beet root, containing a few saccharine elements, but not enough to attract attention at that period.

The beet root is not mentioned again until 1705, when Oliver De Serre discovered that alcohol could be obtained from the fermentation, which convinced him that sugar existed therein.

In 1747 the Prussian chemist, Marggraf, director of the physical classes in the Academy of Science at Berlin, obtained sugar from the common beet root, possessing all the properties known to exist in cane sugar.

In 1801 Franz Carl Achard, the pupil and successor of Marggraf, erected at Cunern, Silesia, the first beet-sugar factory in the world.

During the Napoleonic wars, when the British blockade deprived France of sugar, and the price had risen to $1 per pound, Napoleon appropriated 1,000,000 francs ($200,000) with which to experiment with beet roots.

In 1810 the first French factory was erected at Lille, and produced sugar at a cost of 30 cents per pound, the beets at that time averaging but 6 per cent of sugar.

Encouraged by Napoleon and by Frederick the Great, the industry gradually assumed commercial proportions, and from 1822 to 1825 over 100 factories were erected, while by 1830 nearly all the European countries were taking an active interest in the industry.

By systematic, fostering legislation Europe has secured the investment of $630,000,000 in an industry which annually distributes over $200,000,000 to its farmers and $100,000,000 to other home interests.

Based on the average price which the United States has paid foreign countries for refined sugar during the past eleven years (0.0315 cent per pound), the beet sugar producing countries of Europe keep at home $213,587,000 which they would otherwise send to the Tropics for the 3,076,000 metric tons of sugar which these countries now annually consume.

But for the establishment in Europe of this great industry, which now produces two-thirds of the world's supply of sugar, the present price of that commodity would undoubtedly be more than double what it is, and Europe's importations would be costing her nearly $500,000,000 a year.

In addition to making this enormous reduction on her importation of foodstuffs, and the consequent distribution of this money among European farmers, manufacturers, and miners, the surplus sugar product which she sells abroad, largely to England and the United States, annually refills her treasuries to the extent of $150,000,000 to $200,000,000 in gold. Were it not for this industry the great countries of Europe would be more than bankrupted to-day.

In 1840, thirty-nine years subsequent to the erection of the first beet-sugar factory, the total world's production of cane sugar was 1,100,000 tons and of beet sugar 50,000 tons, beet sugar forming 4.35 per cent of the total world's production.

In 1900 the total world's production of cane sugar was 2,867,041 tons and of beet sugar 5,607,944 tons, beet sugar forming 66.17 per cent of the total world's production, an increase of 11,100 per cent in sixty years.

The transference of the sugar industry from the Tropics to the temperate zone is largely due to five causes:

First. Intelligent, fostering legislation for the home beet-sugar industry by nations within the temperate zone.

Second. Scientific culture of beet roots, which has more than doubled the sugar content therein.

Third. Failure of science to perceptibly increase the sugar content of cane.

Fourth. Abolition of slave labor in the Tropics.

Fifth. The habitat of the sugar beet being in the most highly civilized portions of the world, has brought to its manufacture the concentration of the highest scientific investigation and achievement.

Each of the following fifteen European countries produces all the sugar that its people consume, and all but four are exporters of sugar: Germany, Austria, Hungary, France, Russia, Belgium, Holland, Spain, Italy, Norway, Sweden, Denmark, Roumania, Bulgaria, and Servia.

The above countries have a combined population of over 330,000,000 people, their total sugar product from 1,511 factories is 5,926,980 tons, of which 3,076,000 tons are consumed at home and 2,850,980 tons are exported.

The non-sugar producing European countries are the free trade British islands, mountainous Switzerland, and the nonprogressive States of Portugal, Greece, and Turkey.

As we must pattern after one class or the other, the question naturally arises as to which class it is wise for us to follow, from a purely economical standpoint.

Experts of both Europe and America agree that the sugar beet area of the United States is many times greater than is that of all Europe, and that it is but a question of a very short time when we will be able to produce sugar as cheaply or cheaper than it is being produced in any beet sugar country in the world.

What the beet sugar industry means to Europe can be seen at a glance.

United States Census Bulletin No. 59 for the year 1899, shows that per each ton of daily beet capacity, the investment in American beet sugar factories is $1,097,000. In the following estimate the investment of European factories is figured at $1,000 per ton of daily capacity. The average acreage yield is placed at 10 tons, the cost of beets at $4 per ton, the " factory expense " at $2 per ton, and the extraction of sugar at 12 per cent.

Number of factories	1,511
Capital invested	$625,000,000
Tons of beets worked annually	51,598,400
Acres cultivated to beets	5,159,840
Paid to farmers for beets	$206,393,600
Paid for labor, fuel, lime rock, coke, limestone, mill supplies, etc	$103,198,800
Total annual expenditures	$309,592,400

BEET SUGAR IN AMERICA—FAILURES.

The first attempt to produce beet sugar in America was made in Philadelphia in 1830, and proved to be an utter failure. Subsequent attempts were made at various times from 1837 to 1878 at Northampton, Mass., Chatsworth Park, Ill., Freeport, Ill., Fond du Lac, Wis., in New Jersey, California, and Portland, Me., it being estimated that over $2,250,000 were sunk in these experiments.

FIRST SUCCESSFUL PLANTS

In 1879 the first successful American factory was erected at Alvarado, Cal. In 1888 we had two factories, and for the first time in our history produced 1,000 tons of beet sugar in a single season. When the Dingley bill was passed five years ago, we had six factories, which it had cost $2,000,000 to construct.

EXPANSION UNDER THE DINGLEY TARIFF.

Since the passage of the Dingley bill we have erected 36 factories and enlarged the other plants at a cost of over $30,000,000.

In addition to this, the Department of Agriculture in January of this year gave out a list of 86 factories which were projected and would require an expenditure of $49,000,000 in construction work alone.

The production of beet sugar in the United States in 1900 was 76,659 tons; in 1901, 185,000 tons; an increase of 140 per cent in a single year, and the plantings this year are reported to be 85 per cent greater than in 1901.

FUTURE EXPANSION.

The United States importations of sugar last year in excess of what we produced at home and received from our island possessions, were over 1,500,000 tons. To produce this sugar at home would mean the construction of 500 new factories, at an expense of $275,000,000, and the cultivation of over 1,600,000 acres to beets, for which our farmers would receive about $70,000,000 annually. As the sugar consumption in the United States is increasing at the rate of over 6 per cent per annum, sixteen years hence we should provide for the production of another 2,500,000 tons annually, which would return $100,000,000 more to our farmers, or a total of $170,000,000 each year.

EARLY MISCONCEPTIONS.

We have had, and still have, many things to learn concerning the industry. I remember very well that when I commenced to investigate this subject the prevailing opinion was that California was the only State in the Union in which beets could be grown successfully. To-day we have a chain of 45 factories, stretching from ocean to ocean.

It was but six or eight years ago that the officers of the Chino, Cal., factory, learning that some of the farmers were irrigating their beets, sent out notice that no irrigated beets would be received, no beets ever having been raised by irrigation, and the supposition being that they would be of low sugar content. To-day our richest beets are grown by irrigation.

TEN YEARS' PROGRESS AT LEHI.

In 1891 the acreage tonnage at Lehi, Utah, was 6.6 tons per acre; in 1901, 11.50 tons per acre, an increase of 74 per cent in ten years. In 1891, the sugar content of the Lehi beets was 11 per cent; in 1901, 15.20 per cent, an increase of 38 per cent. In 1891 the sugar extraction at Lehi was 110 pounds per ton of beets; in 1901 it was 235 pounds, an increase of 114 per cent. In 1889 the "factory expense" in working up a ton of beets at the Alvarado, Cal., factory, was $6.57; in 1897, $2.71, a decrease of 58 per cent.

It will thus be seen that we are making rapid strides in the right direction, and it is only a question of time when the American farmer and the American artisan will be able to compete with the world.

LABOR-SAVING APPLIANCES.

Europe has cheap labor and dear horses, and hence has not the American incentive to decrease the labor of the former and increase that of the latter. With us the reverse condition is true, and hence more and more of our field work is being done by horses. In all parts of the beet belt various experiments are being made, the success of which will still further reduce the hand labor. In Kansas they are trying a new method to avoid much of the hand work of weeding and thinning; in Michigan they are experimenting with ridge planting to accomplish the same purpose, and various experiments are being made whereby the beets are lifted, topped, and loaded into wagons entirely by machinery. Ten years from now but little hand work will be necessary, and therein lies one of the most important points in the development of the industry.

WASTE OF BY-PRODUCTS.

In France the returns from the sale of pulp alone amount to over 4 per cent on the entire capital invested in beet-sugar factories. In the United States, with few exceptions, the disposal of the pulp is a positive expense, yet for bone, blood, and milk, beet pulp is worth $3.40 per ton, as against hay at $10 and corn meal at $18 per ton. Our farmers will learn this in time, and this utilization of a single by-product will yield a fair interest on the entire investment. In

Europe alcohol, potash, vinegar, shoe blacking, and other products are obtained from the waste of the beet, and it can be but a question of time when the American will utilize every particle of the beet, just as the late Phil. Armour said the packers now utilize every particle of the pig except the squeal.

FULL-ACREAGE TONNAGE.

The full tonnage of beets, planted 8 inches apart, in rows 18 inches wide, is 38 tons per acre, and the honorable Secretary of Agriculture informs me that time and again he has raised 28 tons per acre on his Iowa farm. Yet the average tonnage last year in the United States was 9.6 tons. All this will be rapidly rectified as our farmers become familiar with the culture.

In the vicinity of Magdeburg, Germany, beets are grown on land worth $800 to $1,200 per acre, land where the rent is high, and where fertilizers to the value of $12 to $15 per acre must be added each year, and still the beets are sold at a profit of $4 to $4.50 per ton. So anxious are the farmers to raise this most profitable crop that the factories are obliged to limit the beet acreage of each farmer.

BEETS AND DROUGHT.

The sugar beet will stand more drought, on the one hand, or more excessively wet weather, on the other, than will almost any crop that the farmer can raise; hence it is a safe crop, which is sold in advance at a fixed cash price.

BEETS IN ROTATION.

As a rotater the sugar beet is far above any other ordinary crop. The opinion formerly prevailed that the sugar beet rapidly exhausted the soil, but this is not the case, if properly rotated.

Let me read to you a report from one of our German consuls:

A German farm of 625 acres produced, before the introduction of beet culture, yearly, 9,736 bushels of grain in ten years' average. After beet culture was introduced, with 125 acres yearly to beets, the average yearly grain crop from the remaining 500 acres was 9,870 bushels, or 134 bushels' increase. Another farm in the province of Saxony, also of 625 acres, produced before beet culture was introduced, in ten years' average, 13,879 bushels of grain. When five years afterwards 135 acres were planted with beets, the grain crop of the remaining 490 acres was 14,365 bushels' average, and afterwards, when yearly 220 acres of beets were planted, the average grain crop from the remaining 405 acres was 14,397 bushels, or 518 bushels more than from the whole 625 acres before beets were raised. Thirty-five other farms of 500 to 1,000 acres each in the province of Saxony showed the following result:

Average crops per acre, in pounds.

	Before beet culture.	After beet culture.	Increase, in pounds.	Per cent increase.
Wheat	1,848	2,292	444	24
Rye	1,456	1,672	216	14.8
Barley	1,672	2,094	422	25.2
Oats	1,355	1,918	563	41.5
Peas	985	1,834	849	86
Potatoes	6,716	13,500	6,874	102.3

The average beet crop of these farms was 17 tons 400 pounds per acre.

The above demonstrations show what a boon the culture of beets will be to our farmers, who are the backbone of our national wealth. The Secretary of Agriculture states that in order to get the benefit of beets as a rotater and to get the pulp to feed to his cows the farmer could actually afford to furnish the factory the sugar from his beets free, and then would be only selling the air, for the sugar in beets comes wholly from the air.

Professor Powell, formerly of the Smithsonian Institution, makes the statement that in semiarid America there is enough rich tillable land and enough water that the two, once married, would support in affluence 70,000,000 people.

I am familiar with nearly all of our arid country, and I can form no other conclusion than that from an agricultural standpoint our most productive land has been left to the last, an inheritance for future generations.

BEETS AND IRRIGATION.

Congress, for the first time, has now acted in the matter of national irrigation, and we hope that soon large areas of our desert country will be placed under irrigation ditches. Now, ask any agricultural expert as to what is the best crop that can be grown in large quantities on this arid land. He will tell you " sugar beets," because the farmer has a market that can not be overdone. It is by all odds the greatest agricultural possibility in America, both East and West, but more especially the West, where the variety of crops is more limited, and the industry deserves the continued fostering care of our Federal Government.

AGRICULTURAL EXPORTS AND IMPORTS.

The United States exports about $800,000,000 worth of agricultural products annually and imports $400,000,000 worth annually. Of this $400,000,000 in gold which we send abroad for agricultural products, $100,000,000 to $125,000,000 are for sugar, every pound of which we are eminently adapted to produce. Of the remaining $300,000,000 worth, coffee, rubber, spices, and fibers constitute about $200,000,000, all of which our newly acquired island possessions are adapted to produce, and they and adjoining islands should eventually supply them.

Increased acreage tonnage by cultivation and proper rotation, utilization of the waste, and reduction of the hand labor are evolutions of the near future in the production of American beet sugar which will revolutionize its cost of production, give employment to hundreds of thousands of farmers and artisans, and cheaper sugar to the nation.

REFINING VERSUS MANUFACTURING SUGAR.

The refining of imported raw sugar yields but little to American industry and should be abandoned as soon as possible. According to the figures furnished the United States Industrial Commission by the sugar refiners, American industry secures but $6.72 out of the refining of 1 ton of imported raw sugar. In producing a ton of sugar from American-grown beets American industry receives a trifle over $80, based on the present average cost of about 4 cents per

pound to produce. Some American factories are now producing beet sugar at less than 3 cents per pound; and when the cost of production gets down to 2 cents per pound, American industry will still receive $40 per ton by manufacturing our own sugar, as against $6.72 per ton by refining the imported article.

The proposition of refining as compared to manufacturing sugar could well be compared to iron, steel, copper, wheat, and corn. Suppose it were proposed that we shut down our iron mines and import our iron in the shape of pigs or ore, simply using American labor to work it over into shapes, or import our wheat and corn and grind it here. The cases would be parallel and in favor of manufacturing our sugar and importing our corn and wheat, for the farmer makes a greater profit in raising beets than in raising either of the other crops.

Another thing about the beet sugar industry is, that it is impossible to make a trust out of it without taking the farmers into the deal, and the factories must be scattered; whereas, the refineries are all located on the coast, and virtually all in a trust, which arbitrarily fixes the price which 76,000,000 of Americans shall pay for an article of daily consumption.

The material results of fostering the beet sugar industry will be the retention at home of from $100,000,000 to $125,000,000 which we now annually send abroad, cheaper sugar, better farming, more grain per acre, less competition, a boon to the dairy and stock interests, besides many minor advantages.

LOCAL BENEFITS.

One more thought on the practical lines of this subject and I will close.

Desirous of obtaining accurate information concerning the average beneficial results brought about locally by the establishment of beet sugar factories throughout the United States, I recently wrote to the local bankers, county assessors, and postmasters where each of our sugar factories is located, and to the sugar companies as well, inclosing a blank on which were some 31 questions, to which I requested answers. Not all of the blanks have been returned, but I will give you the benefit of those already received. I will state at the outset that not a word of discouragement was expressed in any answer in any report.

I asked: "What gross proceeds per acre are your farmers able to secure in beet culture?" In most instances they gave me the range from the lowest to the highest. The lowest was $25, the highest $180, the average of all $69.40 per acre.

The next question was: "And how does this compare with what they obtain in raising other crops?" Among the replies were: "One hundred per cent higher." "Beets best crop we can grow." "Favorable." "Very much in excess of other crops." "About 300 per cent." "An increase of 80 per cent." "A decided improvement." "About three times as much."

Then I asked: "As the farmers become familiar with beet raising, are they more or are they less anxious to raise beets?" All replied that they were more anxious; that interest was increasing, and, in all but one case, that the acreage was being extended.

I next asked: "Have farm mortgages increased or decreased since the erection of the factory, and to what extent?" All but two stated that they had decreased, some materially, some 25 per cent, some 30 per cent, one that very few farms were now mortgaged. Two stated that farm mortgages had increased owing to the fact that renters were becoming able to buy on partial payments.

I then asked for: "The average price for agricultural lands prior to the location of the factory and at the present time?" Two gave no price before the factory was erected, the land being a desert and of little value; land in one of those sections now being worth $100 per acre, in the other $150 per acre. Of the others, the smallest increase was 20 per cent, the greatest 250 per cent. The average price of all was $34.28 per acre prior to the location of the factory, and $75.55 per acre at the present time. The average increase in value was 124 per cent.

The next question was: "What effect has the erection of the factory had on the prosperity of the farmers?" Here are some of the replies: "Glorious." "Profits double." "They are paying debts and renters are buying farms." "Good." "Much interest shown." "Diversity of crops." "Enables them to buy land and build homes." "Better prices and demand for produce of all kinds." "Greatly increased."

I think this pretty accurately sizes up the situation as to the far-reaching beneficial effect of the erection of a beet sugar factory on surrounding farmers.

But this is only part of it. Merchants and real estate men are affected; in fact, the whole community. I called for the assessed valuation of all town property before the erection of the factories and at the present time, the same information as to population, average price of residence lots, and of business lots. The replies show the average increase to be as follows:

	Per cent.
Assessed valuation, increase	139
Population, increase	89½
Average value of residence lots, increase	59
Average value of business lots, increase	188

Rocky Ford, Colo., is a fair sample of what a beet sugar factory does for even a good town. Two years ago Rocky Ford was a prosperous town of 1,500 people, largely engaged in raising the celebrated "Rocky Ford melons" for the Eastern market. The American Beet Sugar Company erected a factory there for the 1900 campaign. Rocky Ford's population during these two years has jumped from 1,500 to 3,000, her assessed valuation from $327,608 to $645,344, the price of average residence lots from $50 to $200, of average business lots from $750 to $2,000. Over 400 buildings have been constructed at an expense exceeding $400,000, and 40 more were in course of construction at the time my blanks were filed out.

Sugar City, Colo., is an illustration of what a sugar factory will do for a barren desert. When the National Sugar Manufacturing Company stuck the stakes for the Sugar City factory there was not a house, a barn, or even a shack in sight in any direction; when steam was turned on in the factory seven months later, a crop of 15,000 tons of beets was ready to harvest and the town had 1,800 people, which population has since increased to 2,500.

All these results are directly and wholly attributable to the erection of the beet sugar factories. I put another question: "What effect has the erection of the factory had on the prosperity of your merchants?" Here are some of the replies: "Greatly increased." "Business doubled." "Profits doubled." "Many new stores." "Prosperous." "No failures." "Increased cash sales." "Increased the business a thousand per cent." "Neither merchants nor prosperity before."

The question is, Do we want 600 more such towns, each surrounded by a thousand or more prosperous farmers' families, or will we by changing existing tariff conditions run the risk of selling the birthright of the American farmer for a mess of pottage?

WEALTH OF THE PHILIPPINES AND ITS RELATION TO THE AMERICAN BEET-SUGAR INDUSTRY.

[Address before the fourteenth annual session of the Trans-Mississippi Commercial Congress, held at Seattle, Wash., August 18–22, 1903.]

My reasons for addressing you on the subject of the Philippines are threefold: First, that the policy of our Government in dealing with the Philippine Islands is still in a formative stage; second, that the future development of the material resources of the trans-Mississippi territory will be greatly affected by the final policy which this Government shall adopt in handling the Philippine problem, and third, because under the development and control of these tropical islands by a temperate zone country it is possible to work out successfully one of the greatest mutual and national economic problems possible, namely, to produce under the Stars and Stripes all we consume.

As our legislators, irrespective of party affiliation, are still in doubt as to what further legislation concerning the Philippines will prove to be wise, and inasmuch as the strongest kind of pressure by interested parties is exerted to bring about certain additional Philippine legislation at the forthcoming session of Congress, it seems opportune that the material interests of these islands and their relation to the trans-Mississippi territory should be considered by this Congress at the present time.

Throughout and all about this grand trans-Mississippi country the influence of this congress has been felt for twelve years. On the Mississippi River; at New Orleans, Beaumont, Galveston, the Brazos and Aransas Pass on the Gulf; at San Diego, San Pedro, San Francisco, and Puget Sound on the west; and in the interior through various provisions in our river and harbor bills; and last, but greatest of all, by our national irrigation law, has the influence of this body for the upbuilding of its people been exerted, felt, and appreciated.

For years you have worked and waited patiently for the enactment of a national irrigation law, but while you waited there was no danger of legislation which would forestall it once the people were ready for it. The case with the Philippines is different. There is bound to be Philippine legislation soon, and this congress should use its influence, first, to safeguard the interests of the people it represents, and second, to forward the interests of the 8,000,000 to 9,000,000 of little brown men who have recently come under our flag.

LOCATION OF THE PHILIPPINES.

Far away from our shores, near the southeastern coast of Asia, to the northeast of the Island of Borneo, and just above the equator, lie the Philippine Islands. Geographically they are 7,000 miles from the United States proper. From the north end of the Island of Luzon to the south end of the Island of Mindanao it is 780 miles, while the extreme width of the archipelago is about 650 miles.

The total area of the islands is 73,345,415 acres, a territory as large as New England, New Jersey, and Pennsylvania combined, a little less than that of either Colorado or Utah and slightly less than that of Japan, which supports a population of about 30,000,000 people.

Of the 73,000,000 acres, 40,000,000 acres are in virgin timber, much of the balance has grown up in second-growth timber; 65,000,000 acres are arable when cleared. The land is most fertile and for the greater part naturally irrigated.

With the exception of a little less than 5,000,000 acres all the land in the Philippines is in the public domain, belonging to the government to dispose of as it pleases. Herein lies an opportunity which is being worked for speculation and which may easily bring disaster to the Filipino people and to arid America. Already inhabited by one person to every 8 acres (though largely in little settlements), the public domain when divided up will afford 40 acres to each family of five.

These lands, honestly managed, should go to the future Filipinos. They should be held by the government until parceled out in homesteads or small holdings, each the basis of the hearthstone around which centers the patriotism and highest civilization of which we under Old Glory boast. Let the pace be set now that will avoid a system of tenantry that means serfdom. Establish the right to proprietorship of the most binding and sacred influence to civilization and government, and that is a home.

The pending schemes to parcel these lands out in 25,000-acre principalities to American exploiting corporations would eventually rob the natives of the right to become land owners in their own country and force them to become the servile tenants of corporate landlords.

Fortunately for the Filipino people and for us as their guardians, with the sole exception of sugar all of their agricultural industries can be developed to best advantage in small holdings of a few acres, and the chief capital required is labor.

The Philippines are populated with between 8,000,000 and 9,000,000 native people, who are a cross between the Malays and Japanese. of whom 5,000,000 or 6,000,000 are so-called civilized Christians, the balance being savages and Moros. As to foreign population, in 1876 there were 30,797 Chinamen, who were scattered throughout the islands, and 378 white foreigners, most of whom lived in Manila, the metropolis.

