Specimen of the seed type of sugar-beet

Sugar-beet seed cut and piled in rows

Seed stems covered with paper bags after trimming

Making America Self-Supporting Breaking Germany's Monopoly on Sugar-Beet Seed

By Truman G. Palmer, Executive Secretary, U. S. Sugar Manufacturers' Association

MUCH has been written about the dependence of the United States upon Germany for many of the essential raw products used in manufacture. Instances are indeed not lacking where great manufacturing industries are more or less dependent upon foreign countries for some portion of their raw material; but that an industry established and operating in all the great temperate-zone nations of the world, and supplying the world with one-half of its pre-war sugar requirements, should be almost entirely dependent upon less than a dozen wealthy men in Saxony, is a fact as remarkable as it is deplorable.

Prior to the outbreak of war in Europe, the world produced approximately twenty million tons of sugar annually, about one-half of this being derived from sugar beets and the other half from sugar cane. While the sugar produced from these two plants is identical, there is a vast difference in the methods of propagation of the plants. The sugar cane of the tropics springs from the same root year after year and comparatively little cultivation is necessary to produce a crop. In order to grow a crop of sugar beets, on the other hand, it is necessary to plant the seed each year, and the plants must be intensively cultivated throughout the growing season. Again, the wild beet is low in sugar content, and it is only after many decades of patient scientific work that a sufficient amount of sugar has been bred into it to make it a profitable crop. Inasmuch as the tendency of the plant is to revert to its original state of low sugar content, the work of the plant breeders is never ending, and sugar companies naturally purchase their seed from breeders of the highest established reputation. It so happens that the leading sugar-beet seed growers of the world are located in Saxony; this one province supplied nearly 70 per cent of the seed from which the world, in 1913-14, produced 9,784,000 tons of beet sugar, or one-half its total sugar production. In fact, 90 per cent of the world's beet-sugar crop in the year mentioned was produced from seed grown in Germany and by German

firms which controlled the large production of Russia.

Bearing the above facts in mind, one readily can appreciate the position of the American beet-sugar industry at the outbreak of war in Europe. The American beet-sugar factories were importing about ninety-one per cent of their annual seed requirements from Germany and Austria, while every other country from which we imported seed was either directly involved in the war, or indirectly affected by it. But upon the outbreak of war, conditions surrounding the importation of seed were entirely disrupted and the situation was the cause of grave concern to American producers. It was a particularly unfortunate time to be cut off from the usual supply, as seed stocks in the United States had never been so low. The average New York wholesale price of granulated sugar for 1913 had dropped to 4.278 cents per pound, the lowest in history, and Congress had provided that the import duty on foreign sugar should be abolished on May 1st, 1916, which would still further lower the price of the product. Discouraged by the gloomy outlook, company managements had allowed their seed stocks to decline and when war was declared in 1914 and the price of sugar began to recover, some beet-sugar companies did not have a bag of seed on hand for their 1915 planting, others had but a small supply, and only a few were well provided for.

After the outbreak of war, the German and Austrian seed growers demanded payment in Rotterdam, upon delivery of railroad bills of lading. In the fall of 1914, the financial and industrial conditions were in such a chaotic state that it was found necessary to send a committee of beet-sugar manufacturers to Rotterdam, not only to arrange for payment at that port, but also to facilitate seed shipment. During their stay of practically two months, the committee finally succeeded in shipping between nine and ten million pounds of beet seed.

In 1915, a survey showed that the quantity of German seed desired for 1916 planting in the United States amounted to from 14,000,000 to 16,000,000 pounds.

British blockade and German embargo had broken off business intercourse between the United States and Germany, except through diplomatic channels. In negotiating for the importation of seed it was accordingly necessary to conduct all correspondence by cable through the Department of State. This correspondence brought an ultimatum from the German Government that the exportation of sugar-beet seed to the United States would be allowed only upon the condition that we first land foodstuffs or cotton at a German port, to the value of the seed to be exported. But Great Britain had blockaded German ports and would not recede from her position. After several months, during which time scores of cablegrams passed between Washington and Berlin, permit to export a meagre 1,650,000 pounds was secured from Germany, "as a special consideration to the United States." Germany, however, reserved the right to designate the companies from whom the seed should be purchased and these in turn designated the American companies to whom it should be allotted.