In 1902 there were living in the city of Manila 7,852 foreigners, 9,722 Americans, 60,680 Chinamen, and 223,000 natives, a total of 302,154. The population of the Philippine Islands averages 74.45 to the square mile. We have but 10 States which are so densely populated.

The average density of population of the United States, not including Alaska, is but 25.6 per square mile, or about one-third of

what it is in the Philippines. The trans-Mississippi territory boasts but 9 States where the population reaches 10 per square mile. California has 9.5, Washington 7.7, Colorado and South Dakota 5.2, North Dakota 4.5, Oregon 4.4, Utah 3.4, Idaho 1.9, Montana 1.7, New Mexico 1.6, Arizona 1.1, Wyoming .9, Nevada .4, so you can judge by comparison as to how thickly populated these islands are with their 74.5 inhabitants per square mile.

Unlike the opening up of our Western States, the opening up of the Philippines will not make homes for the overcrowded States of the East, not only because of the density of the Philippine population, but on account of the climate, which does not afford a sanitarium for our people, to say the least.

DISTRIBUTION OF POPULATION.

If Paris is France, then surely Manila is the Philippines, for it is the only city of any pretensions in the archipelago. It is not like this Pacific coast country, where we have Seattle, Tacoma, Portland, San Francisco, Los Angeles, San Diego, and a multitude of smaller cities. Manila is the metropolis; it has no rivals, and there are few other settlements we would dignify by the name of village. The people are scattered about, neither in cities nor on the land generally, but in little settlements, and their principal food is rice, fish, and wild fruit and vegetables.

Ninety per cent of the people do not speak even Spanish, and their only education, if they have any, is limited to a knowledge of their local dialect and to a knowledge of reading or writing to the extent of being able to sign their names and spell out the catechism.

Until American occupation 600 schools sufficed for the entire 8,000,000 to 9,000,000 population. Since American occupation over 7,500 schools have been established, in which are about 1,000 American teachers.

Their beasts of burden are the water buffalo, slow going animals, which must be allowed to enter the water frequently or they will die. The bulk of the water buffalo were recently swept away by the rinderpest, which ravages the islands every few years, but as these animals are common in Southern China and India, the Philippines are restocked from those countries.

They also have a limited supply of native ponies, and these were recently decimated by the surra, as were also the American horses which had been shipped in.

They have no hoes, rakes, forks, shovels, picks, or any agricultural tools or implements except an occasional wood pointed plow.

Our Louisiana and Tennessee friends would look on in wonderment to see them plant and harvest rice and sugar. The rice is sown in a "seeding plot," and at the end of six weeks, when it is about a foot in height, the stalks are transplanted one by one by hand, to a flooded field. The planter uses a stock to make the hole in the soft ground and thrusts the root of the rice stalk in, one at a time, until he has 40,000 planted on an acre.

In harvesting he cuts the stalks one by one, ties them up in bundles, and thrashes it by crushing between blocks of hard wood or by allowing the water buffalo to tramp over it, regardless of the cracking of the kernels.

In planting sugar cane several natives guide a wood-pointed plow which is pulled by a water buffalo, or, as is more often the case, natives by the dozen on their hands and knees turn and prepare the soil with their hands, or with little bamboo sticks, the methods of planting and harvesting being equally crude.

Prior to American occupation the wage rate of Chinese laborers on sugar estates was 8 cents per day, of natives 10 cents per day, the laborers boarding themselves. Employers who operated stores were able to get their help as low as $15 a year, figuring at cost the goods which they supplied them. Since American occupation the wage rate has increased quite materially.

As in all tropical countries, the wants of the natives are simple, and indolence is their besetting sin. But that they will work and work well is the general testimony of the quartermasters and other American officers, who say that for both skilled and unskilled labor they prefer them to Chinamen.

The wealth of the Philippines lies in her forests and her agriculture. No mines of any account have been discovered, and aside from the making of cigars little has been done in manufacturing.

FORESTRY.

In her 40,000,000 acres of virgin forests the chief of the Philippine forestry bureau already reports the discovery of between 600 and 700 species of timber, including twelve species of cabinet woods, many of them unknown to any other portion of the globe, dye woods, gum trees, gutta-percha and rubber, and pine timber, the sight of which the American governor of Abra says, "would make the lumbermen of Maine stand in open-mouthed wonderment." All but about 1,000,000 acres, or one-fortieth of these forests, belong to the government.

The forestry bureau estimates that at the present government tax of 6 cents per cubic foot, and cutting only trees which are over 20 inches in diameter, the timber removed from 20,000,000 acres will yield the government $100 per acre, or $2,000,000,000, and still leave the forests in better condition than at present.

The other 20,000,000 acres he estimates will yield more than half as much more. He further reports that after the mature and overmature timber is removed the revenue from the sale of the annual increase of growth of public timber will, under careful supervision, bring the state a reasonable interest on a valuation of $200 per acre, which would amount to $240,000,000 annually on a basis of 3 per cent.

For the year 1902 we imported cabinet woods to the value of $3,400,957, and the Philippines exported it to the value of $72,480. These woods enter our market free of duty, and with such an abundance of hard-wood forests our free market should greatly stimulate the development of this industry, which alone would make the Filipinos the richest people on the face of the earth.

GUTTA-PERCHA AND INDIA RUBBER.

In 1902 we imported gutta-percha and india rubber to the value of $27,094,622, while the Philippines exported it to the value of $182,312.

Many millions of American money have been invested in establishing rubber plantations in Mexico, Central and South America. In the Philippines there are vast native forests of both gutta-percha and rubber trees. The wasteful method of gathering the sap by ringing the trees prevails, and yields but one-thirty-fifth to one-fortieth of the entire yield which can be secured by up-to-date methods, and still it is profitable.

The great island of Mindanao, the largest in the archipelago, over which Gen. Leonard Wood has recently been made governor, is the most celebrated of all for its forests of gum, gutta-percha, and rubber trees. It is inhabited by wild men and Moros, who are rapidly being subjugated, and stupendous financial results can be looked for from rubber and gutta-percha in that quarter.

As to planting and establishing rubber plantations, the Philippine Commission states that that is a project which can in no sense be considered in the light of an experiment, and that planters estimate an annual return of from $150 to $200 per acre after the trees reach maturity, the first good harvest being in six years from the planting.

It can confidently be expected that vast sums of American money will find its way into the gathering of Philippine rubber and gutta-percha from the original forests and in establishing plantations which should eventually supply us with the $27,000,000 worth which we annually consume. We formerly imposed a duty of 50 per cent ad valorem on rubber, but abolished it in 1870, and rubber and gutta-percha now enter our markets free of duty.

HEMP.

I venture the assertion that no other country in the world possesses such a valuable copyright on its leading product as nature has given to the Philippines in the matter of hemp. Manila hemp can be produced in no other portion of the world, but grows wild in both mountains and valleys in the Philippines. It affords the greatest return for the effort expended of any product of the island. Natives make $4 to $5 a day in gathering the wild product, while the profits are doubled when the plant is put under cultivation.

The cost of original planting is as low as $1.25 per 1,000 plants, from 200 to 700 to the acre. The bureau of insular affairs states that one-twentieth of the eastern and southern portions of the islands are utilized for hemp growing, and that five-eighths of the remainder, now covered with forests, are suitable for the cultivation of hemp. Manila hemp can be produced at a profit of one-third the present prices, or at one-half the cost of the cheaper substitutes, such as sisal grass, of which the world consumes over $100,000,000 worth annually, because it can not get Manila hemp.

The plant resembles the banana, is immune from insect pests or damage by weather conditions, and requires no machinery in either growing or harvesting, and hence no capital is necessary to engage in the business. There is no necessity of replanting for a long time, as new shoots are continually forming, and when one is cut off another is almost ready to harvest.

From 44,137 tons in 1877, the exportations have risen to 65,476 tons in 1900 and 108,264 tons in 1902. The exportations for 1902 were valued at $16,019,438, and formed 65 per cent of the total exports of

the islands and 75 per cent of the agricultural exports. Practically all Manila hemp is used for ship rigging, which demands the best article in the market, but even the cheaper sisal grass substitute commands $133.53 per ton against $186.97 per ton for Manila hemp; hence there is a hundred-million-dollar world market for this profitable copyright Philippine specialty. There is no American customs duty on hemp, and we now take about one-half of the Philippine product.

COFFEE.

The American importations of coffee, largely from Brazil, are enormous. In 1900 the value of our importations was $54,468,041, while in 1902 it had risen to $70,919,257, all of which comes in free of duty. Until a short time ago coffee was a widely distributed product in several provinces of the Philippines, frequently standing third in the value of her exports. The magnificent palaces of the former so-called Philippine coffee barons are still standing in Lipa, and the exquisite work on the interior timbers, which were hand carved after being placed in position, is greatly admired by American visitors. Experts declare that many localities produce a berry equal to the Mocha, the highest-priced coffee in the world.

The superiority of the Philippine coffee is shown by the fact that while they secured 12½ cents per pound for their product in 1902, the 1,000,000,000 pounds which we imported the same year only brought the growers, laid in our ports, an average of 6½ cents per pound, or about one-half as much. Some years ago the borers, common to all horticultural countries, and easily coped with by modern horticultural science, attacked the Philippine coffee plantations and practically ruined them. The exports in 1902 amounted to but 189,046 pounds, valued at $23,102, or 12¼ cents per pound.

The Department of Agriculture some time ago established a very efficient station at Manila, with substations in various portions of the islands, where our skilled horticulturists and agriculturists are educating the natives in the science of production, the fighting of pests, and the use of modern agricultural implements.

Never again will the borers be allowed to ravage the Philippine coffee plantations, and with a duty-free market and a coffee which commands double the price per pound this rich nation pays for the $70,000,000 worth we are now importing from other countries, it surely should not be long before coffee will again be one of the largest items of Philippine export.

COPRA AND COCOANUTS.

We annually import a little more than $1,000,000 worth of cocoanuts and dried cocoanut meat called copra, which is largely used in the manufacture of soap. In 1902 the Philippines exported $1,000,000 worth of this product, while for the first nine months of the fiscal year 1903 the exports were valued at $3,231,421, three-quarters of which went to France. The monthly summary of commerce of the Philippines says that copra is a good, steady crop in any of the southern islands, and that a small cluster of cocoanut trees is sufficient to keep a native family in the lap of luxury.

The tree has to be planted and guarded against the browsing of cattle for the first four or five years of its life. After that, nature and the Chinese trader will do the rest. The ground under the trees is now either allowed to grow up with brush or is kept clear by hand. The life of a tree is in the neighborhood of a century.

Two hundred trees can be grown to the acre, almost assuring an annual income of $100 gold. Thus it can be seen that the position of a proprietor of a large and flourishing grove of cocoanut trees is almost a sinecure. The wear and tear on the human system of sitting in the shade and watching the copra crop mature is so small as to be almost inconsiderable. Cocoanut lands can be had in Mindanao at $5 to $10 per acre, and the product enters our market free of duty.

CACAO.

The United States imports of crude and prepared cacao for 1902 were valued at $6,950,336. The Philippine exports in 1900 were valued at $2,203, and have been gradually diminishing since that time, The secretary of the interior to the Philippine Commission reports that the cacao produced in the islands is of a very superior quality, most of the exports going to Spain, where it brings an especially high price.

Insect pests and lack of proper care are accountable for the present condition of the plantations, and will be remedied through the efforts of our Department of Agriculture. The Bureau of Insular Affairs recently issued a bulletin devoted solely to cacao, showing that it is one of the most profitable crops which can be grown in the islands, and it should not be long before they supply us with the $7,000,000 worth which we annually import, all of which comes in free of duty.

SISAL.

Of sisal grass and other fibers, not including hemp, the Philippines exported last year $178,120 worth; of copal, which makes the finest varnish in the world, $73,010; of other gums, $68,792; of tortoise shells, $101,444; of indigo, $8,806, making the total value in exports, including the articles already mentioned, $17,548,447.

HOW TO AID BOTH PHILIPPINES AND THE UNITED STATES.

With one or two minor exceptions all of the above-mentioned articles are produced from the forests or from small individual plantations, which can be established practically without any capital, and the opportunity for expansion in each of these industries is all but limitless.

While the Philippines exported about $17,500,000 worth of these products, the United States imported them last year, from the Philippines and from other countries, to the enormous value of $144,873,556. Not a pound of them are now produced or ever will be produced in the United States proper, as they are of a purely tropical nature and can not be grown here. The fostering of these most profitable industries in the Philippines and in our other island possessions will be a great boon to our newly acquired "little brown

men," will make us more independent of other nations, and will not injure a single industry, a locality, or a person in the United States.

We now have a coffee country of our own, a rubber country, a gutta-percha country, a copra country, a cacao country, a hemp country (the only one in the world), a rare cabinet-wood country, and we should do everything possible to encourage those 8,000,000 brown men to produce the $150,000,000 of these articles which we annually consume. If the encouragement already given by the Department of Agriculture and by other departments of our Government should not prove to be sufficient, we could put a tariff of a quarter of a cent a pound on coffee coming from other countries, and that would raise $2,500,000 a year, which could be covered into a special fund to be used by the Philippine government to develop a coffee country of our own, and no one would feel such a slight tax. The same would follow as to the other Philippine products mentioned, and we would soon have the ocean alive with ships bringing from our own possessions those tropical products which we can not produce at home.

If the Philippine lands are eventually divided up amongst the Filipino people, each head of a family will possess a little less than 40 acres of arable land, the fruits of which will enable them to rear and educate their families and become a civilized people, composed of self-respecting, independent, landowners.

If, on the other hand, their lands are given away to great corporations, the Filipino people must eventually become homeless chattels of those corporate interests.

COMPETITIVE PRODUCTS.

Now that I have recounted the important Philippine industries which can profitably be extended indefinitely without injuring the conditions of a single American citizen, let me turn to those Philippine industries where Asiatic labor at 8 cents per day comes in competition with our labor—to-day, and I hope for all time, the best paid in the world. Of these products there are at present but two, sugar and tobacco, both of which are produced very cheaply and in great quantities in the Philippines, and both of which are important American agricultural industries, one of them being a trans-Mississippi specialty of no slight importance.

TOBACCO.

The 1902 exports of Philippine tobacco and cigars, mostly cigars, amounted in value to $2,761,432, and the exports are gradually growing. The product is largely taken by Europe and Asia, little of it now coming to the United States. Labor is so cheap in the Philippines that a fair cigar can be had in Manila at a cost of 1 cent.

Our Bureau of Labor has prepared a list of all wageworkers in Manila, giving the number engaged in each occupation and the wages which are paid. This publication shows that the 31 cigar and cigarette factories of Manila employ 12,168 people, of whom 18 are white, 468 are Chinamen, and 11,700 are natives. The average wage rate of them all, in gold, is 35½ cents per day, or but a fraction over 25 per cent of what the Census Bureau shows is paid for the same class of labor in the United States cigar factories.

The testimony from the Philippines shows that the growers of tobacco are averaging $60 in gold net profit per acre, which is far in excess of what our tobacco farmers are able to make. Last year we imported tobacco and cigars to the value of $16,331,535.70.

In the census year 1900, 308,317 American farmers, scattered through 43 States, planted 1,101,483 acres to tobacco and produced a crop of 868,000,000 pounds, which had a farm value of $80,000,000. We have 15,000 tobacco manufacturers, employing $124,00,000 capital and turning out a product valued at over $283,000,000.

We have 15,000 cigar manufacturers, who employ $67,000,000 of capital and turn out a product valued at $160,000,000. The cigar and tobacco factories employ 245,000 wage-earners, whose wages amount to $110,000,000 a year. Our tobacco is mostly grown and manufactured east of the trans-Mississippi country, but it is grown back where we came from, it is grown by our own flesh and blood, it is manufactured by well-paid American labor, and it is a commercial advantage to all of us to have it produced in this country.

As illustrating the brains, the skill, the energy, the honesty of purpose, and the love of country now being exercised in behalf of the welfare of this great agricultural people, and which would be at least partially nullified by unwise legislation, let me cite you an instance connected with the subject in question:

A few years ago the present Secretary of Agriculture, Hon. James Wilson, determined that, if possible, we should grow in the United States all the tobacco we consume. He dispatched one of his tobacco scientists to the island of Sumatra to study their soil, climate, and processes for a year. On the return of this scientist the Secretary started a search for the American soil corresponding most closely with the Sumatra soil which produced their finest grades of tobacco. It was found in the Connecticut Valley and in Florida. Experimental stations were established in Connecticut, with the purpose of producing the Sumatra climate.

An acre of ground was tented over with mesh wire and cheese cloth, supported by posts 9 feet high, the cloth running down to the ground on all sides. Under this tent the Sumatra tobacco grew to perfection, and brought $2 a pound, as compared with a few cents a pound for tobacco grown near by in the open air.

The expense of production was about $700 per acre, the income $1,500, and the next year planters covered 36 acres. This year 1,000 acres have been covered.

Sumatra tobacco usually grows to a height of 3½ to 5 feet. The tents under which this tobacco is grown are 9 feet from the ground, and in some instances the tobacco poked its way clear through the covering, while the leaves are exceedingly broad and thin and of the finest grade and texture.

Furthermore, it ordinarily takes one man to 2½ to 3 acres to destroy the tobacco worms and fleas. Under the tents they have been troubled with neither of these pests. The Secretary of Agriculture is firmly convinced that within five to eight years we shall be growing all of the $6,000,000 worth of Sumatra leaf which we are now annually importing.

Not content with the success which attended the efforts of his experts in growing our wrapper tobacco, the Secretary has since had his experts investigating possibilities of producing the fine Cuban

filler tobacco. Favorable soils were discovered in Ohio and Texas, which last year produced such satisfactory results that the Secretary confidently predicts that within a very few years we shall not be obliged to send a dollar abroad for tobacco, but will produce at home the very choicest grades.

It would thus seem that within a comparatively short time the American market for foreign tobacco will be a thing of the past, unless killed by some new competition. This is but one of scores of instances which I could mention where the present Secretary of Agriculture is striving to enable us to produce at home those things which can be grown in the temperate zone which we do not now produce, and he is striving just as hard to show our little brown men how to produce to the best advantage those things which we can never hope to produce at home. That is what I call statesmanship, and it is justice to all, at home and in our island possessions.

BULBS.

Another instance of this intelligent work will be of especial interest to my local hearers. We annually import about $750,000 worth of bulbs. They come largely from Holland and are often diseased. The Secretary of Agriculture sent an expert out some time since to see if some place could not be discovered in the United States where these bulbs could be grown. He traveled in many directions and finally landed in the great State of Washington.

The very latest development in the Department of Agriculture, as I left Washington City a few months ago, was the establishment of the fact that here in the State of Washington we can grow our own bulbs, free of disease, of the very highest order, and turn our $750,000 over to the citizens of this State instead of to those of the Kingdom of Holland. Is that what you gentlemen want, or would you prefer that they be grown in Holland, or, perhaps, in the Philippines?

SUGAR PRODUCT OF INTEREST.

The only important Philippine product which I have not yet mentioned is sugar, and, unlike tobacco, sugar is primarily a trans-Mississippi product in which practically every delegate to this congress is or should be interested, for the present home industry and its future expansion will affect every one of your pocketbooks one way or the other.

In 1901 we produced in the United States proper 991,688,133 pounds of sugar. Of this amount, 864,724,100 pounds, or 87 per cent of the total, were produced from cane and beets grown in the trans-Mississippi territory, and hence, as I say, to all intents and purposes it is strictly a trans-Mississippi industry. Practically without exception every State in the trans-Mississippi territory can produce to advantage either cane or beet sugar.

What I mean to show you as to sugar is that under existing conditions the trans-Mississippi territory can and will soon produce the bulk of the 2,500,000 tons of sugar which the United States proper now imports, and that by so doing we, the West, can add $250,000,000 annually to our wealth.

I also mean to show that should Congress accede to the present demands of the Philippine Commission for the free entry of their sugar to American ports, for the introduction of contract coolie labor in the Philippines, and that vast tracts of the Filipinos' lands be granted to sugar corporations, it is inevitable that further material growth of the sugar industry in the trans-Mississippi territory must cease and that eventually the $120,000,000 to $130,000,000 already invested in the industry in the trans-Mississippi territory will be abandoned.

In 1893 the Philippines exported 261,519 tons of sugar, 100,000 tons more than all of the trans-Mississippi beet sugar factories produced in 1901.

Owing to the insurrection and the ravages of the rinderpest, the Philippine exports had fallen to 55,399 in 1901, but had increased to 108,000 tons in 1902, and the indications are that the 1903 exports will exceed 150,000 tons.

This, however, is as nothing. Her 260,000 tons were as nothing. While we make nearly 500,000 tons at home, our annual importations amount to 2,500,000 tons, which amounts to one-quarter of the world's production.

The government experts in the Philippines assert that they have a sufficient area of the finest sugar land in the world, excelling even that of Cuba, Hawaii, and Java, to produce all the sugar the world consumes. Possessing the first requisite for cheap production, fertile sugar land, they also possess the second, cheap labor, which enables them to produce sugar at an exceedingly low cost. The lowest cost of production in Germany is 2 cents per pound. In the United States, on account of well-paid labor, it costs from 3 cents to 4 cents, depending upon local conditions.

In the Philippines, in 1896, the average cost of production by the Sugar Estates Development Company, the largest producers in the islands, who had 20,999 acres in cane and produced 37,000 tons of sugar, was 95 cents per 100 pounds. This concern further states that on a small experimental tract which they gave more than usual care, they produced it at a cost of 62½ cents per 100 pounds.

I have already alluded to the crude methods of planting and harvesting by hand, without tools or implements of any kind. As to the process of manufacturing, I will quote from reports by the Philippine Commission and the Bureau of Insular Affairs of the War Department:

"The regulation sugar mill is constructed of bamboo, but very many are made of stone and roofed with sheet metal or with nipa. * * * In the manufacture of sugar the best methods are not generally employed. The natives extract the juice by means of mills of stone, wood, or iron, these being called trapiches. (Usually operated by buffalo power.)

"The juice is then collected and boiled in kettles, a little lime being added to purify it. When the boiling has reached a certain point, which is recognized by those who are expert, it is passed on to a second kettle, where the boiling is continued until it reaches a certain temperature. It is then poured into conical molds, which are placed upright, so that the molasses may drain off. These molds are placed over small jars, where they remain until the sugar has formed, it now being free from molasses.

"MANY MILLS REFITTED.

"Hundreds of these partly burned mills have been restored for active services by replacing the roof and cleaning and overhauling the machinery. A number of Americans have been able to buy these deserted mills at ridiculously low prices, and they are making a good thing out of the investment. The old animal traction machines are usually exchanged for new devices, but even with the old apparatus money is made. The American owner hires an experienced Filipino or Spanish overseer to manage things, and he usually does well.

"Prices are low, usually 2 cents or 2½ cents per pound (1 cent to 1¼ cents in American money—the present f. o. b. Philippine price, June 15, is $1.56 per 100 pounds). But the cost of production is also small, so that profits are good. Nearly all of the sugar planters, refiners, and candy makers of the islands with whom I met appeared to flourish. I know that many of the planters have their servants and wheeled vehicles and their bank accounts."

RECOMMENDATIONS OF PHILIPPINE COMMISSION.

In the last annual report of the Philippine Commission under date of Novemeber 1, 1902, six special requests are made, three of which interest the trans-Mississippi territory, and which I herewith produce:

First recommendation:

1. The establishment of a gold standard in these lands upon the plan recommended by the Commission in the report of last year, and of banking corporations empowered to issue circulating bank notes under proper safeguards.

Congress has already acceded to this demand, and the new 50-cent dollars are now being used in the islands.

If other things were equal, this act alone would give them labor at one-half what it costs us.

Recommendation No. 2:

2. The reduction of at least 75 per cent of the Dingley rates of duties upon goods imported into the United States from the Philippine Islands.

Philippine tariff reduction is a broad sounding term, but inasmuch as her coffee, rubber, hemp, sisal grass, copra, copal and other gums, cabinet woods, shells, cacao, and indigo, which form practically all of the Philippine exports except sugar and tobacco, already come in duty free, it is plain to be seen that this is simply and solely a request for a reduction of duty on these two competitive products.

Recommendation No. 3:

3. An amendment of the Philippine act so that the limit upon lands which may be sold to or held by individuals or corporations from the public domain shall be increased from 1,024 hectares to 25,000 acres, or, in the alternative, so that the government shall be given the power to lease for sixty years upon competitive bidding tracts from the public land aggregating in any individual or corporate lessee not more than 30,000.

These vast tracts are not desired or needed for anything except to create enormous tropical sugar estates for exploitation. As proof of what it is wanted for I will quote from Governor Taft's testimony before the insular committee as follows:

With reference to the sugar lands, I understand in Cuba there are plantations of 20,000 acres. The limitation inserted in this bill was 5,000 acres. I think that is too small.

Mr. WILLIAMS of Illinois. What number would you suggest?

Governor TAFT. Twenty thousand acres might be a fair limitation; that is for sugar lands.

And again:

Then with respect to the selling of large tracts, if the islands are to be developed in the sugar industry, the limitation upon the number of acres that can be sold to any one company ought to be determined with reference to the cost of the plant. I observe that the law limits it to 5,000 acres. I should think that land can be sold at auction with the minimum price, but without bringing about an abuse I think the limit might be raised to the limit of the sugar plantations in Cuba that are profitably worked.

The next recommendation is for the introduction of contract coolie Chinese labor to compete with, still further reduce the wage rate of, and take the work away from the Filipino. Before quoting the recommendation I will quote from the testimony of Gen. Luke E. Wright, vice-governor of the Philippines, as given before the Senate Committee on the Philippines, December 9, 1902:

Senator BURROWS. Then do I understand that owing to labor conditions the development of the sugar industry would be retarded?

General WRIGHT. It would be slow.

Senator BURROWS. And it would be necessary to admit cheap labor, Chinese labor, in order to make it profitable?

General WRIGHT. Yes, sir.

Senator BURROWS. If that cheap labor were admitted, to what extent might that industry be developed?

General WRIGHT. Oh, indefinitely. The islands are very rich, and both climate and soil favor the production of sugar on a large scale. There is no doubt about that.

Senator DUBOIS. Do you know how much sugar they can produce per acre as compared, we will say, with Hawaii?

General WRIGHT. By the same methods of intensive farming as are used in Hawaii?

Senator DUBOIS. Yes.

General WRIGHT. I should say they would produce as much. I am inclined to think the soil in the Philippines is fully as good and probably better.

Senator DUBOIS. That is about three times as much as we can produce per acre in Louisiana.

The recommendation for the introduction of contract coolie Chinese labor is as follows:

That an amendment be made to the Chinese exclusion act, giving power to the Government by law to admit a fixed and limited number of Chinamen into the Philippine Islands, who are certified to be skilled laborers, on the bond of the employer that for every Chinese skilled laborer employed he will employ a Filipino apprentice, and that he will return the Chinese skilled laborer thus introduced within five years after his admission to the country, and that he shall pay a head tax of not exceeding $50 for each Chinaman so admitted, to the insular government, to meet the expenses incident to the enforcement of these restrictions.

There you have the whole matter in a nutshell. In the first place the land is as rich as that of Hawaii and will produce three times as much sugar per acre as those of Louisiana and Texas or the best lands of the trans-Mississippi territory.

Second. It exists in limitless quantities.

Third. They already have several million natives who work for a song.

Fourth. They asked for and got a 50-cent dollar with which to pay their laborers and thus make 50 cents pay for as much sweat as 100 cents would if they used our currency, which can hardly be said to be in the interests of the Filipino people.

Fifth. They already get a 25-cent reduction from our tariff rates and are demanding a 75-cent reduction.

Sixth. They ask that the present restriction of 2,500 acres of land which can be held by a single corporation be raised to 25,000 acres, or 30,000 acres if leased, which would seem to favor the corporation instead of the people.

Seventh. That they be allowed to bring Chinamen in under contract because they will work even cheaper and harder than will the Filipinos, and will tend to depress the Filipino wage rate, which surely is not in the interest of the Filipino people. Grant these requests and it does not take much of an imagination to foresee the results, a vast tropical sugar estate worked by semislave underpaid natives and contract coolie Chinese. You can not accuse these high-minded American officials in the Philippines of doing their work underhandedly, not for a moment. Governor Taft frankly says:

GOVERNOR TAFT'S TESTIMONY.

Our recommendations are based upon our views of the needs of the Philippine Islands and the benefit to the trade of those islands. We are asking as much as we can get, because the more we get the better we think it will be for the islands. The effect upon the policy of the United States and particular interests in the United States that will be affected we have very little knowledge of and desire to express no opinion.

Senator PATTERSON. You would not knowingly advocate any policy that would injure the industries of the United States—your own country?

Governor TAFT. I do not think I would. We do not approach it from the standpoint of those interests, however.

Governor TAFT. Of course, these questions are usually settled by compromise, so as to injure home industries as little as possible and encourage new industries as much as possible. I do not profess to state the opinion of the commission on such a question. We are doing the best we can to develop the islands, and we want to get from Congress and all opposing interests as much as we can.

Vice-Governor Wright does not even contend that this policy which they recommend is sound. In his testimony before the Philippine committee he said:

Of course, I do not think it is proper for me to go into the question of the soundness of a policy of that sort. That is a matter, of course, for Congress, with which I have nothing to do.

They have no hesitation in telling Congress what they want and frankly state that they are not looking after American interests. We have the same right and should exercise it before it shall be too late. If you do not think this matter is to be pushed persistently before Congress and the Administration, read the first cablegram that came over the newly laid cable from Governor Taft to the President of the United States on July 4. Here is about a third of it:

It is not inappropriate to incorporate in this the first message from the Philippines to America an earnest plea for the reduction of the tariff on Filipino products (sugar and tobacco) in accordance with the broad and liberal spirit which the American people desire to manifest toward the Filipinos.

And if this not enough, consider the following from President Green, of the American Chamber of Commerce at Manila, to the President of the United States:

May your Administration speedily accomplish abolition of a tariff and temporary admission of competent labor (Chinese coolies under contract), without which Philippines can not prosper.

Forewarned is forearmed. The continuation of present conditions will mean much to the trans-Mississippi territory, and will mean that the Philippines will be developed by means of small farms for the benefit of the Filipino people, and that they will eventually produce for us those tropical products for which we now annually send $150,000,000 to foreign countries.

NATIONAL RECLAMATION ACT.

We have passed a national irrigation act: we are about to reclaim vast stretches of desert, and as true as I stand here, unless an almost superhuman effort is made, we are about to have passed Philippine legislation which will largely nullify the effect of the law we have have worked so hard to secure.

A member of his Cabinet, one well posted on this subject, said to President Roosevelt the day he signed the irrigation law:

"Mr. President, the passage of that act solves the matter of producing at home all the sugar our people consume."

"Why so?" said the President.

"Because," said the Cabinet officer, "wherever the Government builds a dam there will be erected at once one or more beet sugar factories, for beets are the greatest crop which they can grow under irrigation and ship out the product to our great centers of population in the East."

In five different trans-Mississippi States the Federal Government is to-day preparing to spend millions of dollars to put hundreds and hundreds of thousands of acres under the ditch.

When these dams shall have been built and reservoirs filled with water and the head gates shall be ready to be opened, what shall we plant or sow under irrigation, the surplus product of which we can profitably transport to great centers of eastern population?

Can we raise 2,500,000 acres of wheat under irrigation, pay freight charges, and compete in the world's markets with those who raise wheat without irrigation?

Can we raise and market the other great staples of the East: Corn, oats, rye, barley, hay? We can raise several crops of alfalfa a year, but we can not ship it to market. Can we devote 2,500,000 acres to poultry, the great barn yard crop of the East, and market our product?

Could we put 2,500,000 acres into vegetables or fruits and not glut the market?

No. I tell you, my friends, we can grow any temperate zone crop on earth, but there are few we can ship out to advantage, while the eastern farmer has a market at his door for every pound of everything he can procure.

While the market for all other crops is limited or unprofitable on account of long-haul freight charges, we have in the United States to-day a profitable market for all the sugar which can be produced from all the beets we can grow on 2,500,000 acres of these desert lands the Government is going to reclaim. Think of it, a profitable market awaiting us for all we can produce from 2,500,000 acres of desert lands. Shall we without a protest allow this stupendous market to be taken away from us and frittered away on a mere

sentimentality for a people to whom we are also giving an American market for $150,000,000 worth of products which we can not produce?

Is not that enough? Must we also give them the American market for the one great crop which we can profitably grow to the full extent of our ability? I hope not. While we all realize our possibilities let us also realize our limitations and restrictions.

I have given you the cost of production with the crude field and factory methods in the Philippines.

FREIGHT RATES.

Now as to freight rates.

As the trans-Mississippi territory manufactures practically all the sugar which its inhabitants consume, the 2,500,000 tons which we annually import is for eastern consumption and must be marketed there, whether produced in the trans-Mississippi territory or in the Philippines.

Geographically, the Philippines are 7,000 miles from our shores. Commercially, they are 25 to 37 cents per hundred pounds from New York Harbor. It costs more to ship sugar from Omaha and Kansas City to New York than it does from the Philippines, and consequently, commercially speaking, Manila is closer to New York than is the trans-Mississippi territory.

Hence, if we abolish the duty on Philippine sugar and in other ways greatly encourage its production in those islands, the price which the trans-Mississippi farmer and manufacturer must meet will be the f. o. b. Philippine price plus the cost of 50 cents per hundred for refining, plus the profit of the eastern refiners.

It will thus be seen that in order to drive home-grown sugar out of the market, refined Philippine sugar could be marketed throughout the East at a cost of $1\frac{1}{2}$ to $1\frac{3}{4}$ cents per pound. Not that consumers, except perhaps periodically, would be able to purchase their sugar for any less than they do now, but that is the price which could be made without loss to those making it to check and ruin this most promising trans-Mississippi industry.

Owing to the high price paid the American farmer for beets and the high price of American factory labor, it now costs us from 3 to 4 cents per pound to produce granulated sugar, as aginst 6 cents per pound a few years ago. Further, economists will eventually bring the cost down to between 2 and 3 cents per pound, giving the consumer sugar at 3 to 4 cents per pound, as aginst the present price of 5 to 6 cents per pound and a like price in the future if the Philippines are to be operated by a few gigantic friendly corporations.

UNITED STATES SUGAR POSSIBILITIES.

The next question is, Can we produce it if given a chance? To produce 2,500,000 tons of sugar would require the planting of less than 2,500,000 acres of beets or Louisiana or Texas cane, for the yield is over a ton of sugar to the acre.

Have we got the land? Why, almost anyone of the trans-Mississippi States could put 2,500,000 acres to cane or beets and never miss it.

Let me call the roll of the trans-Mississippi States and Territories which are already producing sugar. There are nine of them: California, Oregon, Washington, Utah, Colorado, Nebraska, Minnesota, Louisiana, and Texas. In these States there is invested in the industry over $125,000,000, and the annual product is nearly 500,000 tons, or one-fifth of the amount we annually import.

Already producing nearly 500,000 tons of sugar and being able to produce the 2,500,000 which the American people consume, the next question is as to whether or not our trans-Mississippi farmers and capitalists are anxious to extend the industry.

Besides the many new factories being erected in our sugar-producing States, Idaho, Wyoming, and Arizona have raised the money and decided to build for next season, while Nevada, Montana, Kansas, Iowa, North Dakota, and South Dakota are taking steps to build, leaving only five States and Territories of the entire trans-Mississippi country where, so far as I know, no move is being made to join the ranks of sugar-producing States.

Having shown that we can produce in the trans-Mississippi territory that 2,500,000 tons of sugar which we now annually import, that we are already producing nearly 500,000 tons annually, that nearly one-half of our States are already engaged in the production, that others are preparing to enter the field and still others are anxious to enter it, the next question is, What would it be worth to our merchants, our farmers, our real estate men, our capitalists, our laboring men, our railroads, and our people generally?

In the first place, it would mean the erection of 600 new factories at an initial cost of $300,000,000, thus giving profitable employment to that amount of western and eastern capital.

Our trans-Mississippi farmers would have their incomes increased by $125,000,000 a year for growing 25,000,000 tons of beets at $5 per ton. Our mechanics and laborers would get $34,000,000 a year, our coal mines would get $14,000,000, our coke ovens $10,000,000, and so on all down the line, the entire 2,500,000 tons returning us annually the enormous sum of $250,000,000 at 5 cents per pound.

Last year I showed this Congress that where beet-sugar factories had been erected in the trans-Mississippi territory the assessed valuations of town property had increased on an average of 139 per cent, population 89½ per cent, value of residence lots 59 per cent, of business lots 188 per cent, and that the condition of all trade and farming interests had been improved almost beyond computation.

I wish now to call your attention to what it does for these great railroads which have been such a factor in building up the trans-Mississippi territory.

The manager of a small factory in the East gave me the following memorandum of what he paid out in freight last year:

30,000 tons of beets	$22,500
6,000 tons of coal	9,000
3,000 tons of lime rock	3,000
2,000 tons of molasses	6,000
20,000 tons of pulp	12,000
8,000,000 pounds of sugar	9,600
Coke, lime, seed, supplies, etc	1,500
Total	63,600

And, as I say, this was a small factory. Last year the factory at Oxnard, Cal., paid out for freight the enormous sum of $540,000. This is what the factory management paid out for freight. It does not include what was paid out by the merchants, of whom there were none until the factory was erected there. The amount of money which the railroads receive from a town for freight affords a pretty fair basis by which to judge of the town's prosperity and I will give you an illustration.

ATTRACTS THE PEOPLE.

In 1899 the entire freight receipts of the Santa Fe Railroad from Rocky Ford, Colo., amounted to $97,000.

In 1900 the American Beet Sugar Company erected a beet-sugar factory there.

In 1902, two years later, the town had grown from 1,500 to 2,500 people, 400 new buildings had been erected, and the freight receipts of the Santa Fe road had jumped from $97,000 to almost $600,000, an increase of over 500 per cent in two years. Anyone in the habit of studying industrial conditions can easily imagine the tremendous increase of business which the location of this factory brought to Rocky Ford.

To locate 600 new factories in the trans-Mississippi territory, basing the increase on the outfreight alone from Rocky Ford, would mean that our great western railroads would secure in increased freights $300,000,000 annually. If those 600 factories are erected in the Philippines neither you nor the railroads will get a cent out of it, for the Philippine sugar will all go direct to the eastern seaboard to be refined, just as it has in the past.

The question is, Shall we erect 600 new sugar factories in the Philippine Islands or in the trans-Mississippi territory?

Would the gentlemen living in the sugar towns of California, Utah, Colorado, and other trans-Mississippi territory like to see their sugar factories transported to the Philippines? Would the gentlemen from the Salt River Valley prefer to see their new sugar factory, now being erected at Glendale, abandoned and shipped to the Philippines?

How about the factories now being erected at Fort Collins, Windsor, and Longmont, Colo.; at Idaho Falls and at Garland, Utah? How about the projected factories at Wheatland, Wyo.; at Fountain, Sterling, Brighton, Denver, Lamar, and Fort Morgan, Colo.; at Garden City, Kans.; at Hershey and North Platte, Nebr.; at Blackfoot, Boise City, Caldwell, and Lewiston, Idaho; at Prosser and at Yakima in this State, and the scores of other projected plants in the trans-Mississippi territory?

Does anyone suppose for a minute if we enable granulated sugar from the Philippines to be laid down at a cost of 1¼ to 2 cents per pound, while it costs from 3 to 4 cents to produce it in this country, that capital will continue to flow in to the home industry and develop the trans-Mississippi territory?

I think there can be no question as to both our desire and our ability to produce this $250,000,000 worth of sugar in this trans-Mississippi territory, or of their ability to produce it at a still lower cost in the Philippines.

The remaining question on this subject is, Will our legislators yield to the demands coming from the Philippines and enact such legislation as will steal from you this great industry, transfer it to the Philippines, rob the Filipinos of their lands, and enslave them for life?

WHAT WE HAVE DONE FOR THE PHILIPPINES.

And so a word as to what we have done for the Philippines legislatively and as to what the Philippine Commission is asking us to do, and I will close. American products entering Philippine ports pay the same duty as is paid on like products from all other countries. When the rinderpest and surra decimated the ranks of their work animals the American Congress appropriated $3,000,000 and handed it over for their relief.

The Department of Agriculture has established a most efficient scientific station in the Philippines to teach the natives American agricultural science. March 8, 1902, Congress reduced the tariff on Philippine products entering the United States to 75 per cent of the duty collected on like products coming from other countries.

All customs collected on Philippine products entering the United States are converted into a special fund, "and paid into the treasury of the Philippine Islands, to be used and expended for the government and benefit of said islands," thus reducing their local taxation by that amount.

Philippine products destined for the United States are not subject to any export taxes, the producers or shippers thus securing a double advantage.

July 1, 1902, Congress passed an act authorizing the Philippine government to issue bonds for the purchase of the friar lands which had given them so much trouble.

In the same act Congress restricted the ownership of land by any one corporation to 1,024 hectares, or 2,500 acres, thus preventing the absorption of the public domain by a few large exploiting corporations.

Congress also authorized the Philippine government to coin and issue 50-cent dollars, inasmuch as the employers of labor had been in the habit of paying them off in Mexican 50-cent dollars, and it was represented that if obliged to pay their labor in standard dollars it would double the price of wages, which might be of great advantage to the people generally, but which it was represented would be ruinous to those who employed them.

In brief, this covers the most important legislation which we have enacted for the islands.

NEW LEGISLATION ASKED FOR.

It is not to be supposed that the "little brown men" of the Philippines are the animus for the prolific demands which have been and are being made on this Government. This is not the case. They are to be the victims as well as you. They come from a source more cunning, more scheming, from men of our own soil, color, flesh, and blood. Men in hiding when the nation needs them. Parasites in times of peace and coast wreckers in times of distress, wolves who hover in darkness, attracted by the scent of spoils.

I am not referring to legitimate capital, which has been one of the most potent factors in developing America, both East and West. I am referring to that class of capital which asks for special legislation and special favors from the Government which will enable its owners to thrive and fatten at the expense of their fellow-men and the industries of their country.

When you lent your influence, your money, your blood, and your treasury freely and magnanimously to those Spanish isles of both Indies, purely in the interest of humanity, you might have been pardoned the feeling that a debt of gratitude had been created. There ought to have been no question as to who was the creditor and who the debtor.

After freely spending something over $350,000,000 in this laudable purpose, is it not a little presumptuous to find so closely following this event, with the details still fresh, that you are the debtor, your industries mortgaged in addition and foreclosure proceedings begun. You were content to sleep on your laurels for a good deed done. You are to awake and find that instead of a recommendation you have signed a promissory note.

They are now asking in the Philippines for a right to buy large tracts, to import contract labor from China and other coolie districts, concessions of tariff, 50-cent dollars with which to pay their laborers, and large appropriations for improvements and little or no internal taxes, and in addition ask for your market.

This means that the native Filipino will not be able to get the land or have a home. He is to work for coolie wages and be paid with a 50-cent dollar. This all to take place in the name of humanity and under Old Glory. Now, these are the loyal, frugal capitalists of our own country. They could invest in the development of the resources of their own country, for opportunities are on every hand. The arid West would absorb many millions of it and return a good profit.

But this would require the payment of civilized wages and the expenses of other civilized conditions. They prefer to go outside, and by schemes and pulls avoid any contribution to our labor or institutions. They are not creative of any labor or wealth, benefits to our system, but ask to come in and enjoy with the rest of you the markets justly belonging to you who are the brawn and sinew of the country's resources and the loyal guardians of its power.

With Philippine labor to be had for almost nothing and paid in a debased currency, remove or greatly reduce the tariff on Philippine sugar and you will practically nullify the effect of the national irrigation law, for the production of our sugar will bring us more wealth than all of our other irrigated agricultural products put together.

I am arguing neither protection nor free trade, but as long as the smokestacks of New England are protected from the pauper and semislave labor of the world, the fields of the trans-Mississippi territory are entitled to like protection from both Europe and the Orient.

Let us encourage our "little brown men" to produce those vast quantities of purely tropical products which we can never produce, and let us hand down to the posterity of the trans-Mississippi territory the magnificent inheritance of producing the sugar which the American people consume.

PHILIPPINE TARIFF LEGISLATION AND ITS EFFECT ON IRRIGATION AND BEET SUGAR.

[Address before the eleventh annual session of the National Irrigation Congress, held at Ogden, Utah, September 15–18, 1903.]

The United States is a great country. I have often wondered what must be the impressions of Britishers who, for the first time leave their island, land at New York and, without lay-overs, travel through to the Pacific coast. I recently made this observation to a prominent Englishman I was entertaining and he said he could at least inform me as to the conclusion of one of them. Two of his untraveled countrymen arrived at New York and began the trip in question. They traveled on and on, day after day, and finally, when they were out somewhere between Cheyenne and Ogden, one of them, who had apparently been in a brown study for some minutes, remarked in all seriousness to the other: "James, do you know I have lost all my admiration for Columbus? A man who could fail to discover this country would be a damned fool, don't you know?"

It is not an unusual thing for all-wise Providence to reserve the greatest blessings and bestow them on this latter-day people.

This great country, the richest of all the earth in natural resources, was absolutely unknown to all the wise men of the world until a few centuries ago.

Our forefathers who landed on and populated our eastern shores were content with their new home, and for generations knew literally nothing about the country to the west of the Allegheny Mountains. I regret to say that many of their offspring still know just about as much about it as did their great-great-grandfathers.

The school geographies of my boyhood classed the entire western portion of the Mississippi Valley as the Great American Desert, and the country to the west of the Mississippi Valley was considered as being practically worthless.

To-day I have numberless eastern-born friends living on the Pacific coast who will not admit that the Lord ever got east of the Rocky Mountains.

Eastern people still yarn it on us. A few years ago Bob Ingersoll and Doctor Talmadge happened to be going overland on the same train. As they neared the Needles, Ingersoll turned to Talmadge and inquired: "Doctor, you say the Bible says the Lord made the earth in six days?" "Yes, sir." "And you believe it?" "Yes, sir." "And that on the seventh day He rested?" "Yes, sir." "And you believe it?" "Yes, sir." "Well, Doctor, don't you think it would have been a good plan and that this would have been a good place for Him to have put in that other day working?"