But the difficulties did not end here. After securing permission of the German Government to purchase 15,000 bags of seed in that country, it then was necessary to get British consent to ship the seed from Rotterdam. This required many weeks of diplomatic correspondence between the United States and British Governments. While this was going on, and several weeks after the German export permit had been granted, the State Department was informed that unless the money in payment for the seed was actually in Germany on a certain date, and the seed actually exported beyond the borders of that country, the permit would be revoked. The time limit set was so short that it was physically impossible for all the American beet-sugar producers to complete the financial arrangements, so one of the larger companies stepped into the breach and guaranteed the entire amount, which was immediately cabled to Germany by the express company. Due to this action, the

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Shocks and standing plants of sugar-beet seed

Cutting and tying the shocks of sugar-beet seed

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considered infected wounds at the very beginning and are treated as such. . . . Many wounds, which come to us infected clear up most marvelously, and new injuries treated early with the solution heal by first intention." It is worth while telling just how ambulatory cases are taken care of at this particular establishment, because it illustrates what can be prevented by prompt action even where men labor in a dirty germ-laden environment. Manifestly, the walking patient calls for a different procedure from the man abed. To quote, "A dressing is applied over the wounded area in such a way that the denuded or exposed tissue laceration is free from pressure. First, the wound is thoroughly, but carefully, cleaned with Dakin's solution, either by spray or swabbing off with cotton. Pressure is made around and about the outside edges of the wound, previously covering the uninjured parts, to be included in the bandage, with vaseline gauze. The bandage is then applied and the patient is instructed to pour through the depression in the bandage where the opening of the original dressing appears, sufficient of the Dakin's solution, every two hours, to thoroughly wash out the chamber within. The patient is supplied with a bottle of the Dakin solution sufficient to carry him over to the next dressing. When the injury is a small one, the dressing is applied as before mentioned, and the patient is supplied with a medicine dropper in addition to the bottle of the solution, and is instructed about the use of the solution."

The vaseline gauze is needful because the hypochlorite of soda, while it does not hurt raw tissues does erode the skin, and the cuticle must be protected. According to the physician just quoted, he has found Dakin's solution entirely satisfactory in 6,000 observed injuries; and among these were lacerated fingers and compound fractures of bone where partially severed members, held only by the slightest piece of integument, have been saved.

In civil surgery, the Carrel-Dakin treatment of infected wounds has been of marked success in a wide range of maladies—such as appendicitis, peritonitis, mastoiditis, puerperal fever, etc., and its application is daily widening. Thus insidious micro-organisms are being dealt with effectually, the work of the knife is being reduced accordingly, and the patient is returned to health and strength with a minimum of mutilation. Not only that, but an aftermath of reinfection is effectually prevented and recovery achieved in a remarkably short while. Such is one blessing born of the war.

Potash Independence

(Concluded from page 546)

plant juice or the use of kelp ash as such. Theoretically the blast furnace can be made to add to its usefulness by using potassium-bearing rocks and then precipitating the potash by the Cottrell system just as is done in the cement mills. It is claimed that 76 pounds of potash per ton of iron can be obtained in this way. What a tonnage that would produce!

Then there are many less important sources. Eighteen thousand tons of potash are estimated as the amount annually present in the liquors from the beet sugar factories. Crude wool, of which 290,000,000 pounds was washed in 1914, contains about 4½ per cent of potash and distillery slops carry a small amount. Banana stalks have 10.46 per cent when dried down to 4 per cent moisture but the collection difficulties are obvious. The same is true of tobacco stems, yielding 5 to 6 per cent. Wood ashes, formerly so extensively bleached for potash, have varying amounts according to the kind of wood, the red oak being credited with 24 per cent, the chestnut with 18 per cent and the dogwood with 28 per cent. In fact most vegetation holds some potassium in combination and the problem is one of economical collection and separation of potash from other mineral salts.