Whatever the relative advantages of the East and West may be, we know that no fences or gates are necessary to prevent the western people from flocking to the East, while all the fences and gates that could be erected would not suffice to keep many well-informed eastern people from migrating to the West.

This arid western America is destined to become the richest and most highly civilized portion of the globe.

It is a significant fact that practically all of the great ancient civilizations of the world had their birth in irrigated countries, where a given area will support the greatest number of people. The Baby-

lonians, Phoenicians, Persians, Egyptians, and others were cradled in the sands of the desert.

Arid America possesses all the advantages of other desert countries and the additional, overwhelming, tremendous advantage of being not in or near the Tropics, but in the North Temperate zone, the zone which is the natural habitat of the Anglo Saxon race, which for centuries past has furnished the brawn and sinew and the brains of the world. Arid America has the still further advantage that it is not separated by sea, but lies alongside of and is part and parcel of the home territory of the greatest, the richest, the most progressive branch of the Anglo Saxon race, the American people.

Great Britain colonizes in the far away deserts of Africa, of India, of Australia, all located in latitudes different from that of the mother country.

The American colonist boards a modern railroad train and soon reaches, in the same latitude he was raised in, if he likes, the New Eldorado of arid America.

My friends and fellow-workers for arid America, these are my reasons for predicting such a brilliant future for this country we all love so well.

As to our possibilities for agricultural development, the late Professor Powell of the Smithsonian Institution, than whom there was no better posted man on the subject, stated that in arid America we have enough arable land and enough water to, when married, support in affluence—in affluence, mind you—70,000,000 of people.

The American Congress, in passing the National Irrigation Act, issued the license for the marriage of our streams to our deserts. Through the recent selection made by the Interior Department, the nuptial ceremony is about to begin in five States and Territories, and let us all pray that the wedding bells will not cease ringing until homes shall have been provided for those 70,000,000 of people.

EMIGRATION TO CANADA.

The next question is, where are those 70,000,000 of people to come from? No less an authority than Senator Allison, of Iowa, estimates that Iowa alone has sent over 30,000 of her sons and daughters to the Canadian Northwest during the past two years.

Think of it, while the East is being inundated by a million immigrants a year, largely the vicious, ignorant pauper scum of southern Europe, a single State is annually sending 15,000 of her brightest flowers to a foreign land, whose immigration agents openly state that they expect an immigration of 300,000 people from the United States during 1903.

There is no true American who would not prefer to live under the Stars and Stripes. There is no portion of the British Northwest which excels arid America as a place in which to live.

As long as semi-arid America has a single unpopulated desert this state of affairs should be impossible and we must see to it that it is rectified; that the footsteps of those who are the flower of our land shall be turned to semi-arid America and not to the British Northwest. To do this we must retain every one of our present advantages and must devise and offer new ones. It is a subject worthy of our most careful consideration, and we must and will think it out. As

Commander Booth-Tucker has so plainly pointed out, colonization is the necessary adjunct of irrigation and without it irrigation is a failure.

AMERICAN CAPITAL IN CANADA.

The next question is the matter of capital, which is required to induce this colonization and with the colonists develop our resources, not simply by putting the water on the land, but after the land and water shall have been married, to produce surplus crops which we can market. For, if we stop with this marriage, our work will be abortive, as it has been in many irrigation enterprises throughout this western country. We must produce something, and we must produce a surplus of something which we can ship to the East and trade for those eastern commodities which we must have, and which we can not produce to advantage. Now as to this necessary capital. The eastern and Mississippi Valley banks are full of it, and that, also, is flowing into the country to the north of us. Senator Allison and others assert that during the past two years not only has the State of Iowa sent 30,000 people to the British Northwest, but that she has sent $60,000,000 to the same territory for investment, and this is but an indication of what other States are doing in the same line.

I hold in my hand the reports of two of our consuls-general to Canada, one at Montreal, the other at Fort Erie, one under date of October 22, 1902, the other under date of June 26, 1903, in which these American consuls give a list of eighty-four new enterprises which are being established in Canada by American capital. In the case of forty-four of these enterprises, among them some of the largest, the capital is not stated. In the case of the other forty, the capital is given, and it amounts to the enormous sum of $80,960,500. The same ratio would show that over $160,000,000 of American capital is being put into these eighty-four Canadian enterprises, and this is presumed to be but a mere fraction of what our people are investing there. Nor is this all. The list contains such names as Claus Spreckels, Marshall Field, N. B. Ream, George Westinghouse, Armour, Swift, and others, and they are going into coal, copper, and iron lands, sugar refining, oil, marble, lumber, water power, agricultural lands, hotels, reduction works, manufacturing, and a multitude of other things which in semi-arid America offer the profitable investment of capital.

AMERICAN CAPITAL GOING TO THE TROPICS.

Since the Spanish war you have heard comparatively little about American development investments. Our capital, and many of our newspapers, seem to be bewitched with other countries. You hear about reciprocity with Canada and the investment of hundreds of millions of American money therein. You hear about Porto Rico, the plantations of which have been purchased by American money. You hear about Cuba, where $100,000,000 of American money has purchased 75 per cent of the sugar-producing lands and factories and all of the large cigar-manufacturing enterprises. You hear about the Philippines, where American capital is only awaiting the removal of a few legislative restrictions, when it will be ready for investment

by hundreds of millions. You hear of all this, you know of all this, but you hear little about capital in our own country, except in the consolidation of existing industries into trusts and the merging of existing railroads, which is not creative, but speculative.

How long is this matter of foreign investment to go on, and the great possibilities of arid America to be relegated to the background?

Our capital has virtually absorbed all the Porto Rican industries and the bulk of the leading industries of Cuba. It will continue to flow into Canada if not arrested. Three hundred millions of it will go to develop the sugar industry of the Philippines instead of the sugar industry of arid America, if the contemplated changes are made in the present laws. Can we stem the tide and swing these people and this capital to semi-arid America? I believe so, if we work as a unit. If we can, then how will we employ those people and that capital? With all of our advantages we have some disadvantages. First, we can not, under irrigation, produce for shipment the great eastern staples, such as wheat, corn, oats, barley, rye, and cotton, pay the necessarily high, long-haul freight charges, and compete in the markets of the East, or of the world, with similar products grown in the Mississippi Valley and on the Atlantic coast. The same is also true of poultry, eggs, butter, and many other crops for which the eastern farmer finds a ready market at his door for every surplus pound he raises. We of semi-arid America are barred from raising these crops, except for our own local use. If the cost of irrigation did not prevent, the freight charges, to bring our products to the great centers of population, would, be our railroads ever so liberal. Not only this, but all of these crops are already being grown in sufficient quantities not only to supply our nation, but for export to the extent of over $850,000,000 annually.

BEET SUGAR.

There is one crop we can grow to perfection and in such quantities as to employ all the people and all the capital we can induce to come here for many years to come, and for which we can find a profitable, ready, home market in the East, which is now supplied by foreign importations. Last year the United States importations of raw sugar amounted to over 2,600,000 tons. The cost of this sugar to the consumer, which includes the cost of the raw product, the customs tariff, the cost of refining, packages, profits, and brokerage, is about 5 cents per pound, or, for the 2,600,000 tons, $260,000,000. No use for me to expatiate on the superior merits of semi-arid America as a sugar-producing country; you all know them. Here, then, is a profitable home market awaiting us for $260,000,000 worth of one crop we can grow to perfection under irrigation. Now, what else can we produce in great quantities and find for it a profitable home market? Coming over from Los Angeles I heard an Arizona delegate extolling the Salt River Valley as a cantaloupe country. Said they could produce all the cantaloupes the eastern people could consume and that the producers could set their own price. I agree with the first part of the statement, but how many million dollars' worth of cantaloupes could be marketed before the market would be

glutted? Two hundred and sixty million dollars' worth of cantaloupes would feed the American people for many, many years; probably for more years than any of us will live. Another delegate would turn semi-arid America into a great stock ranch, but as we are already large exporters of meats and meat products, we must compete in foreign markets with Argentina and other countries. Still another delegate was figuring on sending vast quantities of potatoes and other vegetables to our eastern markets. Another was imbued with the idea of raising fruit, but, with the exception of a few specialties, the East raises all the fruit it consumes. All of these ideas are excellent, and we should expand the production of every one of these products; but let us not deceive ourselves as to the extent of the market. The present profitable home market for sugar is greater than it is for all other things combined which we can produce—yes, many times over.

PROGRESS OF THE BEET SUGAR INDUSTRY.

Is the beet sugar industry growing? Fifteen years ago we produced 1,600 tons of sugar from beets, the first time in our history. Last year we produced in round numbers 200,000 tons, worth, at 5 cents per pound, $20,000,000. Ten years ago it cost 6 to 10 cents per pound to produce it. To-day it costs 3 to 4 cents to produce, while Germany produces it at a cost of 2 cents per pound. Our tonnage per acre has nearly doubled, the sugar content of our beets has increased 50 per cent and our extraction has almost doubled, while the factory expense has been nearly halved. Every indication points to a still cheaper cost of production, but it takes time, for it is a scientific industry from the preparation of the soil to the drying of the finished product ready for the table. In the whole history of the industry not a single American factory has started up with a full run of beets, a full complement of skilled farmers, or a full complement of experienced factory operatives. All have to be trained and each locality presents its own peculiar conditions, which experience only can master. Nevertheless, while we had but 6 factories six years ago, we now have 54—largely in the West—and others are projected. As a rule the irrigation farmers can secure far greater returns from the culture of sugar beets than from any other important crop. Capital invested in beet sugar factories yields a good return on the investment. The location of a factory doubles and quadruples the value of the contiguous farm lands and town lots, and builds up flourishing towns in which the merchants, bankers, and real estate men and others are universally prosperous.

I venture the assertion that there is not a delegate here from semi-arid America who would not contribute several hundred dollars from his own resources to secure the erection of a beet sugar factory in his home town. Without question this industry is the greatest inheritance of the farmer, merchant, and capitalist of semi-arid America. Five to six hundred factories will be required to produce the two and a half million tons of sugar which we now import annually and the sugar beet territory extends from our eastern limits to the Pacific and from British Columbia to the Republic of Mexico, hence we are all interested in it and all have a chance to get our proportion of those 600 factories.

PHILIPPINE MENACE.

I will say, however, that this great inheritance is in jeopardy and without united action we are liable to lose it.

In the Philippine Islands there is enough well defined cane sugar land to supply the entire world with all the sugar it consumes. The islands have exported in a single year more sugar than all of our fifty-four beet sugar factories produced last year. With labor at 8 to 10 cents per diem, the largest sugar corporation in the island was able in 1896 to produce sugar from 22,000 acres of cane at a cost of 95 cents per 100 pounds, while from an experimental plot they produced it at a cost of 62½ cents per 100 pounds. The freight rate from Manila to New York is but 25 to 37½ cents per 100, or less than the rate on sugar from Omaha or Kansas City to New York. The islands asked for a reduction of American tariff rates on Philippine sugar and tobacco and Congress granted them a 25 per cent reduction. The islands asked for a debased currency with which to pay their ignorant labor and Congress gave them a 50-cent dollar.

Congress is now being importuned to grant them practically free admission for their sugar and tobacco into the United States markets; to withdraw the operation of our contract labor laws so far as the Philippines are concerned, and allow the introduction of contract coolie, Chinese labor, and to increase the number of acres which a single corporation may hold, from the present limit of 2,500 to 25,000 acres, in order to encourage the establishment of vast sugar estates, to be operated by the cheapest semislave labor in the world and compete with our well-paid American labor.

Once let Congress grant the concessions which are now being asked for the Philippines and the 600 beet sugar factories which we hope to erect in arid America will be erected in the Philippines and our sugar will be produced by semislave Asiatics. The princely inheritance of supplying the American people with the $260,000,000 worth of sugar now grown in foreign lands belongs to arid America and not to Asiatic islands, and if we are to save this inheritance we must let our legislators know that we are claiming it and must fight for it in the American Congress.

The production of sugar is not as yet a great industry in the Philippines. At present the value of their sugar exports constitutes but a mere fraction of their total agricultural exports, of which hemp alone forms over 69 per cent. We annually consume over $150,000,000 worth of purely tropical products of which we can never hope to produce a pound, and all of which grow to perfection in the Philippines and form the bulk of her exports.

Without injury to any American industry, we can and should encourage the Filipino to produce these noncompetitive products which we now purchase of other countries and for which we can offer an unlimited market at all times.

If with or without reason any of our Western Senators or Congressmen decide to vote for Philippine legislation which is inimical to our interests, let them do it with their eyes open, fully understanding that it is against the express wishes, desires, and requests of their constituents, and let them take the consequences. You can not afford to sit idly by, lose your greatest industry, and then be told that it was done

through either ignorance or inadvertence. To be safe, you must put your legislators on record.

Resolution unanimously adopted by the 1903 congress, assembled at Ogden, Utah, September 15 to 18.

Whereas the culture of sugar beets is already one of the most important industries of the arid West; and

Whereas our home market now requires the annual importation of over $100,000,000 worth of this commodity, the most natural product that can be produced under irrigation, and shipped in great quantities to our large centers of Eastern population; and

Whereas under the national irrigation act the culture of beets will afford our greatest quick money crop; and

Whereas it is being urged that the United States Congress further stimulate the sugar industry of the Philippine Islands by reducing our tax upon Philippine sugar, by increasing the present limit of 2,500 acres which individual corporations can now hold to 25,000 acres, and by the introduction of contract coolie Chinese labor; therefore be it

Resolved, That we hereby protest against the enactment of any legislation which will tend to arrest the full development of the American sugar industry by extending further concessions to the employers of cheap Asiatic labor; that we are unalterably opposed to the introduction of contract coolie labor wherever the American flag floats, and that legislative agitation or attacks on the sugar interests of this country should cease to the end that this great industry may develop in common with all our other great industries.

IRRIGATION AND BEET SUGAR.

[Address before the fourteenth annual session of the National Irrigation Congress, held at Boise, Idaho, September 3–8, 1906.]

The art of modern irrigation can aptly be compared to the various ranges of mathematics. The early settler who constructed a dirt ditch that carried but a fraction of the water which flowed by at the dryest period of the year and allowed the balance of the stream and all of the flood water to go to waste had scarcely scanned the rudiments of the "arithmetic of irrigation."

When vast private capital comes to our aid and we not only utilize the ordinary flow of our streams, but construct expensive reservoirs in which to store the flood waters, we may be said to have reached the algebra of irrigation.

When the Federal Government was induced to turn its attention to our irrigation problems and not only construct dams and reservoirs and ditches, but to preserve the forests on our great watersheds and thereby conserve the moisture, we reached the "geometry of irrigation."

But geometry is not the highest science of mathematics. To master a still higher form of it, however, it is necessary that one first master arithmetic, algebra, and geometry, and to master the science of irrigation it is also necessary that one first master the more rudimentary forms of this empire building work.

It is not enough that by forests we shade the snowfall from the direct rays of the sun; that as the snow finally melts we impound the streams in reservoirs; that we lead the waters out over the thirsty

soil; that we thereby produce in abundance all the crops we need for local consumption; all this is but the lower mathematics of irrigation. For our comfort and for luxuries we need and must always need thousands of articles which we do not and will not produce, and in order to secure those articles we must produce something which the outside world needs, something for which there is a practically limitless market, something which we can transport long distances and there exchange to advantage for the articles we require but do not produce. The production of such a crop is to the science of irrigation what infinitesimal calculus is to mathematics—the very apex, the crowning glory of the science. A college professor might tie us all up on infinitesimal calculus as applied to mathematics, and many of you might tie me up on it, but as applied to irrigation, I propose to make it so plain in one lesson that "he who runs may read."

POPULATION AND TRANSPORTATION.

It was but a few years ago that the center of our population was located east of the Allegheny Mountains, but it has moved steadily westward until to-day it is in the center of the Mississippi Valley. Realizing how small a unit of land will maintain a family in arid America, I believe the time will come when the United States will have as great a population under irrigation as under rain conditions, and then the center of population will be located at the eastern base of the Rocky Mountains. But unfortunately this will not come in your time or mine, and in any event we must always transport much of our surplus crops thousands of miles to eastern markets and ports of export. We have no problems as to productivity or perfection of product, and thus it is that our one great problem in the development of arid America is that of transportation of our surplus products.

PRODUCTIVITY OF ARID AMERICA.

Without fear of contradiction, I venture the assertion that in arid America we can produce more tonnage to the acre and a superior quality of each and every agricultural and horticultural product that is grown in the United States than can be produced in any of the humid States. We produce practically all farm, garden, and orchard crops to a perfection rarely dreamed of in other portions of our domain, but there are only a few of them which it pays to ship out.

Our local market for minor crops is comparatively small, owing to the fact that the population is sparse and to the further fact that so large a proportion of our people grow what small crops they consume, whether they occupy a 10,000-acre ranch or a 50-foot town lot.

We ship out some vegetables and fruit, but the market for anything but citrus fruit is comparatively limited. All America produces fruits and vegetables, and a few hundred thousand dollars' worth of any one variety dumped onto the eastern market at one time would result in reducing the price to such an extent that the product would not bring enough to pay the freight on it.

As to staples, we can raise more bales of cotton to the acre than can the South, and far more bushels of wheat, corn, oats, rye, and barley than can the humid States of the Mississippi Valley. The average yield of wheat per acre in the United States for the past ten

years has been 13.4 bushels, and under irrigation we can raise 40 to 60 bushels per acre; of oats 29.1, and we can raise 100 to 125; of barley 25, and we can raise 75 to 100; of corn 24.9, and we can raise 75 to 100 bushels. We can and do supply all the cereals our local population consumes. We ship out a limited quantity of cereals from the inter-mountain States, but, as a rule, we can not produce these crops under irrigation, transport them long distances to our great centers of population, and there sell them at a profit in competition with like products raised in the Mississippi Valley.

To-day wheat is worth 70 cents per bushel, or $1.16 per 100 pounds, in Chicago, but it costs 50 cents per 100, or 43 per cent of its delivered price, to transport it from Utah to Chicago, leaving the Utah farmer less than 40 cents per bushel delivered aboard the cars. Barley in Chicago is worth 38 cents per bushel, or 80 cents per 100 pounds, and it costs 50 cents per 100, or 62 per cent of its delivered value, to transport it from Utah to Chicago, leaving the Utah grower less than 14 cents per bushel, f. o. b. Oats are worth 31 cents per bushel, or, say, $1 per 100, and the freight is 55 cents, leaving the Utah producer less than 15 cents per bushel for his crop.

The best apples are worth $2.50 per barrel in Chicago, or $1.60 per 100, and the freight is $1 per 100, leaving the grower but 93 cents per barrel, or less than 23 cents per 40-pound box for his fruit. Should we be forced to produce these crops in great quantities in order to exist, doubtless the railroads would eventually grant such rates as would enable us to market them in Chicago, in New England, and in Europe in competition with the West and South. This would mean a narrow margin of profit to us and to the railroads, a sharp competition with our eastern farmers, the consequent lowering of price for their staple crops, and the building up of our prosperity at their expense.

We feel that we have the right to build up and develop arid America, and we are fully determined to do so; but we are neither anxious nor desirous of waiting a decade for lower freight rates, or of injuring the markets of our eastern friends and brothers by flooding them with all sorts of competitive crops produced by the magic of irrigation.

Separated by thousands of miles from our great centers of population, our thought should ever be to produce for shipment those crops which bring a high price per pound, thus rendering a high freight rate relatively low as compared to the selling value of the product. It is the following out of this principle which enables California to profitably market in the East over 50,000 carloads of choice fruits, nuts, wines, and other products.

Practically all of these California products are produced more cheaply with low-priced labor on the shores of the Mediterranean than they are in California, and the water freight rate from Mediterranean ports to New York are about one-tenth of the rail rate from California on the same products. But so long as present customs tariffs remain in force, California will continue to reap a golden harvest from the sale of her high-priced products.

The Pacific coast is raising millions of bushels of grain for consumption in China and Japan, but since the termination of the Russo-Japanese war great areas of wheat are being sown in Manchuria and Korea, the most modern flour mills are being installed, and that

country, with a fertile area almost as great as the total area of all the Pacific coast States and Idaho and Wyoming, will soon supplant our Oriental market for grain.

ALFALFA AND SUGAR BEETS.

There's not a person familiar with irrigation in the inter-mountain States, who is so ignorant of conditions as to deny the fact that should we eliminate alfalfa and sugar beets from our equation we would cut out the very heart of our agriculture, ruining not only our present prosperity, but all chances for the rapid development of arid America. As yet there is nothing to take the place of these two crops and afford us a farm product which we can dispose of in vast quantities and thereby secure from other territory the money to exchange for their products which we require but do not produce. We can live among ourselves, but unless we can produce something which other portions of the world require and can find a market for it, we can not prosper and develop. Why is it that the prevailing crop throughout the mountain area of arid America is alfalfa, a crop which is ordinarily worth about $5 per ton, or 25 cents per hundred? It is a rare thing for us to put a bale of alfalfa on a freight car. We can't ship out a crop worth but 25 cents per hundred. Fortunately, however, we can feed it to stock, and the stock is worth 4 to 7 cents per pound in Kansas City and Chicago. Alfalfa as a direct shipping product would be a flat failure in arid America, but when, by feeding it, we secure a resultant value 2,000 per cent in excess of it, it becomes our principal crop, and brings us from the outside world the money necessary to purchase those articles we need but do not produce.

In contemplating any great expansion of the stock industry in arid America it would be wise to consider the fact that millions of American farmers throughout all the States of the Union are raising stock, and that they already produce all the meat products the American people consume, and in addition an annual surplus valued at nearly $200,000,000, which has to be exported and marketed in competition with the stock from South America, Australia, and Canada.

AN IDEAL CROP.

It then follows that if we are to develop arid America at a rapid pace and cause little or no injury to any other portion of agricultural America, we must have some other crop in addition to those already discussed. We should have,

First, a crop which is adapted to practically all portions of arid America.

Second, a profitable crop for the farmer to raise.

Third, if possible, a crop which reaches a higher state of perfection in arid America than elsewhere in the United States.

Fourth, a crop which can be produced more cheaply in arid America than in other portions of the United States.

Fifth, a crop for which there is an extensive and a growing market.

Sixth, a crop which commands a high price per pound.

Seventh, a crop which will rotate well with alfalfa and the cereals and not deplete the productiveness of our soil.

Eighth, a crop the cultivation of which will increase the acreage value of our irrigated farms.

All of these conditions are fully met in the one product—sugar.

Let us take these points up seriatum.

First. At an expense of over $40,000,000, 38 beet-sugar factories have been located in the States of California, Oregon, Washington, Idaho, Montana, Utah, Colorado, Kansas, and the Territory of Arizona, leaving only Nevada, New Mexico, Wyoming, and the arid portions of Texas, Oklahoma, Nebraska, and the Dakotas without factories, and in all these States they have been grown with success experimentally, and the crop will thrive there as well as in the States which have factories.

Second. This year the farmers of these States will receive $20,000,000 for their crop of sugar beets, from which will be produced 400,000 tons of refined granulated sugar, the gross returns to the farmers running from $60 to $125 per acre, with an average expense of production of $35 to $40 per acre. The net profits in scientific sugar-beet culture exceed the gross returns from any other crop our farmers can raise for shipment in large quantities.

Third. Owing to our vast amount of sunshine, our cool nights and hot days, beets grown in arid America are richer in sugar and higher in purity than those grown elsewhere in the United States or in Europe.

Fourth. Owing to our absolute control of moisture conditions and the richness of our soil we produce a greater tonnage of beets per acre than is produced elsewhere in the United States, and consequently can produce them at a less cost per ton.

Fifth. In addition to consuming all the sugar produced from American-grown beets and from the cane of Louisiana, Texas, Porto Rico, and Hawaii, the people of the United States last year consumed 1,840,466 tons of imported sugar, for which in its raw state they paid foreigners over $97,000,000, and this imported sugar, after adding freight, insurance, import duty, and cost of refining, cost the consumers over $193,000,000.

Seventh. Alfalfa is an ideal crop to rotate with sugar beets, and there is no crop known to agricultural science which has such a wonderful effect on the productivity of the soil as sugar beets when rotated with cereal crops. I have the record of 35 German farms of 500 to 1,000 acres each for twenty years prior to the advent of sugar-beet culture and for twenty years subsequent to the advent of sugar-beet culture, when one-fifth of the total acreage was planted to sugar beets. In all cases the remaining four-fifths of the acreage produced more of all other crops than did the entire five-fifths prior to the introduction of sugar beets, the average gain of all the farms for all the crops being 48.9 per cent on four-fifths of the acreage.

Eighth. According to the Department of Agriculture, the average increase in value of all the farm lands in the United States from 1900 to 1905 was $7.31 per acre. This is but one-sixth the increase in value of all western beet-sugar lands during the same period, as is shown by the following extract from a letter, written to me by the honorable Secretary of Agriculture, February 16, 1906:

> In the United States beet culture has occasioned a large increase in the value of farms devoted to that crop. Recent returns received by the Department as to the value of farm lands in 1905, as compared to their value in 1900, show an

increase in the five years mentioned in the sugar farms of the North Central States of $11.89 per acre, and in the sugar farms of the Western States of no less than $42.49 per acre. For the entire country the average increase in the value of sugar farms was $12.34 per acre, an increase which exceeds that of all other classes of farms except fruit farms.

The fact is that the increase in value of western sugar farms from 1900 to 1905 exceeded the total average acreage value of farms and farm improvements in every State in the Union, except six in 1900, according to the census returns.

It will thus be seen that sugar beets fill every requirement mentioned for the development of arid America, and I defy anyone to name any other crop or any dozen crops which will fill them.

Of our sixty-six American beet-sugar factories, thirty-eight, or 60 per cent, are located in arid America and on the Pacific Coast. The Department of Agriculture estimates the present crop of American beet sugar at 518,000 tons, and that 400,000 tons of it will be produced west of the Mississippi River. Based on the present output per factory, it would require 230 additional factories to produce the sugar we now import from foreign countries. Arid America now produces four-fifths of the entire American beet-sugar crop, while the Eastern States produce the remaining one-fifth. Should this ratio continue until importations cease, it would mean the construction of a million-dollar sugar factory in each of 184 of our irrigated sections. It would mean the annual consumption of 73,000 tons of beets by each factory, for which the local farmers would annually receive some $350,000. It would mean that the cash value of the 25,000 acres of rotated sugar-beet land surrounding each factory would in five years be enhanced by over a million dollars, thus adding nearly $200,000,000 to the value of the farms of arid America. It would mean that the farmers of this arid country would annually receive $65,000,000 from the sale of this single crop. It would mean that the East would pour out to our farmers, our laborers, our mechanics, our coal mines, our lime kilns, and our railroads the enormous sum of $135,000,000 annually. And it would mean that practically all of this vast amount would be expended by us in the East in the purchase of machinery, implements, clothing, and the thousand-and-one other necessaries and luxuries we require, but do not produce.

TROPICAL TRADE BALANCES.

To-day our eastern people draw their sugar supply from the Tropics, largely from Cuba, Java, Santo Domingo, etc. Those countries sell us their sugar and instead of spending the money with us, spend it in Europe. Last year we paid Cuba, Santo Domingo, Java, and Brazil $204,000,000 for their products and they purchased but $51,000,000 worth of our products, spending the remaining $153,000,000 they got from us in Europe. Inasmuch as we are perfectly able to produce our sugar at home it would seem as though it were about time that such trade relations should cease. If the eastern people will aid us to produce a fair proportion of the sugar they now import, we will not be compelled to raise great quantities of competitive crops, and the benefits accruing to the East will be as great as those accruing to us, for the Eastern States will then get back in trade as many dollars as they now bury in the Tropics for sugar.

Under present conditions, the material development of arid America is as dependent upon the culture of sugar beets as is the prosperity of New England upon its manufacturing industries, the South upon its cotton crop, the Northwest upon its wheat crop, and the Central Mississippi Valley upon its corn crop. Deprive any of these sections of the industries mentioned and twenty years hence they would not have been blighted more than arid America would be if robbed of its sugar-beet crop, unless we secure heretofore unheard-of rates of transportation.

SUGAR BEETS IN HUMID REGIONS.

I have endeavored to show you the extreme importance, yes, the absolute necessity of sugar-beet culture in arid America if we are to develop this country with any degree of rapidity. And while this industry is to us a necessity, owing to our geographical position, it is also an industry of the greatest importance in humid regions. So carefully have the nations of Europe nurtured it that they have in operation over 1,500 factories, and with the sole exceptions of Switzerland, Portugal, and Greece, each and every nation of Continental Europe produces from beets all or more sugar than its people consume, and between them they annually export several million tons, and now both Switzerland and Greece have established beet sugar factories, Portugal being the sole remaining country where the economic value of the industry is not yet recognized. Experience in those countries and in the United States teaches us that of all great agricultural industries in the world, the sugar-beet industry stands at the head in making good farmers out of shiftless or "sagebrush farmers," as we call them out here.

The fact is that no farmer can farm indifferently and make money out of the culture of sugar beets. If he is shiftless, he must mend his ways or he will lose money on his sugar-beet crop, and when he mends his ways on that crop and notes the wonderful financial results which follow, he mends his ways in tilling the balance of his farm and thereby secures results he never before even dreamed of. As an illustration of this, take the case of Saxony. Prior to the advent of sugar-beet culture much of the land in that province was only fit for sheep pasturage, while now it is one of the richest provinces in the German Empire. The average yield of wheat per acre in the United States from 1895 to 1904 was 13.4 bushels, while in Germany from 1892 to 1902 it was 27.6 bushels, or double our yield. Similar results are obtained in Germany in the production of other crops, and the superior yield is attributed almost wholly to the direct and indirect influence of sugar-beet culture. This is one of the principal reasons why practically every statesman and political economist in Europe does everything in his power to foster and spread the culture of sugar beets, and why each and every nation of Continental Europe, except France, levies the same import duty on its colonial cane sugars as upon foreign sugars. (France simply gives off the cost of the freight.)

Sugar-beet culture virtually makes 2 acres out of one. The roots of cereals and other crops usually penetrate the soil and draw their nutriment solely from the 6 or 7 inches which is stirred by the plow. The sugar beet is a deep rooter and when we prepare the soil for this

crop we subsoil to a depth of 12 to 14 inches in order that the multitude of fibrous roots which nourish the beet root proper may readily find their way down. When the beet is pulled these fibrous roots are broken off and decay, thus carrying down humus. When the following crops are put in their roots, instead of reaching down but 6 or 7 inches, follow the multitude of interstices left by the beet crop, and thus are nourished by 12 to 14 inches of soil instead of 6 to 7 inches.

SCIENTIFIC DEVELOPMENT OF THE SUGAR BEET.

It is an undisputed fact that the sugar beet is the most scientifically bred vegetable in the world. A century ago the discovery was made in Germany that a certain variety of beets contained from 5 to 6 per cent of sugar, and these beets weighed but 4 to 5 ounces. To-day the average-sized factory beet weighs over 2 pounds, carries 15 to 20 per cent of sugar, and we are able to extract an average of about 12 per cent of the weight of the beet, or say 5 ounces of sugar per beet. In other words, to-day we extract as much pure sugar from each beet as the entire beet weighed a century ago.

But if Europe gave to the world the sugar beet grown under rain conditions, arid America gave us the irrigated sugar beet, which is richer in sugar and yields more tons per acre. In 1891 a beet sugar factory was erected in a region of California, where crops are raised both with and without irrigation. The farmers who put in beets were instructed by the factory officials to grow them without irrigation, as it was believed that an irrigated beet would be large, but deficient in sugar content and purity. Learning that some of the farmers were disregarding these instructions, the factory officials issued a printed notice stating that they would refuse to receive beets which had been irrigated. Nevertheless, some of the farmers continued (sub rosa) to irrigate their beets and secured a greatly increased tonnage of the highest grade product. The facts finally leaked out, and as a result of this accident and the location of a factory in Utah the same year, arid America will be richer this year by the $40,000,000 it will receive for its 1906 sugar crop. The American people are never willing to take it for granted that Europe has reached the limit of perfection in anything. We have demonstrated the superiority of the irrigated beet, and it would seem that the final touches in scientific sugar beet production were to be solved by American brains and the climate and soil of arid America. Beginning at the apex reached by Europe, we have brought over their best sugar-beet seed and our Government is propagating it in arid America. We have already produced from this American-grown seed a limited quantity of beets which polarized 25 and 26 per cent sugar, and in one case 29 per cent of the entire weight of the beet was sugar. As at 5 cents per pound every additional 1 per cent of sugar extracted from a ton of beets is worth a dollar, the importance of this work can be readily understood.

After meeting with almost unanimous discouragement from the various sugar men I consulted for several years, I had the honor a few years ago of directing the attention of our Department of Agriculture to the possibility of a scientific development in this industry which, if successful, would all but revolutionize it. The honorable Secretary of Agriculture and his scientific lieutenants immediately

agreed with my conclusions both as to the value and the possibility of success and started the work at once. For three years they have been carrying on the work and success appears to be assured. This work is the breeding by selection and pollination of a single-germ beet ball. At present the ball of woody fibrous matter which envelops the beet seed incases from one to six separate and distinct seeds, each one of which produces a beetlet. These beetlets coming up together and intertwining necessitate the thinning on hands and knees, as but one beet can be properly grown in a place. Plant but one beet ball in a place and the average number of beetlets which germinate from that ball is three and one-half, and all but one must be pulled up by hand. The number of single-germ beet balls in commercial seed is but a minute fraction of 1 per cent, but in three years' scientific work the Department of Agriculture has succeeded in bringing it up to 50 per cent, and it is expected that in from six to eight years more we will have a sugar-beet seed in which this single-germ characteristic will be fixed.

Success in this undertaking means that the farmer will drill in his beet seed, say, an inch apart, each seed sending up but one beetlet. Instead of thinning on hands and knees just at the opportune time, in order to do as little damage as possible to the remaining beetlets, he will at his leisure cut out the superfluous beetlets with a hoe, leaving a thrifty one every six or eight inches, and this remaining one, instead of being injured by the hoeing, will receive a positive benefit. This will mean a saving of about six dollars per acre. It will mean the elimination of a laborious class of work which the average farmer dislikes to perform. It will mean that the farmer who to-day can raise but a few acres of beets, owing to the fact that he is limited by the available labor supply to thin his beets promptly at the opportune time, will be able to quadruple his plantings. It will mean that he will secure double the tonnage per acre, as the hoeing out of the superfluous beetlets will not injure the remaining ones, all of which are considerations of the most far-reaching nature in the production of this crop.

It is not now possible to produce sugar from beets as cheaply as it is from cane, and, owing to the cheap peon labor which is to be had in tropical sugar estates, perhaps never will be. But these seed developments should greatly reduce the cost of production, and whether they do or not, the indirect advantages of sugar-beet culture are so great that they have convinced the political economists and statesmen of all temperate zone countries that their people can well afford to pay double the price for sugar, rather than to sacrifice an industry which is so far-reaching in its economic effects.

STARTLING ECONOMIC FACTS.

The sugar bills of the American people amount to over a million dollars a day for every working day in the year. Last year we paid to foreigners for sugar more money than we received for all our exports of wheat and wheat flour, corn and corn meal, and all our exports of breadstuffs put together, except barley. The sugar we imported last year could have been produced from one and one-half million acres of American soil, yet it took the entire cereal product from eight and one-half million acres of American farms to pay for

it. Eighty-five per cent of all the money we sent abroad for the purchase of foodstuffs which we are capable of producing at home is expended for sugar.

THE AMERICAN SUGAR INDUSTRY—ITS PRESENT DEVELOPMENT AND FUTURE POSSIBILITIES.

[Address before the seventeenth annual session of the Trans-Mississippi Commercial Congress, held at Kansas City, Mo., November 20–25, 1906.]

There are few, indeed, who realize the importance which home sugar production has upon the domestic economy of the nations of the world, and upon the development and prosperity of this great trans-Mississippi territory.

The use of the cereal crops as articles of diet antedates the Christian era by thousands of years, but one of the earliest mentions of even raw sugar was in the thirteenth century, at which time it sold at 43 cents per pound. The art of refining was not discovered until the fourteenth century, and it was not until the beginning of the seventeenth century that Queen Elizabeth became its patron saint by first introducing its use as an article of diet. One hundred and fifty years later, Marggraf discovered that sugar could be produced from beets, and in 1801 the first beet-sugar factory was erected.

In 1840 the world used about one million tons of sugar, less than 5 per cent of which was derived from beets. In 1890 the world's sugar consumption had increased to six million tons, only to be doubled last year, when the crop exceeded twelve million tons, over seven millions of which were produced from sugar beets.

Last year the people of the world expended a billion and a quarter dollars for the purchase of this newly found article of diet, or nearly twelve times the total value of all our exports of breadstuffs to all the nations of the world. The growth of no other newly found article of diet begins to compare with that of sugar, and none can predict what figures its future consumption will reach, but if the per capita consumption of the world were as great as that of the United States it would require over fifty million tons to supply it, and the annual sugar bill of the world would be over six billion dollars.

IMPORTANCE OF HOME PRODUCTION.

Owing to the important bearing of home sugar production on the domestic economy of a nation, the statesmen and political economists of Europe have so legislated that over $600,000,000 have been invested in 1,500 beet-sugar factories, and in all Continental Europe there are but three nations, and these of the smallest, which do not produce all or more sugar than they consume, while between them they export several million tons.

The 1905 sugar bill of the American people amounted to over $328,000,000, or more than $1,000,000 for each working day of the year. In the United States proper and in our insular possessions we produced a large proportion of this sugar, but in addition to the home production we expended over $97,000,000 in foreign countries for the purchase of this single product. It took the product from

over 8,500,000 acres of American wheat, corn, and oats to settle our foreign sugar bills for 1905.

Our 1905 importations of sugar were equal to the value of 121,000,000 bushels of wheat at 80 cents per bushel, and this 121,000,000 bushels of wheat rob our soil of over $20,000,000 worth of fertilizing elements, while the sugar we import does not come from the soil, but is merely the rain, the wind, and the sunshine which sweeps over foreign fields, and in no possible manner can it replenish our soil one iota.

EXPAND AN EXISTING INDUSTRY.

To produce at home all the sugar we consume does not mean that we must establish a new industry, but merely expand an existing industry, the huge importance of which is not generally comprehended.

In the beet-sugar industry and the cane-sugar industry of Louisiana, Texas, Porto Rico, and Hawaii there is invested over $523,000,000. Compare this investment with the money invested in other American industries.

The 1900 census report groups all manufacturing industries under 347 classifications or heads. There are but 72 in which the capital invested exceeds 5 per cent of the amount invested in the American sugar industry, but 41 in which it exceeds 10 per cent, but 15 in which it exceeds 25 per cent, but seven in which it exceeds 50 per cent, and but four in which it exceeds the amount invested in the American sugar industry. The $6,500,000 invested in our 57 tin-plate mills is but a fraction over 1 per cent of what we have invested in sugar plants. Our investment in the sugar industry is eighteen times what it is in all our cordage and twine plants, sixteen times what it is in all our distilleries, eight times what it is in glass factories, nearly seven times what it is in shipbuilding plants, six times what it is in silk mills, four and one-half times what it is in our 8,000 furniture factories, three times what it is in our agricultural implement factories, and nearly three times what it is in all of our 1,100 great slaughtering and meat-packing plants.

ANNUAL OUTPUT.

Then compare the value of the annual output: Of the entire census list of 317 groups there are but 76 the value of the output of which exceeded 10 per cent of the wholesale value of the product of the American sugar factories of 1905, only 40 groups where it exceeded 25 per cent, but 19 where it exceeded 50 per cent, and but 8 where it was in excess of the value of the sugar output. Last year the value of the product of our sugar mills was three times as great as that of all our distilleries in 1900, twice as much as that of all our bakeries, $91,000,000 more than that of all our breweries, more than half as much as that of all our flour and grist mills, and 40 per cent of as much as the value of all our slaughtering and meat-packing plants.

Next, compare the value of our sugar imports with the value of our exports of manufactured products. The value of our exports of cotton manufactures and silk manufactures and wool manufactures combined would liquidate our foreign sugar bill for only six months; of pig iron, bar iron, billets, blooms, wire, wire rods, iron and steel rails,

iron and steel sheets, tin plate and structural iron combined, for only four months; of sole leather, boots and shoes, harness and saddles, and all other classes of leather goods for less than five months; of fresh beef, for three months; of agricultural implements, for two months.

As compared to the value of our exports of cereals, our imports of sugar cost us more than twice as much as we received for our exports of wheat and wheat flour, and within $10,000,000 of as much as we received for our combined exports of all cereals and flours therefrom.

Comparing the value of our cereal crops with the amount we annually expend for sugar at home and abroad we find that our annual sugar bill amounts to over 60 per cent of the total farm value of all the wheat we produce; it exceeds by $50,000,000 the value of all the oats we produce, and it is six times as great as the value of all the barley we produce.

GOLD AND SUGAR VALUES.

Comparing our annual sugar bill with the production of gold and silver, it will be seen that our 1905 sugar bill amounted to four times the value of all the gold we mined in the United States and Alaska in 1904, and exceeded by $62,000,000 the value of all the gold which was mined in all other portions of the world. All the gold which has been produced in the entire world since the discovery of America would settle the sugar bills of the American people for only thirty-four years.

When it comes to our exports, we find that the amount of money we annually expend for sugar amounts to one-fifth of the total value of all our exports of every character to every country on the face of the globe. Transfer our home sugar industry to a foreign country and all the money we now receive for our combined exports of iron and steel, breadstuffs, cotton goods, and leather goods will not be sufficient to settle our foreign obligations for the one item of sugar.

WHAT OUR SUGAR WOULD BUY.

What the American people pay out for sugar every two years would purchase every farm and farm building in the whole of New England and leave a surplus of $128,000,000 with which to stock them. Our sugar bills for three years amount to more than the value of all the farms and farm buildings in Ohio, and $100,000,000 more than the value of all the farms and farm buildings in either New York or Pennsylvania.

I am glad to note the awakening of our honorable and astute Secretary of State to the deplorable trade conditions existing between this country and Central and South America, for since we removed the duty on coffee and rubber we have lost over $350,000,000 of revenue on our importations from Brazil alone, and our adverse trade balance with that country has amounted to over $1,350,000,000.

The total value of our 1905 exports to the West Indies, Central and South America, Asia, Africa and Oceania combined, including Cuba, Porto Rico, Hawaii, and the Philippines, amounted to several million dollars less than what the American people expended the same year for the one item of sugar.

MUST RETURN TO THE FARM.

On October 7 of this year Mr. James J. Hill, in a notable address, told the Commercial Association of Chicago:

We can not continue to supply the world and recruit our own resources by the methods of trade that now obtain, because the minerals stored in the ground do not recreate themselves. Once utilized they are gone forever. We shall, with these coming millions to provide for, be thrown back upon the soil, the only resource of mankind that is capable of infinite renewal and that offers life for generation after generation. This is the all-important lesson which it becomes you, as leaders of thought and action, as business men dealing with a business situation certain to arise in the near future, to impress upon the intelligence and the imagination of those who follow your example and look to you for guidance.

The period of ransacking the national storehouse to see what can be sent over seas and sold must be changed to an era in which we shall consider the preservation and the improvement of what is fundamentally our chief maintenance. For upon the cultivation of the soil all varied commercial activity, of whatever intrinsic form or interest is mainly built, and upon it depend the future of mankind and the nature and stability of its institutions.

In some things we are going backward. The soil of the country is being impoverished by careless treatment.

To a realization of our position to a return to agriculture, to a jealous care of our land resources, both as to quantity and quality, and to a mode of cultivation that shall at once multiply per acre and restore instead of destroy productive qualities, we must come without delay if we are to escape disaster. I know of no issue in business or in politics that compares in importance with this that looms already upon us and threatens our future.

It is easily demonstrable that a mere reform of methods of cultivation would double the agricultural products each year, adding for the whole country from five to six billion dollars to the national wealth, while the resort to small farms and the adoption of intensive cultivation would give an equal additional increment.

THE HUMBLE SUGAR BEET.

If Mr. Hill had mentioned the humble sugar beet as the most important factor in creating the conditions which he outlined, as being necessary to our future prosperity, his remarks would have pointed no more specifically to this crop. Over $150,000,000 have been invested in the sugar industry of the trans-Mississippi territory, and the lessons they have taught from Minnesota on the east to California on the west and from Montana and Washington on the north to Arizona on the south all tell the same tale. The necessarily intensive farming to make the crop a success makes good farmers out of shiftless farmers; it makes rich farmers out of poor farmers; it makes prosperous towns and merchants and bankers and professional men in formerly listless communities; it enhances the value of town property, and it doubles and quadruples the value of all farm property. On February 16 last the honorable Secretary of Agriculture wrote me as follows:

In the United States beet culture has occasioned a large increase in the value of farms devoted to that crop. Recent returns received by the Department as to the value of farm lands in 1905, as compared to their value in 1900, show an increase in the five years mentioned in the sugar farms of the North Central States of $11.89 per acre, and in the sugar farms of the Western States no less than $42.49 per acre. For the entire country the average increase in the value of sugar farms was $12.34 per acre, an increase which exceeds that of all other classes of farms, except fruit farms.

WESTERN SUGAR FARMS.

The fact is that the increase in value of Western sugar farms from 1900 to 1905 exceeded the total average acreage value of farms and farm improvements in every State in the Union except six in 1900, according to the census returns.

Take the case of Garden City, Kans. Senator Swink told me last night that when he went in there three years ago land, including ditch rights, was selling at $6 to $6.50 an acre; that a year or two ago the best farms were selling at $12 to $13 an acre, and now that their new $500,000 beet-sugar plant is in operation these same lands are worth from $60 an acre up. This factory will consume the beets grown on 7,000 acres, and with a five-year rotation means that the values of 35,000 acres of land have been increased $50 per acre, or a total added farm value of $1,750,000, and the farmers, after paying $2 to $2.50 per day for field labor are clearing from $30 to $60 per acre, while the average gross return of American wheat and corn farmers is less than $12 per acre.

Of course, we are not all farmers. We have a great population in Kansas City, in St. Louis, in Omaha, in Des Moines, in Minneapolis, in Denver, in Salt Lake, in Los Angeles, San Francisco, Portland, Seattle, Tacoma, and hundreds of smaller cities in the trans-Mississippi territory, which are directly affected by the growth of this industry, while the cities of the southern trans-Mississippi territory draw tribute from the cane-sugar industry of Louisiana and Texas.

The sugar-beet farmers of the trans-Mississippi territory will derive from 20 to 25 million dollars from their present crop of sugar beets, and practically every dollar of it will drift back through our commercial centers.

AS A PROMOTER OF POPULATION.

Take the case of Oxnard, Cal. When the American Beet Sugar Company went in there to erect a $2,500,000 plant there was no population whatever. To-day it is a flourishing town of 3,500 people.

The beet farmers within a radius of 30 miles of that factory will receive over $1,000,000 for their present crop of beets, and the expenditures for labor, coke, mill supplies, fuel, etc., will amount to another million dollars. Is it any wonder that this makes a prosperous community, which enriches the larger near-by commercial centers?

And as to the effect on the railroads. Last year the Southern Pacific received over $900,000 from its Oxnard offices, there being but four points between San Francisco and El Paso—namely, San Francisco, Sacramento, Los Angeles, and San Jose—where the traffic receipts of the road were greater than from this little new beet-sugar town.

As to the arid portion of the trans-Mississippi territory, it is absolutely dependent upon alfalfa and beet sugar for its full development on account of the necessarily heavy long-haul freight charges to our large Eastern centers of population.

FREIGHT PERCENTAGES.

Based on present prices the freight on wheat from Utah to Chicago amounts to 43 per cent of its delivered value, of barley 62 per cent, of oats 55 per cent, and of apples 60 per cent. Alfalfa and sugar beets average the farmer about $5 per ton, but the alfalfa is fed to stock, which brings 5 to 8 cents per pound in Chicago, and the sugar extracted from the beets is worth 4½ to 5½ cents and the freight forms a far smaller percentage of the delivered value of the product.

Of practically every other agricultural crop we produce a surplus, and the home price is regulated by the price in Europe, while to produce at home the refined sugar we now import in its raw state would annually put nearly $200,000,000 into the pockets of American farmers, laborers, and mechanics.

The trans-Mississippi territory is the natural place in which to erect a large portion of the 300 additional factories necessary to produce this product, and the question to-day is as to whether we shall build up 300 new and prosperous valleys in this western country or shall we allow our heritage to slip away from us and be turned into the hands of a few would-be exploiters of the Philippine Islands?

AN ECONOMIC QUESTION.

Both political parties are divided on this subject, which is an economic and not a political one. In the Senate Committee on the Philippines 60 per cent of the Democrats and 62½ per cent of the Republicans voted against the pending Philippine bill and to maintain our home industry. A perusal of the printed testimony will show you that this majority in each party felt that neither we nor the native Filipinos had anything to gain, but everything to lose, by sacrificing this great and growing industry in order to enrich a handful of American, British, and Chinese carpetbag exploiters.

They pointed out that we had already spent over $500,000,000 on the Philippines and were continuing to spend over $25,000,000 a year on those islands, with no hope of getting any portion of it back. Senator Hale, of Maine, developed the fact that while the Philippines purchased enormous quantities of goods from foreign countries their purchases from us amounted in value to less than was paid to the farmers of one county in his State for their potato crop, and he caused the Secretary of War to admit that whatever changes might be made in our tariff relations with those islands there was no prospect of greatly increasing the sale of our goods, as the goods they import can be purchased in other markets for less money than it costs us to produce them.

PHILIPPINE TARIFF.

It was shown that while we collect 75 per cent of the regular tariff on Philippine products, every dollar of this money is remitted to the Philippine government, instead of being covered into our Treasury, while we pay full duty on every article we send to the islands and allow them to issue a 50-cent dollar with which to pay their laborers, and thus cut the already phenomenally low wage rate in half. It was shown that largely owing to this wage rate of 17 cents per day

the average cost of sugar production in those islands is but 74 cents per 100 pounds, while our farmers average to receive $2.21 per 100 for the sugar in their beets before ever the factory touches them, or just three times as much as the total cost of production in the Philippine Islands.

It was shown that the freight rate from Manila to New York is 24 cents per 100 pounds, or 1 cent per 100 less than the freight rate on the same commodity from Omaha to Chicago, 11 cents less than from Denver to Chicago, and 31 cents less than from Utah to Chicago.

Even the Cabinet is split up on this important question, and the President has so far failed to wield the proverbial "big stick" in either direction.

The Secretary of Agriculture stands firmly by the home sugar industry, which in nine years he has been instrumental in building up from 40,000 to nearly 400,000 tons, thereby enriching our farmers to the extent of some $20,000,000 to $30,000,000 annually.

On the other hand, the Secretary of War seems utterly indifferent to the interests of the American farmer and laborer, and poohpoohs the question as to the islands causing us any possible injury under any conditions. Some public men are like Congressman Lacey, of Iowa, who announced himself as a standpatter of Standpattersville, and was a standpatter on all except sugar and tobacco.

A MIX-UP WITH BOTH PARTIES.

The fact of the matter is, it is a sort of mix-up with both parties. In both there seems to be a growing sentiment that we should get rid of this national vermiform appendix, which performs no function, is becoming painful, may become serious, and ought to be cut out. Members of both parties see that the sure way to cement the islands to us for all time is to divert a few hundred millions from the home sugar industry to that of the Philippines, by fostering their sugar industry at the expense of ours. They have also discovered that, with the sole exception of a slight discount made by France, no European country makes any reduction on the sugar coming from its colonies; that last year Holland, which owns the island of Java, which produces 1,000,000 tons of sugar a year, took but 12 tons out of that million; that each pound of it paid full tariff duty, and that the mother country not only supplied its own people with all the sugar they consumed, but exported 500,000,000 pounds to other nations.

The best teacher in the world is experience, and the best way to judge a thing is by comparison.

Some years ago we entered into a reciprocity treaty with Hawaii, which then produced 9,000 tons of sugar annually.

At that time the very maximum capacity of those islands was placed at 11,000 tons and our maximum possible loss of revenue was placed at $400,000 annually.

What was the result of that treaty? In thirty years the Hawaiian sugar production has jumped to 370,000 tons, all of which comes here. Our loss of revenue has averaged $5,000,000 annually, and is now over $13,000,000 per annum. In thirty years we sold them a total of $129,000,000 worth of goods and made them a cash present

of $153,000,000 in revenue; or, in other words, made them a present of $1.19 for every dollar's worth of goods they purchased of us.

Now, if the sugar production of Hawaii increased 3,400 per cent in thirty years, what could be expected of the Philippine product if granted like concessions?

Let us compare the conditions of the two groups of islands.

PHILIPPINE POSSIBILITIES.

The total area of the Philippines is eighteen times as great as that of Hawaii, while the estimated arable area is twenty-one times as great.

The native population of Hawaii, from which to draw the labor supply, was between 40,000 and 50,000, while the native population of the Philippines is 7,500,000, or one hundred and fifty times as great.

The sugar lands of the Philippines produce more sugar per acre than did the Hawaiian sugar lands when operated in like manner.

The freight rate from Hawaii to New York is 27½ cents per 100, and it is but 24 cents from Manila to New York.

The average wage rate for sugar-plantation labor is $19.76 per month in Hawaii and in the Philippines it is but $4.28 per month.

If, with all their superior advantages, the Philippines would increase their sugar output no faster than has Hawaii, it still would amount to over 4,000,000 tons in thirty years, and the islands have a capacity for producing over 8,000,000 tons annually, while the total American consumption is less than 3,000,000 tons.

With these facts before you it should not be difficult to determine whether our Moses in the Cabinet hails from Tama County, Iowa, or from Cincinnati, Ohio.

THE SUGAR BEET INDUSTRY OF THE UNITED STATES.

[Address before the fifteenth annual session of the National Irrigation Congress, held at Sacramento, Cal., September 2–6, 1907.]

To comprehend fully the vital effect which the production of beet sugar is having, and which it is hoped it will continue to have upon the development of arid America by means of irrigation, it is necessary first to review briefly the sugar situation of the world.

Sugar is at once one of the most recently acquired, the most rapidly increasing, and one of the most important articles of human diet in the world. From its earliest mention until the time of Queen Elizabeth sugar was used only in the arts and sciences and sold at approximately $1 per pound. Until the beginning of the last century the world's crop of sugar was derived wholly from the cane of the Tropics. The four decades following the issuance of a decree by the first Napoleon appropriating 1,000,000 francs for experimental work in connection with the development of the sugar beet were only important in increasing the quality of the beets, for, in 1840, 95 per cent of the world's sugar crop of about 1,000,000 tons was still derived from the cane of the Tropics. Since 1840 the increase in production and consumption of sugar has amounted to 150 per cent per decade, and now amounts to 12,000,000 tons (60 per cent of which is produced

from beets), for which the people of the world annually expend over $1,250,000,000.

In the early development of the sugar beet it was thought that it would only thrive in certain restricted districts in France and Germany. To-day there are over 1,500 beet sugar factories scattered over all but two of the European nations, and they produce one-half of the world's commercial sugar crop.

This string of factories, extending from Russia on the north, to the very shores of the Mediterranean on the south, not only supplies the 350,000,000 Europeans with all the sugar they consume, but provides an annual surplus of several million tons which are exported to Great Britain and other countries.

In 1864 the people of the United States consumed but 18 pounds of sugar per capita. Last year our per capita consumption was 76 pounds as compared to 90 pounds in Great Britain, and 7 pounds in Italy.

What proportions the future sugar crop of the world will reach is problematical, but if the average per capita consumption of the world were as great to-day as it is in Great Britain an annual crop of 70,000,000 tons would be required and at 5 cents per pound would mean an expenditure of $7,000,000,000 for this newly found article of diet.

It should not be presumed that Europe has so greatly extended her beet-sugar industry because it can produce sugar at home for less money per pound than it can be purchased for in the Tropics. Such is not the case. Europe long since learned the lesson that even with her so-called "pauper labor" cultivating the most scientifically bred vegetable in the world it was impossible successfully to compete with the peon labor of the Tropics, who, from one planting of an almost indigenous weed, reap from seven to fifteen annual crops. In Europe it is recognized that the cost to the consumer of a pound of sugar is of minor consideration as compared to the vast economic advantages to be secured by producing their sugar at home. This is exemplified by the fact that all European nations levy protecting duties on sugar importations, and while most of the sugar-producing tropical islands of the world are colonies of European nations not one of those nations, with the sole exception of France, makes the slightest tariff concession on sugar from its colonial possessions. The slight tariff concession which France grants to colonial sugars is an amount equal to the freight charges on the product from the colony to the mother country.

Little Holland owns the island of Java, which produces 1,000,000 tons of sugar annually, it being, next to Cuba, the largest sugar-producing island in the world.

Holland purchases practically no Java sugar, and the few tons which do come to the mother country are subjected to full duty. Holland, on the other hand, produces from beets all the sugar its people consume, besides exporting vast quantities to other countries. The sturdy Dutchman may love the native Javanese, Holland's "Little Brown Brother," but his home farmer, his own blood and brawn, is closer to his heart than the wily Oriental can ever expect to get.

If our national legislators are looking for a universal precedent on which to construct a fiscal policy for our newly acquired colonies,

they can easily find it, for even Great Britain, which, for revenue purposes, levies a duty of approximately 1 cent per pound on sugar importations, collects full duty on its importations of colonial sugar.

EFFECTS OF SUGAR-BEET CULTURE IN EUROPE.

The reason for the adoption of this economic policy by the nations of continental Europe are apparent to those who have studied the situation.

In the first place the expansion of the home industry has offered the profitable investment of more than $500,000,000.

Second. It distributes among the people of Europe some $400,000,000 annually, which would otherwise be sent to the Tropics for sugar.

Third. They annually draw from the other countries of the world from $100,000,000 to $200,000,000 for the surplus sugar they produce and export.

Fourth. They have found that the use of the sugar beet to rotate with other crops has reclaimed vast areas of hitherto practically worthless land.

Fifth. They find that sugar-beet culture makes good farmers out of shiftless farmers.

Sixth. They find, in Germany at least, that the use of the sugar beet as a rotating crop increases the acreage production of the wheat 24 per cent, of barley 25 per cent, of rye 15 per cent, of peas 86 per cent, and of potatoes 102 per cent.

There are several reasons for this, but the two main causes are that to produce successfully sugar beets the soil must not only be put in fine tilth but must be cultivated during a large portion of the growing period, and this thorough cultivation has nearly as much effect on the following crop as it has on the beet crop. The second main reason is that as a rule the roots of crops reach only as deep as the land is plowed, the soil underneath being hard and almost impenetrable by tender roots. For other crops you plow but 6 to 7 inches deep and the roots of your crops draw nutriment from that depth only.

For sugar beets you subsoil to a depth of 12 to 14 inches, and the small fibrous roots of the beet reach an even greater depth. When your beets are pulled, these little fibrous roots are broken off in the ground and through decay not only add humus to the lower stratum of soil, but leave innumerable minute veins or holes to the very bottom of the subsoiling.

When your grain or other crop is put in the next year, instead of the roots drawing nutriment from only 6 or 7 inches of soil, they follow the little holes left by the fibrous beet roots and the result is that in effect you have doubled your soil without buying or cultivating more acres, and hence have greatly increased your crop, be it wheat or barley or beans or potatoes.

Like conditions prevail in the United States, and in arid America there are still more potent reasons for expanding this industry, which is so far-reaching in its economic effects.

Arid America has and always will have one tremendous economic handicap—it is located a long distance from our great centers of population, and owing to the necessary long-haul freight charges, we can never expect to ship out low-priced products. Wheat, oats, bar-

ley, rye, alfalfa and scores of other crops we produce to perfection but can never hope to transport and market as cheaply as they can be produced in and marketed from the great Mississippi Valley. Throw a bale of alfalfa into a freight car and before it reaches the confines of the county in which it was raised, the freight charges amount to more than the value of the alfalfa. But take that alfalfa, worth, say, $5 per ton, and feed it to stock, and you turn it into a product which is worth from $100 to $150 a ton in Kansas City or Chicago, or San Francisco, and hence will stand shipment. That is why alfalfa is to-day the most important crop grown in arid America.

The same conditions apply to sugar beets, which are delivered to the neighboring beet-sugar factory and there turned into granulated sugar which is worth $90 to $110 per ton laid down in Chicago.

Of nearly every agricultural crop, arid America can produce in abundance all that her people will ever consume, but when it comes to the production of crops which can be shipped out at a profit and exchanged for the innumerable articles which its people must have but do not produce, alfalfa and sugar beets are of more value than are all other agricultural crops combined—in fact, on the production of these two crops depends the full development of this desert domain.

PROGRESS OF THE AMERICAN BEET-SUGAR INDUSTRY.

And how are we in America progressing in the production of beet sugar? In 1888, the production of beet sugar in the United States reached 1,000 tons for the first time in our history. When the present tariff bill was enacted ten years ago, we had but six beet-sugar factories in the United States and produced only 40,000 tons of beet sugar. Last year we had sixty-three factories in operation and produced 483,612 tons of sugar, surpassing for the first time the cane-sugar output of Louisiana and Texas, thus transferring the "Sugar Bowl of the United States" from the South to the West.

Last year American farmers received over $22,000,000 for their sugar-beet crop and the industry yielded nearly as much more to the laborers and other employees of the factories, the coal mines, the railroads, the lime kilns, and numerous other classes of American industry.

Our Department of Agriculture now classes it as the seventh most important agricultural product of the United States, and yet its development here is in its infancy.

AN INDUSTRY OF ARID AMERICA.

While the beet-sugar factories of the United States extend from the State of New York on the east to the Pacific coast on the west, and while it is generally considered as being a national industry, it is the child of arid America, and still is, to all intents and purposes, a purely arid American industry.

The development of the American beet-sugar industry has been confined largely to arid America for the reason that I have mentioned—*freight*. In our eastern States the conditions for the production of beet sugar are perhaps as favorable as they are here, but here the industry is a *necessity*, while there it is not. The eastern

farmer has at his door a profitable market for whatever surplus crop he produces.

The industry has been established in sixteen American States and Territories, twelve of which are wholly or in part in arid America, and there are but four States and Territories in arid America in which it has not been established.

Of the sixty-three American beet-sugar factories, thirty-nine, or nearly two-thirds of the total number, are located in arid America.

Of the $22,000,000 received last year by American farmers for their sugar beets, $15,000,000, or 70 per cent, went to the farmers of arid America and the Pacific coast.

The first successful American beet-sugar factory was erected and is still running at Alameda, less than 100 miles from where we are now assembled, and its original builder still resides there.

The largest beet-sugar factory in the world is located in a neighboring county, and the second largest factory in the Union is located in the southern end of this State.

The first sugar beets in the world to be grown under irrigation were produced in Utah by our friends, the Mormons, the pioneer irrigationists of modern America.

Surely no further proof should be needed in order to establish the parentage of this promising industry. And now that arid America has invested $100,000,000 in the rearing and bringing of this lusty infant to manhood, she should strive steadfastly to see that his career is fully rounded out by producing at home all the sugar this great nation consumes and thereby reap a reward which would distance any real or mythical king's ransom ever mentioned in history.

EFFECTS OF EXPANDING THE BEET-SUGAR INDUSTRY.

Since Congress decided ten years ago to encourage and foster the beet-sugar industry we have produced 2,000,000 tons of sugar from American-grown beets, for which our farmers have received $90,000,000, while $70,000,000 more has accrued to other forms of American industry. Had this sugar been imported from the Tropics and merely refined in this country, American industry would have profited only to the extent of $6.72 per ton, or a total of less than $1,350,000. Hence, what we have already done has added the net sum of $158,000,000 to the returns of American industry.

This 2,000,000 tons, however, has been a mere bagatelle compared to our importations, which now amount to nearly as much per year as we have produced from beets in ten years.

While during the past ten years we have been producing this 2,000,000 tons of beet sugar, the revenues collected on our importations of foreign grown sugar have amounted to the enormous sum of $529,000,000, or nearly one-third of all the customs revenue we have collected during this entire period on all other classes of imports combined.

We have needed the money, and it has gone a long way toward building our Navy and supporting our various great departments of government.

During this ten-year period all other classes of food products have advanced in price from a minimum of 16 per cent for wheat flour to 46 per cent for pork, or an average of about 30 per cent, while

similar or greater advances have been made in the price of labor, coal, machinery, and all other articles produced by American industry.

During the same period the foreign price of raw sugar has advanced 7 per cent, and the home price of sugar beets 15 per cent.

Considering all these advances which so materially affect the cost of producing sugar, and considering the fact that more than half a billion dollars in customs revenue has been collected on sugar in order to provide national revenue and establish the beet-sugar industry at home, we have naturally to expect a material rise in the home price of sugar. But what are the facts? The New York prices of granulated sugar have advanced from $4.50 per 100 pounds in 1897 to $4.52 per 100 pounds in 1906, or less than one-half of 1 per cent in ten years. In addition to this, the retail price of sugar in New York has averaged to be lower than the retail price in Berlin, Paris, Vienna, and St. Petersburg, the commercial centers of the greatest beet-sugar producing countries in the world. If by fostering this industry of arid America an unjust burden has been laid upon any citizen of any State in the Union, the figures do not show it.

The revenues collected have been shared by all the people, East and West; the gain to American industry of $158,000,000 has gone largely to arid America, and the bulk of it has drifted back to our eastern manufacturers in payment of goods we require, but do not produce in arid America.

Had this sugar been purchased from the planters of the Tropics practically none of the money paid for it would ever have been returned to this country. This is evidenced by our trade balances with Cuba, Santo Domingo, Brazil, and Java, from which countries we purchase the bulk of our sugar. We annually send these countries $200,000,000 in gold in payment for their products, while they return to us but $50,000,000 and expend the other $150,000,000 in Europe in the purchase of products which are common to this country.

OPPORTUNITIES FOR EXPANSION.

The sugar bills of the American people amount to $350,000,000 a year, or more than $1,000,000 a day for each working day of the year.

In addition to consuming all the sugar produced from the beets of arid America and the cane of Louisiana, Texas, Hawaii, and Porto Rico, we are annually importing 1,800,000 tons from foreign tropical islands.

Our enormous exports of breadstuffs have naturally been pointed to with pride for many years past, but notwithstanding our large home sugar industry on the mainland and in our island possessions, in 1905, aside from the receipts for our barley exports, it required more money to settle our foreign raw sugar bills than all we received for all our exports of breadstuffs and preparations of breadstuffs, including corn and corn meal, oats and oat meal, rye and rye flour, and wheat and wheat flour combined.

It took the value of all the wheat we raised on 8,500,000 acres, or one-fifth of the entire wheat acreage of the United States, to pay for the sugar we imported from foreign lands and which we could have produced on 1,500,000 acres of American sugar beets. As a nation we would have "broke even," as the saying goes, if we had given up

8,500,000 acres of wheat sowings, planted a million and a half acres of it to sugar beets and allowed the other 7,000,000 acres to lie fallow or have turned it into golf links.

To produce this sugar at home would mean the investment of $300,000,000 to $400,000,000 in the erection of several hundred additional beet-sugar factories and the consequent building up of a like number of prosperous communities.

EFFECT OF PAST LEGISLATION.

Ten years ago it looked as though we were in a fair way to produce by this time all the sugar we consume.

During the first five years of this ten-year period capital rushed headlong into the industry, but the farmers were apathetic, for it was a new crop. Capitalists increased the number of factories 600 per cent in five years, while the farmers increased their sowings but 150 per cent. The projectors of new factories were crying for more beets, and any reasonably good community that offered contracts for from 1,000 to 2,000 acres of beets could secure the erection of a $500,000 or a $1,000,000 factory.

During the second five years of this period the reverse conditions have prevailed. The farmers have increased their plantings nearly 600 per cent, while the capitalists have increased the number of factories less than 100 per cent, and to-day scores of excellent locations, especially in arid America, offering 5,000 to 6,000 acres, signed up for five and six years, are unable to induce capitalists to give them a second thought or to invest a dollar. Last year alone our beet-sugar output increased 50 per cent, and yet there is being erected in the entire United States but one new plant for the coming campaign.

Five years ago the sugar output per factory averaged but 2,500 tons, while last year it averaged over 7,500 tons.

The apathy concerning the industry has been shifted from the minds of the farmers to the minds of the capitalists. At first thought it seems strange that capitalists would pour millions into the industry when beets were not to be had, while now, with offers of more beets than they can slice, they refuse to invest. Naturally there must be a cause for this reversal of conditions. The present zeal of the farmers to grow beets comes from their having learned that the culture of sugar beets pays better than that of any other crop.

The apathy of the capitalists was first caused by our annexation of Hawaii and Porto Rico and the lowering of the duty on Cuban sugar and thereby admitting free, or at a reduced rate of duty, over 2,000,000 tons of sugar per annum. When the agitation for the free entry of Cuban sugar began, eighty-six new beet-sugar factories to cost $50,000,000 were in course of organization. All were immediately abandoned and but six of them have since been revived. As a result of such legislation, capital has seen the Hawaiian sugar crop increase from 9,000 to 400,000 tons, the Porto Rican crop from 35,000 to 220,000 tons, and the Cuban crop from a few hundred thousand to 1,500,000 tons, all of which naturally comes to this country, thereby reducing the prospective market for a like amount of home-grown beet sugar.

Nearly $250,000,000 of American money which should have gone into the home sugar industry has been diverted to the sugar industry

of those islands by reason of our legislation favoring their sugar product, for there it can secure cheap labor, while here it can not. Do you wonder that capital hesitates? If the more than 2,000,000 tons of sugar now annually produced in these islands by means of American capital were being produced in the United States, American industry would be profiting to the extent of over $170,000,000 annually.

EFFECT OF ANTICIPATED LEGISLATION.

But it is not past but anticipated legislation which to-day so securely bars the doors and is preventing capital from embarking in this industry of arid America.

It can stand what has been done, but it fears the future. It sees American troops in Cuba, and the efforts which are being made by the American sugar producers in that island for its annexation and the free admittance of their sugar to this market, and capital knows that Cuba is capable of producing 5,000,000 to 10,000,000 tons of sugar at a less cost than sugar can be produced in the United States from either beets or cane.

More than all, just as beet-sugar capital had begun to get its "second wind" after being hit by free tropical sugar from both sides of the world and was gradually returning to the industry, acute agitation for the free introduction of Philippine sugar gave it a body blow from which it has not yet recovered. These astute, well-informed men of millions know that the arable area of the Philippines is five times as great as is the combined area of Cuba, Porto Rico, and Hawaii, and that the population is four times as great. They know that while the prevailing wage rate on the sugar-beet farms of the United States is $40 to $65 per month, on the cane fields of Porto Rico $13, in Hawaii $20, and in Cuba $20 to $26; in the Philippines it is but $4.29 per month. They know that while we already produce more sugar than we consume west of the Missouri River, and must ship our surplus east at a freight rate of 60 cents per 100 from the Pacific coast, 35 cents from Denver, and 25 cents from Omaha to Chicago, the freight rate on the same commodity from Iloilo and Manila to New York is but 24 cents per 100 pounds. They know that even with the crudest methods of cultivation and milling now prevailing in the Philippines—whereby there is secured a yield of half a crop of cane, whereby one-half of the juice of this half crop is lost in extraction and nearly one-half of the remaining juice is lost in the boiling—the Philippines yet are able to lay down sugar in the port of New York at a cost far less than the amount the farmers of arid America are now receiving for the sugar in their beets before ever the factory has touched them.

They know that with modern mills and methods in the Philippines and the free entry of Philippine sugar to our market it would soon be impossible for the American factories to pay a dollar a ton for beets, and that our farmers could not produce them at that price. Starting with but one-eighteenth the area and one one-hundred-and-sixtieth of the population, they have seen the sugar crop of Hawaii increase over 4,000 per cent as a result of legislative favors similar to those which are being demanded for the Philippines, which demands include the free entry of their sugar to our markets, the

importation of contract coolie Chinese labor, and the raising of the present acreage limit of corporate sugar estates from 2,500 to 25,000 acres.

For four years past capital has observed our Secretary of War lobbying for one or the other or all of these bills at every session of Congress, and is aware of his declarations that until it is secured he will continue to labor for it at every session of Congress so long as he is in public office.

These are the unsettled conditions which exist to-day and which have stopped absolutely the erection of new factories.

Five years ago the expansion of the industry rested largely with the farmers. The farmers have since come to the front with the beets and the output of sugar per factory has been increased over 200 per cent. As a rule the existing factories are to-day being operated to their limit. They can handle no more beets, while the farmers are begging for new factories, in the erection of which exists the only possibility of expanding the industry.

Not until Congress abandons its hesitating, its vacillating policy and assures capital in so far as it can as to whether it will once and for all take to its bosom the naked peon half savage of the Orient, or the intelligent, well-housed farmer of its own flesh and blood, not until that time can we expect to see new sugar factories plastered all over arid America, or else see them plastered all over the Philippine Islands.

PHILIPPINE FALLACIES.

Advocates of Philippine tariff reduction state that sugar and tobacco are the principal productions of the islands, and that our general tariff on Philippine products is the prime factor which induces prosperity or depression throughout the archipelago; concealing the fact that over 76 per cent of the islands' total exports are already permitted to enter our ports absolutely free of duty, and that 82 per cent of Philippine products actually entering our ports pass through our custom-houses without being subjected to the imposition of any duty whatsoever.

They represent that by collecting a duty on Philippine products we are profiting at the expense of our "wards;" but they fail to state that on the 16 per cent of Philippine products on which we collect any duty whatever, we collect but 75 per cent of the regular tariff rates imposed upon like products coming from other countries, and that the entire 75 per cent so connected does not go into our Treasury at all, but is covered into a special fund and remitted to the Philippine government, thereby reducing by that amount the burden of local taxation imposed upon the Filipino people, while American products entering the Philippines are subjected to the imposition of their maximum rates of duty.

And how does this work out? We afford them a market for one-half of their exports, and as Senator Hale developed when he had Secretary Taft before the Philippine Committee of the Senate, of their $30,000,000 worth of annual imports, the value of the portion which they buy of us amounts to less than the farmers of one county in Maine annually receive for the one crop of potatoes.

They lead the American people to believe that agriculture throughout the archipelago is prostrated because Congress fails to eliminate

the tariff on their sugar and tobacco; but they fail to state that 90 per cent of all the sugar and 80 per cent of all the tobacco grown in the Philippines is at present produced on two of the 3,141 islands comprising the group, and hence if the statements of the friends of Philippine tariff reduction are accepted we must take it for granted that a futrher tariff reduction on these two products grown on two islands (and those not the largest in the archipelago) is going to bestow everlasting peace and prosperity on the people of the other 3,139 islands, which have as much to do with the production of the sugar and tobacco crop of the Philippines as the people of Maine have to do with the production of the wheat crop of the United States.

They tell us that the distress is general, and would be immediately relieved by the passage of a bill granting free access of their sugar and tobacco to our markets; but they fail to state that less than 280,000 acres, or only 7.7 per cent of the 3,247,112 acres now under cultivation in the Philippines, are devoted to sugar and tobacco, and thus we must stupidly believe that a further concession made on the products raised on these 280,000 acres will eternally enrich the people who are raising other crops on some three million other acres.

They tell us that the passage of a bill removing our tariff on their sugar and tobacco would gain for us the confidence of the entire Filipino population in our benevolent intentions; but they fail to state that of the 7,635,000 inhabitants of the Philippine Islands less than 80,000—or about 1 per cent—are engaged in the production and manufacture of sugar and tobacco, and so we must further tax our credulity and blindly believe that the enrichment of a few foreign and other planters who employ 80,000 peon laborers at an average wage of $4.29 per month will in some occult manner bring joy and plenty to the remaining 7,555,000 Filipinos who are peacefully engaged in the production of hemp, cocoanuts, and other crops.

They tell us that the small amount of sugar produced in the Philippine Islands could have no appreciable effect on the expansion of the home sugar industry if all of it were unloaded on our markets; but they fail to state that, while less than a million and a half acres planted to either cane or beets will produce an amount of sugar equal to our entire importation, in the Philippine Islands are 60,000,000 acres of uncleared arable land, owned by the colonial government, a large portion of which is as rich sugar land as is to be found in the world, and that one of the main objects of the proposed legislation is to enable the Philippine government to parcel out a portion of this vast area in 25,000-acre blocks to sixty corporate sugar estate exploiters.

The sugar and tobacco industries are as yet side issues in the Philippines, but they have the area, the soil, the climate, the population, the freight rate, and the infinitesimal wage rate absolutely to swamp the home industry, as they have already arrested its development, if we accede to the demands of would-be American exploiters who are so actively urging the passage of this legislation.

It is "up to you" to advise your Representatives in Washington as to your desires in this matter, in order that they may intelligently carry them out, and you can not do it too soon for your own protection, for there will be no use of locking the barn after the horse has been stolen.

THE UNITED STATES DEPARTMENT OF AGRICULTURE—ITS DEVELOPMENT UNDER HON. JAMES WILSON.

[Address before the eighteenth annual session of the Trans-Mississippi Commercial Congress, held at Muskogee, Okla., November 19–22, 1907.]

President Loveland. Gentlemen of the congress, we have an ardent supporter of this congress, a faithful worker in this congress for many years, who, at the personal request of your president, prepared an article on one of the most important industries in the trans-Mississippi section, and I will call upon Hon. Truman G. Palmer, secretary of the American Beet-Sugar Association, to tell you something of the beet-sugar industry, which is of such great importance to so many of our great trans-Mississippi States. [Applause.]

Address of Truman G. Palmer on "The Department of Agriculture."

Mr. President, Ladies and Gentlemen and Fellow Delegates to the Trans-Mississippi Commercial Congress: The science of agriculture and the character, extent, and importance of the work of our Federal Department of Agriculture, are probably less appreciated than those in almost any other line of human endeavor.

While Congress is appropriating nearly a billion dollars annually for the construction of battle ships, for maintaining an army in the far-off Philippines, and for a multitude of other purposes which yield us no revenue, but on the contrary load us down with a greater and greater annual burden, it grudgingly grinds out an appropriation of less than 1 per cent of this amount for agriculture, which always has and always will furnish the wealth to foot these enormous expenditures.

Ages ago we were told that "the first shall be last and the last shall be first," and perhaps the time will come when, whatever trimming may be necessitated on other appropriation bills, agriculture will have as many millions as its chief can profitably employ.

It is not often that people stop to consider the fact that the quality and the yield of practically every seed, slip, bulb, and tree which we put in the ground is the result of the most fascinating, and by far the most important, science in the world.

Many of us enjoy a "New England boiled dinner" occasionally, but how few stop to think that a few generations ago the vegetables employed in it were merely tough, fibrous, unedible wild roots.

The wild, uncultivated lettuce, for instance, has a few long, flat, slender, light green leaves, which look something like mullen leaves, and they lie as close to the ground as do those of the dandelion. This worthless, uninviting weed of the fields has been so transformed by scientists that to-day it is our most popular relish, pleasing to the eye as well as to the palate; and if you will step into the Government greenhouses at Washington you can see the original weed and observe the work which is still being carried on in crossing it with numerous domesticated species in the effort to produce a still more attractive variety.

So it is throughout both the vegetable kingdom and the animal kingdom. To-day we "build" a steer as much as we build a house,

breeding on weight where it is worth the most money per pound, and breeding off weight where it is worth the least money per pound.

There are no limitations to the work, no possibility of ever reaching the apex, but each forward step adds millions and some of them hundreds of millions of dollars to our material wealth and prosperity. To some of these I will allude later on.

Considering the early history of the Department of Agriculture, it is not to be wondered at that some misinformed people imagine that, tucked up under the roof of the Patent Office, there peacefully reposes a flat-top pine desk and a few gunny sacks of garden seeds over which swings a strip of pasteboard bearing the inscription, "Department of Agriculture."

Nor is it strange that in their imagination the principal business of Secretary Wilson and his one or two clerks is to do up neat little packages of seeds and dole them out to Congressmen from the rural districts to send to their farmer constituents.

Time was, and not so very long ago at that, when this impression was true in the main, and the forging ahead by this great Department has been unaccompanied by any blare of trumpets such as is frequently heard from other house tops.

When the Secretary of the Navy asks for an extra forty million dollars to add five new battle ships to our fleet in order that the great good may be accomplished of aweing the world with our greatness; or when the Secretary of War asks for a few extra tens of millions in order to send more troops to the Philippines to impress the natives with our benevolent intentions, the whole world hears of it. But when at a cost of a few thousand dollars the Secretary of Agriculture annexes to our products a new variety of plant which adds twenty-five or fifty million dollars a year to the wealth of the nation, few people ever hear of it. Yet this is what is going on day after day and year after year and the agricultural wealth and prosperity so produced is what makes it possible for our other Secretaries to secure their vast annual appropriations.

HISTORY OF THE DEPARTMENT.

From the establishment of this Government until 1839, the science of agriculture received no consideration in the appropriation bills passed by Congress and the present Department of Agriculture is the outcome of a suggestion made in that year by the Hon. Henry L. Ellsworth, of Connecticut, then Commissioner of Patents. At Mr. Ellsworth's suggestion, Congress appropriated $1,000 for the purpose of collecting and distributing seeds, prosecuting agricultural investigations, and preparing agricultural statistics.

The work was continued from year to year by the various Commissioners of Patents until 1862, when Congress provided for an independent commissioner.

For the next quarter of a century, during which period much of this great trans-Mississippi territory was being opened up and brought under the plow, the Federal work in behalf of this greatest of all industries was confined to the meager efforts of a commissioner, who, of course, was not entitled to a seat with the President's official family of advisors.

In 1889 Congress raised the Department to the first rank, making its head a member of the Cabinet, and appropriated about $1,000,000 for carrying on the work.

Congress was willing to appropriate a million or so a year for this Department, but the heads of it found it difficult to devise uses for even such a small amount, and year after year the unexpended portion of the apropriation was returned to the general Treasury.

Notwithstanding this lethargy, much immediate good was accomplished and the foundation was laid for greater things in the future when some one should be found who would grasp the golden opportunity set before him.

During the period in which we were paying so little attention to scientific agriculture, but were multiplying our so-called sage brush farmers by the millions, European nations had been devoting much attention to the subject and had built up great departments of agriculture, so that as their population became more and more dense and the farms smaller and smaller, the increased production per acre through better farming methods and the introduction of new crops enabled them not only to maintain but to raise their standard of living.

THE DEPARTMENT UNDER JAMES WILSON.

William McKinley was not a farmer, but he was a student who thoroughly appreciated the economic importance of agriculture to this nation.

Ever since their Congressional days, McKinley had known James Wilson intimately, and when in 1896 he was elected President, he decided that Wilson should have the portfolio of agriculture and would not take no for an answer.

Wilson had served the people of his State both in the legislature, in Congress, and as president of the Iowa State Agricultural College. He had retired from public life with the full determination never to reenter it, and was peacefully engaged in operating his extensive Iowa farm on purely scientific principles. McKinley succeeded, however, and Wilson went into his Cabinet.

From this time on the chronic anæmic condition of the Department of Agriculture began to yield as the rich red blood was pumped into its veins. Wilson's desire was to extend the ramifications of the Department not only throughout this country, but throughout the world, and thus lay at our farmers' feet the seed, the slips, the trees, the bulbs, from every civilized portion of the globe. He wished to teach our farmers how best to produce both foreign and native products, how to conserve our soil fertility, our forests, and our moisture.

INCREASED APPROPRIATIONS.

But all of this meant scientists and explorers and chiefs of bureaus and clerks and stenographers and huge amounts of printed matter to disseminate the information gathered, all of which would require vast sums of money. The customary million or so would not go very far toward carrying out his ideas. It would not even enable him to make a start at it. Congress must be induced to double the regular appropriation at least, or he would be compelled to adopt the easy-going methods of his predecessors.

He appealed to Congress for more money for the use of nearly every bureau in the Department. He was called before the House and Senate Committees on Agriculeure to explain why he asked for an additional $25,000 for this bureau, $50,000 for that one, and a still larger addition for another.

The older members of these committees were only familiar with the easy-going methods which had prevailed, and they were unable to understand how a new man could make good use of such large increases. However, even what he asked for did not amount to much when compared to what the other Departments were getting, and partly out of curiosity to see what he really would do with the money, they thought they would humor him once, and gave him nearly all he asked for.

Fact is, they have been humoring him ever since, for with each succeeding year he asks for more and more money, until now he is getting eight millions a year, almost enough to build one battle ship, and Congress begins to realize that every million expended in this direction is adding ten, or twenty, or fifty millions to the wealth of the nation.

The appropriations for the different bureaus have been doubled and tripled and quadrupled, and in many cases far more than that.

As an illustration, take the case of forestry, concerning which important subject we have heard much in recent years. Wilson was familiar with forestry work throughout the world, and was fully alive to its vast importance not only to our present population, but more especially to future generations.

In 1897 the agricultural appropriation bill carried but $20,000 for this Bureau of Forestry. By 1900 it had been doubled. In five years, or in 1902, it was increased to nearly $150,000; then to $254,000; $329,000; $400,000; $793,000; $1,000,000; and for the present year it will be $1,380,000, which is $200,000 more than the total appropriation for the entire Department in 1890, and as compared with the 1897 appropriation for this bureau, is an increase of 6,900 per cent.

In 1897 the total number of employees of the Department, both in Washington and elsewhere, was 2,444. At that time the chiefs of bureaus had whole suites of rooms and the clerks were so far apart they looked lonesome, while all seemed idle and listless.

To-day every room in the building is crowded with clerks and stenographers who are huddled in as close as ants in a hill, while the chiefs must content themselves with a tucked up little office, or with desk room among numerous assistants. A multitude of small annex buildings have been constructed, so many in fact it looked at one time as though they would soon be scattered all over the Mall. These buildings were filled to overflowing as fast as erected. In addition to this, a large building had to be rented for the Bureau of Chemistry, another for the Bureau of Soils, another for the Bureau of Forestry, another for a seed warehouse, another for pure food work, and dozens of others for other bureaus, until to-day the Department of Agriculture is so spread about that some of the bureaus are from a half mile to a mile apart, and the Department, in addition to occupying all of its own buildings, is paying out some $50,000 a year in rentals.

A magnificent new, white marble building for the Department is in course of construction and it is the pride of the Secretary. But since it was begun, a couple of years ago, the Department has grown so that instead of tearing down the old building, as was contemplated, there won't be room in the new building to care for the bureaus which are scattered about the city in rented buildings.

The Department now employs over 9,100 people, and all who are located in Washington are crowded almost beyond endurance. Of the total number of employees, 2,023 are scientists, ranking at the head of their professions. Some of these men are located in Washington, others are scattered about the country studying all sorts of agricultural problems, while others are ransacking every portion of the civilized world for seeds and plants and trees and bulbs and methods which can be used to advantage in this country.

No other governmental Department, college, or private institution in the world employs such a number of scientists or scientific specialists of greater ability, be they chiefs or assistants, and recognizing the United States Department of Agriculture as the foremost institution of its kind in the world, the nations of Europe are now sending their scientists here seeking information.

Supplemented by the effort of able assistants, this accomplishment of ten years of labor is the result of competent administrative ability, without which no great enterprise was ever created.

Two-thirds of our entire national revenues are expended for wars, past and future, while less than 1 per cent of it is spent for the direct benefit of agriculture, which always has and always will replenish our war chests.

For the direct benefit of our 40,000,000 rural population, we are expending 20 cents per capita per annum but $1.39 per farm or less than 1 cent per acre and the value of our present crop alone ($7,500,000,000) is sufficient to operate our Department of Agriculture for over 900 years.

I once asked Secretary Wilson how much additional money he could find good use for with each succeeding year. After considering it for a few moments, he replied: "If each year Congress would increase my appropriation by a million dollars, I could make every dollar of it yield the American people a hundredfold."

SOME ACHIEVEMENTS OF THE DEPARTMENT.

And what has been accomplished by all this work—I could not begin to cover it if I talked to you constantly during every session of this Congress. I can only touch a few high places and leave the balance to your imagination.

You will appreciate this more fully when I tell you that the Department annually issues more than 1,100 separate and distinct publications in which are comprised more than 50,000 pages of matter. More than 12,000,000 copies of its various publications are issued annually, and considering its great bulk of more than 1,000 pages, the annual edition of 500,000 copies of the Department Yearbook, which costs $300,000, is the largest publication in the world.

It takes nearly a million dollars a year to foot the bills of the publication department alone, in order to lay before the people the result of the work of the Department scientists.

THE "WASHINGTON NAVEL" ORANGE.

From an economic point of view, probably the greatest achievement of the Department under the old régime was the introduction of the seedless "Washington Navel" orange. The wife of the American Consul at Bahia, Brazil, sent the Department three little orange trees of this variety.

One of these was forwarded to Florida, one to California and the third was planted in one of the Department greenhouses at Washington. The one sent to Florida died, the one planted in Washington is still thriving, while the third, planted at Riverside Cal., has furnished all the cuttings either by first or subsequent descent for all the orchards of that variety in the State.

The bulk of the California orange crop is of the navel variety, and last year the value of the entire crop was $23,000,000, and the railroads received $11,000,000 more for hauling it to market.

KAFFIR CORN.

Kaffir corn was first seen in this country at the exhibit of the Orange Free State at the Philadelphia Centennial in 1876, but it was not introduced until the eighties, when the Department sent samples to something over 1,000 correspondents. To-day Kansas, Oklahoma, and Texas are growing from 1,000,000 to 1,200,000 acres of this product, the annual yield being valued at $10,000,000 to $12,000,000.

SORGHUM.

At an early day sorghum was introduced here from France by the Commissioner of Patents, who had charge of our agricultural work. To-day a million and a third acres yield our farms some $20,000,000.

RICE.

Some years ago the Department established a station on the Gulf coast and conducted some rice experiments in Louisiana and Texas. As a result a large amount of capital was invested in the industry, constructing great irrigation works and planting vast areas of low land to rice.

The industry moved on apace, but was confronted with one great drawback. From a barrel of rice (110 pounds) only 40 pounds of head rice (or 36 per cent) could be secured, the balance of the kernels being broken in the threshing and handling.

The rice growers appealed to the Department for assistance and in 1898 Doctor Knapp was sent to China and Japan to study the question at first hands and secure a seed rice which would obviate the difficulty. Doctor Knapp spent many months in the rice-growing districts of China and Japan and brought back a quantity of many varieties of seed.

Result—Louisiana and Texas now annually produce four to five million barrels of rice, largely a short kernel, Japanese variety, and instead of a breakage of 64 per cent of the kernels in the threshing the breakage is but 19 per cent.

BULBS.

We annually import $1,000,000 worth of bulbs, mostly from Holland. The Secretary concluded that our farmers instead of the Dutchman ought to have this money.

He sent his scientists out to discover where we could best produce them. In the State of Washington they found ideal soil and climatic conditions and began their experiments. Success crowned their efforts.

Last spring I saw at the Department most gorgeous crocuses, daffodils, tulips, hyacinths, jonquils, and lillies, all produced from State of Washington bulbs, and the Department claims that in many cases the quality is even superior to any of the bulbs which can be secured in Europe.

CAMPHOR.

In most smokeless powders, camphor is a necessary ingredient. The camphor of commerce comes almost exclusively from the island of Formosa, and the island of Formosa is owned by Japan. Looking into the future, it would seem to be desirable that, if possible, we produce our camphor at home.

The Department is at present carrying on experimental camphor work in Florida and Texas. In the latter State they have several hundred trees already growing, with several thousand more ready to put into the field.

In Florida it has 50 acres to be occupied by trees from seeds derived from various sources in order to secure a product of the highest camphor content. A distilling plant on a small commercial scale will test apparatus being specially devised by the Department, some of which has already stood the test so well as to seem to justify patenting. While the experiments are confined to two States, there seems every reason to believe that camphor will do well in the Gulf strip where the temperature does not fall regularly or for any considerable time below 15° or 20° F.

If this experiment turns out as expected, not only will $600,000 a year be kept at home, but an important military article will be at our command, instead of being subject to the will of a foreign and perhaps hostile nation.

TEA.

We annually import about 100,000,000 pounds of tea, for which we send to the Orient, $14,500,000, the average import price being 14½ cents per pound.

It might almost be said that no one ever dreamed that even a poor grade of tea could be produced in the United States. But Secretary Wilson thought otherwise. After a most careful investigation he established an experimental tea station in South Carolina, the Department furnishing the scientists to aid private capital in operating two tea farms.

Last year these two farms produced 26,000 pounds of tea, which sold at 60 to 80 cents per pound at retail, and netted the producer 30 to 40 cents per pound, or two to three times the average price paid for imported tea.

Experts declare that the South Carolina tea is equal to the most delicate and finest teas which come to this country, and it took the gold medal at the Paris Exposition.

The production at home of all the tea we consume hinges on the question of labor and the Secretary expects that some day thousands and tens of thousands of our little pickaninnies will be engaged in picking tea leaves.

HOPS.

A few years ago disease attacked the American hop plants and it became necessary to secure a new stock or abandon hop growing. An expert was dispatched to Bohemia with instructions to secure 10,000 hop plants.

After making a careful study of Bohemia hop culture, the expert arranged for the shipment of the requisite number. When the Bohemian authorities learned what was about to take place they refused to allow the plants to be shipped, and the Department expert returned to Washington. But it was imperative that we have those plants and back the expert was sent, with instructions to pick up hop plants in small quantities wherever he could procure them, have them packed immediately, go with them to the express office, and see that they were shipped. He was instructed to follow up this procedure until he had shipped 10,000 plants. When he had shipped 8,000 he cabled that he could secure no more plants. The reply was that we must have at least 10,000, and he must get them. In other hop-growing districts he met with unexpected success, and when he had forwarded 20,000 plants was allowed to return.

We are still growing hops. Our annual production of 40,000,000 to 50,000,000 pounds yields the American farmer from $4,000,000 to $5,000,000.

DATES.

We annually send abroad over $500,000 for the purchase of dates, and within one year from the time he accepted the fortfolio of agriculture Secretary Wilson had set the machinery in motion whereby Arizona and California could be presented with a new source of revenue.

The agricultural explorers of the Department have since explored all the great date regions of the world. They have penetrated to the oases of the Sahara. They have gone up the Suez Canal; have made trips up the Persian Gulf and along the Tigris River; into Beluchistan and throughout the coastal regions of Arabia. They have brought back thousands of date palms by pulling them across the desert on camel backs and shipping them by steamers to this country, many of these palms being presents from the shieks of Arabia and Algeria.

Most of these date palms are growing in Arizona and southern California, and some of them direct from the Sahara have fruited in this country two years after their arrival. Enough of the imported varieties have fruited to prove conclusively that good dates can be grown in the Southwest, the result being of such a character that the demands for seeding dates is greater than the Department has been able to supply.

Private enterprise has now taken the matter up, a large number of date gardens are being planted, and we will soon be producing instead of importing our dates.

RESEEDING THE WESTERN RANGES.

The reseeding of our great Western stock ranges has given satisfactory results, particularly on the moist mountain meadows, where the Department has introduced timothy, redtop, red clover, white clover, and blue grass. It can be safely said that the seeding of these tame grasses will at least double the carrying capacity of the pastures and annually add millions and tens of millions of dollars to the value of our live-stock output.

ALFALFA INTRODUCTIONS AND INVESTIGATIONS.

The great importance and widespread popularity of alfalfa is a matter of common knowledge. This crop is the foundation of agriculture in all the irrigated regions west of the one-hundredth meridian. Without it profitable farming in this area would scarcely be possible, and through the securing by selection and introduction of drought-resistant strains it is rapidly becoming an important factor even in the dry farming of the great plains and transmountain areas. Indeed, there is not a State in the Union in which some examples of successful alfalfa culture can not be found.

The introduction of new varieties is of the utmost interest. The Department of Agriculture began this work during the nineties, when the now widely advertised Turkestan alfalfa was sent in by one of its explorers. Since that time this work of introduction has been continued by means of agricultural explorers, through our diplomatic representatives in foreign countries, and through correspondence with missionaries and other interested parties throughout the world.

A new variety has been secured from Peru, which is grown throughout the high table-lands of the Andes, suitable only for cultivation under irrigation in the mild climate of our extreme Southwest, where it promises to yield from one to two crops more than ordinary alfalfa.

A hardy, yellow-flowered form from the dry steppes of western Siberia, where the mercury sometimes freezes without snow, suitable for the agriculture of our northern prairie region, was one of the results of the exploration of 1906. An Arabian form for use in mild climates, similar to the Peruvian or Andean form already mentioned, has also been secured. In addition, alkali resistant types from the deserts of Asia Minor and northern Africa. A cold resistant strain from the plains of northern Mongolia and a form from some of the oases of the Sahara, able to thrive under higher temperatures than will the one commonly grown, have been secured in this work.

As soon as these new introductions are received they are turned over to the experts of the Department and investigations are immediately instituted to determine the particular climatic environments, soils, methods of cultivation, etc., also why they succeed or why they fail. An advance knowledge of these facts prevents thousands of dollars of loss annually to farmers, through attempts to cultivate under unsuitable conditions new and imperfectly understood varieties. It furthermore prevents the setbacks which invariably result

from the failures usually attending the introduction of new and little known crops.

PURE FOOD AND DRUG ACT.

The carrying out of the provisions of our recently enacted pure food and drug act is a new burden as well as honor to the Department of Agriculture, where it comes under the direct supervision of that veteran, world-famous chemist, Dr. Harvey W. Wiley, Chief of the Bureau of Chemistry. Doctor Wiley could interest you for hours talking on this intricate work, but time permits only an allusion to it.

Already nearly twenty chemical laboratories have been established in as many cities scattered throughout the land. In these laboratories over 100 expert chemists are engaged in examining and testing samples of imported or interstate commerce products, with a view both as to the contents and branding of the packages.

Over forty inspectors are engaged in visiting factories, inspecting raw materials, sanitary conditions, and procuring samples from manufacturers and dealers and sending them to the nearest laboratory for analysis.

In Washington it requires over fifty clerks to attend to the details of this work, which is conferring blessings upon every man, woman, and child in the country.

STATE EXPERIMENT STATIONS.

The annual appropriation bill of the Department carries an appropriation for the experiment stations of all the States, where the Federal scientists work in conjunction with the State scientists.

At these stations the work covers a vast range of subjects, but I will only allude briefly to live stock. At the Fort Collins, Colo., station they are at work on the breeding of American carriage horses. In Vermont they are breeding the famous Morgan horse; in Wyoming a type of sheep suitable to range conditions; in Minnesota a milking shorthorn, while in Maine they are at work developing new and better breeds of poultry.

SEED ADULTERATION.

No more despicable form of adulteration exists than seed adulteration, where the loss to the purchaser not only represents the value of the seed, but the cost of cultivation, and the season's loss of the use of the land.

I know of a case not a hundred miles from here where a widow woman sowed several acres of grass and the seed proved to be only weed seed. In the seed-testing laboratory of the Department of Agriculture I have seen samples of commercial alfalfa and clover and other seeds separated from the weed seed, where the weed seed formed by far the greater portion of the sample.

The Department gives special attention to the examination of the quality, germinating power, and purity of vegetable, flower, forage, and grass seeds and its campaign against the adulteration of both domestic and imported seeds has resulted in saving our farmers an almost endless amount of money and effort.

Means to prevent absolutely this heinous offense is now under consideration and the reliable seedsmen of the country are behind the movement.

PESTS AND BLIGHTS.

It is as important that pests and blights be eradicated, as it is that new plants be introduced, and the number which have been checked or eradicated by the Department is legion. It is safe to say that our farmers are being saved far more than $100,000,000 a year as a result of this class of work alone.

The work of the Department in inducing the apple farmers to use arsenical sprays against the coddling moth is saving them $20,000,000 annually.

The San Jose scale which at one time threatened to eliminate not only our fruit trees, but our shade trees as well, has been practically eradicated by the use of the lime-salt-sulphur spray so extensively used by the advice of the Department.

The cotton boll weevil, which causes an annual loss of $25,000,000 is being controlled wherever the recommendations of the Department are adopted; and the cotton worm, which once caused such havoc, is virtually a thing of the past.

I once was present when a delegation of Massachusetts cranberry growers appealed to the Secretary for help. A blight had stricken their plants. One of the delegation had lost a $4,000 crop, another $6,000, and another $12,000, while numerous others had suffered lesser losses.

The Department's annual appropriation bill was then pending at the east end of the Capitol.

The Secretary assured them that the Department could, and would gladly assist them, but that everything depended upon the size of his pending appropriation bill. He suggested that if the Massachusetts Senators and Congressmen had enough influence with their fellow-members to induce them to grant what he was asking for, the aid of the Department was certain. Those cranberry growers took the hint, boarded the first car for the Capitol, and they did not leave Washington until the entire Massachusetts delegation had been pledged not only to vote for, but to work for the bill.

The Secretary got his appropriation, his scientists got busy, and the cranberry blight was eradicated.

SEED AND PLANT INTRODUCTION.

One of the most interesting as well as important classes of work of the Department is that which is conducted by the Office of Seed and Plant Introduction and Distribution, under which the foreign explorations are conducted. The office was established early in 1898 and is part of the Bureau of Plant Industry over which Doctor Galloway so ably presides. Since its establishment there have been introduced through this office exactly 21,531 plant shipments. These thousands of new introductions vary in quantities from a single seed to several tons of seeds; from a single cutting to large shipments of living plants.

The range of crops covered is remarkable—from new varieties of oats for Alaska to East Indian mangos for Porto Rico, Hawaii, and

Florida. Practically every condition of climate and soil in the world can be duplicated in the United States and its possessions, and the introductions of the last few years have covered this whole range of climate. Since January 1, 1904—that is, during the last four years—exactly 11,635 numbers have been added to our inventory of newly introduced things.

At the present time the Department has in China an agricultural explorer who has been there nearly three years. He has covered thousands of miles of territory; has visited the principal places of interest agriculturally in Manchuria, southern Siberia, and northern China; has twice faced death, once among the Chinese and once among the Cossacks, and has sent in over 1,000 shipments of seeds and scions. Among the things secured by Mr. Frank Meyer are a hardy persimmon, which will probably thrive in the New England States; dry land rices, new varieties of soy beans, drought resisting alfalfa, valuable varieties of Chinese pears, peaches, plums, quinces, apricots, cherries, pistaches, grapes, and many new and valuable ornamental shrubs and trees.

Among the things which are being sought for in foreign countries at the present time are the hardy bamboos of the Orient; new varieties of barley; the best cork oaks in order to start the cork oak industry in this country; better varieties of hemp for the Kentucky hemp growers; East Indian mangos for the Florida mango growers, matting plants from different parts of the world to stimulate the production of a supply for our matting manufacturers; wet land crops for the south, such as the yautias, and taros of the Orient; wild apples, wild asparagus, wild celery, and other wild plants for the use of the many hundreds who are engaged in the breeding of our cultivated crops and who desire new materials of a wilder character for their breeding experiments.

BEET SUGAR.

Four months after James Wilson became Secretary of Agriculture, Congress passed a tariff bill, the sugar schedule of which was devised for the express purpose of encouraging the production of sugar from American grown beets.

For many years one of Mr. Wilson's hobbies had been that the American farmer was entitled to and should receive the $100,000,000, which we were annually sending abroad for sugar, a product which he was perfectly capable of producing.

At that time six struggling beet sugar factories were in existence and were paying the farmers between $1,000,000 and $2,000,000 annually for their beets. The new Secretary secured a special item in his appropriation bill allowing him money for sugar investigations and experiments. Doctor Wiley was as much of a beet sugar enthusiast as was the Secretary, and the Bureau of Chemistry, the Bureau of Plant Industry, the Bureau of Soils, as well as other bureaus immediately took the fever. Different varieties of seed were imported from all the seed growing districts of Europe and thoroughly tested for vitality, germination, etc. Bulletins of instructions to farmers were issued, showing how to produce the crop and outlining its advantages. Vast quantities of colored maps were issued showing

the theoretical thermal belt of the United States in which beets could be grown.

Mr. Saylor, one of the Secretary's most valued and astute friends, was induced to travel about the United States from ocean to ocean as well as in Porto Rico, Cuba and Hawaii, gathering information concerning the sugar industry and its progress in order that an annual report could be published on this subject.

Such a demand grew up for these reports that one year Congress ordered 120,000 copies printed, and from the first year of the Secretary's incumbency a fresh report has appeared annually with the regularity of clockwork. And what has been the measure of success?

Instead of 6 beet sugar factories we now have 63. Instead of an investment of a couple of millions in the industry there is now invested in it nearly $100,000,000. Instead of the industry being confined to three States, it has spread out over sixteen States, running from New York on the east to California on the west and last year the farmers of the United States received over $22,000,000 for their crop of sugar beets.

SINGLE GERM SUGAR BEET SEED.

There is nothing "hide bound" about the Department of Agriculture. Its work is not confined to working out the preconceived ideas of its head, its chiefs, or its employees, but, on the contrary, practical suggestions are always welcomed.

Let me give you an illustration of this. The so-called sugar beet seed is in reality a cluster of seeds confined within a fibrous substance known as a beet ball. The average number of plants which germinate from each ball is 3½, and in whatever manner these balls may be planted there is a surplusage of beetlets which must be pulled up. This is laborious work, is done on hands and knees, and just at the opportune time. Even with the utmost care much damage is done to the remaining beetlets, which results in a loss of tonnage.

I conceived the idea of breeding a beet ball which should contain but one seed, so that the surplus beetlets could be removed with a hoe and without damage to the remaining ones. I suggested the idea to several sugar men and was laughed at for my pains. I suggested it to the Secretary of Agriculture and he jumped clear out of his chair and exclaimed, "Yes, we can do it, and will do it, and it will mean untold millions for the American sugar beet farmers."

To make a long story short, commercial sugar beet seed contains from 1 to 2 per cent of balls carrying but one seed. Two thousand of these single germ balls were selected and planted. Two years ago last fall the first generation came to seed and the best plants showed 26 per cent of the single germ variety. Last fall the second generation grown from the 26 per cent plant was harvested and showed a fraction over 50 per cent single germ balls.

To-day it is confidently expected that within from four to eight years we will have this single germ characteristic fixed and can then commence producing commercial seed of this kind. If we could have used such seed last year it would have meant more than $10,000,000 additional money to the American farmers. When the bulletin which I wrote on the subject for the Department was published the European beet sugar papers copied from it extensively and universally

ridiculed the idea, but thanks to the work of our Department of Agriculture we will soon distance the scientific beet seed growers of Europe who have been steadily engaged at it for over a century.

SUMATRA WRAPPER TOBACCO.

A few years ago we were annually importing about $8,000,000 worth of high priced Sumatra wrapper tobacco. Secretary Wilson wondered if it were not possible to turn that money into the pockets of our American farmers rather than to send it to the Orient.

He dispatched a scientist to the island of Sumatra where he remained nearly a year, studying soils, climatic conditions, and cultural methods. He not only brought back seed, but samples of their most productive soils.

The next move was to discover whether or not we possessed similar soils, and corps of soil scientists scoured our various States in their search. Like soils were discovered in Connecticut, in Georgia, and in Florida, but of course none of these localities possessed the climate of Sumatra. Ergo—make it. The Department tented over an acre of ground in each of several localities and placed a scientist in charge of each station. Result—instead of as heretofore a small crop of inferior tobacco, worth 9 or 10 cents per pound, a large crop of high-grade wrapper was produced which brought from 30 to 60 cents per pound. Then private capital embarked in the industry, and last year 7,200 acres of this superior wrapper tobacco was grown under tents in Florida, Georgia, and Connecticut, and preparations are under way for the investment of several more million dollars in the industry.

The tobacco so produced in Georgia and Florida brought an average price of 60 cents per pound and the average returns in those States was $600 per acre. Last year alone nearly $4,000,000, which otherwise would have been sent to the Orient for wrapper tobacco, went into the pockets of the tobacco farmers of these three States.

From the Connecticut fields, the Bureau of Plant Industry has selected a type of wrapper which has proved to be one of the finest types ever produced, and this is rapidly replacing all other types in Georgia and Florida.

It seems to be a question of but a very few years when the remaining $4,500,000 we now send abroad for wrappers, will go into the pockets of our American farmers instead.

CUBAN FILLER TOBACCO.

Having solved the wrapper tobacco question, the Secretary set about to solve the problem of diverting to the pockets of the American farmer the $14,000,000 we annually send to the Tropics for filler tobacco.

He sent his scientists to the most famous tobacco districts of Cuba to study conditions as they had been studied in Sumatra. On their return similar soils were found in Florida, Georgia, Texas, and Ohio, and there the Cuban seed was planted.

Last year 6,535 acres were planted to this tobacco in the four States mentioned. The yield was from 550 pounds per acre in Texas to 1,060 pounds in Ohio. The price received by the growers was

from 11½ cents in Ohio to 24 cents in Texas. The returns per acre ran from $115 in Ohio to $175 in Florida, and the industry is already yielding our farmers nearly a million dollars a year. By the courtesy of the Secretary I have smoked cigars produced from selected Texas grown tobacco which were equal to any 25-cent or three for a dollar Cuban cigar you can buy.

It should not be long before the farmers of Ohio and the Gulf coast will be receiving that $14,000,000 which we now send to the West Indies for filler tobacco.

MACARONI WHEAT.

Early in his work with the Department the Secretary concluded that it was folly for this great wheat-producing country to annually import millions of dollars worth of macaroni and vermicelli.

To determine the exact character of the wheat used to produce it he had Doctor Wiley analyze several samples, and then he dispatched a scientist to the Mediterranean to study the whole subject and bring back samples of the wheat.

There he found the manufacturing end, but not the wheat fields. European manufacturers are more secretive than are those of America, but a chance remark led him to purchase a ticket for Russia. After an extended search through numerous wheat-growing provinces he landed away up on the arid plains of the Steppes of Russia. Although the annual rainfall of that desolate country was but 10 inches, there he found the wheat fields which were supplying the macaroni factories of the Mediterranean. He shipped three carloads of this wheat to Washington, and subsequently, on the deserts of Algeria, he discovered a similar variety which was being used for the same purpose.

These samples of drought-resisting and rust-resisting wheat were distributed to farmers in our semiarid regions west of the one hundredth meridian where we had heretofore been unable to produce wheat. To the utter astonishment of our farmers, fields of more than 30 bushels to the acre were secured with an 8-inch rainfall and the first year's production was used entirely for seed.

In 1902 we raised 200,000 bushels of it. In 1904 we produced 10,000,000 bushels, and last year our crop of durum or macaroni wheat reached the enormous sum of 60,000,000 bushels, thus in a single season pouring an additional stream of $50,000,000 gold into the pockets of our western farmers.

As soon as the production of this cereal outran the home consumption, the Department introduced it abroad. While to-day we are both producing and importing macaroni, the foreign demand for this wheat is more than sufficient to use our whole crop if it was desirable to let it go.

Not only has the introduction of durum wheat enormously enriched our farmers by extending the wheat-producing area throughout large portions of the arid West where other varieties will not thrive, but this variety has been found to be particularly resistant to rust and yields good crops where ordinary wheats are completely destroyed by this disease. Its use is not confined to the manufacture of macaroni, but it is used to a considerable extent for ordinary bread

flour and for blending with other flours, having in many respects superior qualities.

This unheralded experiment cost but a few thousand dollars and already yields us enough money to add six new battle ships to our Navy every year. In one or two decades the cash returns from this single experiment will exceed the total value of our Navy and coast defenses combined. And yet we cheerfully expend over $100,000,000 a year on our Navy making an effort to impress the world with our greatness and warning the nations not to invade our territory, while many good people grumble at the miserly eight millions a year expended on the industry which enables us to strut the seas.

Battle ships never yet opened up great foreign markets. The people of the world buy where they can purchase the cheapest. Teaching our farmers how to produce abundantly and cheaply the crops which the world wants and must have is what opens up foreign markets; and if for a decade we were to reverse the order of our appropriations and judiciously expend a hundred millions a year on agriculture and eight millions on the Navy, our power, our greatness, our prosperity, and our happiness would be the marvel of the world.

We rightfully boast of our inventive genius and of our marvelous prosperity, but in scientific agriculture, in good roads, and in internal waterways we are far behind most of the great nations of the world.

While neglecting these prolific sources of national wealth we have expended over $500,000,000 to satisfy national pride and float our flag in the Orient. Our War Department absorbs $122,000,000 a year and the Navy Department a hundred millions more, while fifty millions is annually absorbed in running the Philippines.

With this vast annual expenditure on external affairs and only eight millions for agriculture, is it not time for an awakening as to the far greater importance of increased expenditures on internal affairs where each dollar expended, instead of calling for additional thousands of expenditures, will mean thousands of revenue and wealth.

MENACES TO AMERICAN AGRICULTURE.

As to actual and active menaces to our agricultural prosperity and development we have but one. With our recently acquired tropical possessions a new and important economic problem has appeared which must soon be settled.

We annually import about $400,000,000 worth of agricultural products. About one-half of these products, mostly sugar and tobacco, are produced in the temperate zone as well as in the Tropics, and Secretary Wilson is teaching the American farmers how to produce them in this western and southern country, as well as in some portions of the Eastern States.

The other $200,000,000 worth are produced only in the Tropics, and consist of such articles as coffee, rubber, fibers, cacao, copra, indigo, etc., all of which grow to perfection in our island possessions.

That grizzled old statesman, Secretary Wilson, recommends that we teach the people of our island possessions to produce the $200,000,000 worth of tropical products which we can not raise at home, thus helping those people without injury to our own farmers. But not all statesmen are as practical as James Wilson. There is a

small bevy of self-styled "altruistic statesmen" who, for reasons best known to themselves, ridicule the idea of aiding the people of our island possessions to produce what we are unable to produce at home. They insist that our island people be coaxed to produce our sugar and tobacco, thus robbing the American farmer of two of the most profitable crops which the Secretary of Agriculture has taught them to produce, as well as depriving them of all hope of eventually producing on American farms the $120,000,000 worth of sugar and tobacco which we still import.

It is devoutly to be hoped that the Wilson type of statesmanship will prevail; that in due course of time we will produce on the mainland every article we are capable of producing, and that we will enrich our insular possessions as well as make us more self-sustaining as a nation, by encouraging our insular population to produce all that we are unable to produce at home.

TO ATTAIN MAXIMUM ECONOMIC RESULTS.

As directly affecting agriculture, the natural sequence of governmental expenditures should be: First, teach the farmers what to produce and how best to produce it. Second, by constructing and maintaining at least one national highway across each State, furnish an object lesson to our people which would result in a universal system of good roads throughout the States, thus affording the farmer the lowest cost of transportation on all his products to the nearest station or warehouse or wharf. Third, a complete system of inland natural waterways and canals, by means of which he would be able to deliver his export crops to tide water at a minimum freight rate. Fourth, deep harbors which would accommodate the merchant marine of the world, and then, if not enough ships are to be had to transport our products to the markets of the world, create a great American merchant marine by means of ship subsidies. This, gentlemen, is the logical sequence for economic development, not only in agriculture, but in the main, for our great manufacturing and mining industries as well.

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