Those using large amounts of Chilean nitrate of soda, have found ways for separating from it the small amount of potassium nitrate it contains and, with the present consumption of nitric acid, this source may become valuable.

It is interesting to note that after all much of our land needs phosphate fertilizers more than potash, thus emphasizing the need for soil analysis and intelligent use of fertilizers regardless of German propaganda. Our wheat is usually grown on soils well supplied with potash and our corn crops are not likely to suffer. Potatoes, beets and turnips do need potash but it has been shown that 100 per cent could be earned on potash used in the potato belt of Wisconsin, for instance, even at the present five-times-normal price for such fertilizers. Then we have much unused potash-bearing land in the United States which can be called upon, and in the last analysis we need labor more than we do potash.

It is encouraging to note that while the use of by-products has until lately been the problem in potash production in America, it now seems assured that potash itself can be made the by-product and this in industries where production is on a tremendous scale, i. e., cement and iron.

When our resources are tabulated who shall say that we shall not win independence in potash as one outcome of the war?

Making America Self-Supporting

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last ear of seed rolled over the German border into Holland on the day set for the expiration of the export permit. Although this seed was furnished at the then existing contract price of eight cents per pound, in such desperate need of seed were some of the American companies which did not participate in the distribution, that they paid their more fortunate competitors as high as 60 cents per pound for their surplus seed. Since that time, no further imports of seed have been secured from Germany.

Estopped from securing any further seed from Germany and Austria, the domestic beet-sugar producers turned to Russia. Fortunately, a considerable quantity of Russian seed had been left over from old stocks, on account of the decreased plantings. But as soon as the Russian seed growers learned of the situation, the price of Russian seed immediately rose to three times its usual value. Instead of paying from 7½ to 8 cents per pound, the American beet-sugar companies were compelled to pay from 20 to 25 cents per pound, and in addition most of the Russian growers demanded full payment for the seed before it left their shipping stations, which are located in southwestern Russia, 6,000 miles from Vladivostock. The single track railway from Kieff to Vladivostock was at that time congested with war traffic and often was closed to commercial freight for weeks. Notwithstanding this, American sugar factories assumed the risk and forwarded a million and a half dollars to Russia without any positive assurance that the seed could be brought out.

Before the seed could be shipped out, it was necessary to secure export permits from the Russian Government, and in order to obtain these the companies were compelled to file, with the Russian Commercial Attaché in New York, bonds for the full purchase price of the seed, indemnifying the Russian Government against its reexportation after arrival in the United States. On these bonds the companies were compelled to pay approximately \$20,000 in premiums. After months of delay, involving the sending and receipt of innumerable cablegrams, the seed began to move, but it was not until nearly a year after it was purchased that some of it reached the United States.

Last year, on account of the chaotic conditions existing in Russia, the lack of ocean tonnage, etc., the seed situation became even more acute; but after months of negotiation the beet-sugar companies finally succeeded in securing a sufficient supply for the 1918 planting. But in view of the fact that the Germans have invaded the sugar-beet seed districts of Russia, there seems little prospect of securing any foreign seed for next years' planting.

Prior to the outbreak of war in Europe, little had been done by the American companies in the way of growing their own seed, owing mainly to their antipathy to embarking on a new enterprise which re-

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quires so much technical skill, the utilization of intricate scientific methods, and the outlay of large sums of money in its inauguration. The European sugar-beet seed growers have been engaged in the industry for decades. Through scientific research extending over a period of nearly a century they have succeeded in producing strains of seed of such high grade that it seemed impossible to increase the standard of quality appreciably. In addition, women and children do the bulk of the field work on European sugar-beet seed farms; and the low wage paid to this class of labor has made it possible for foreign growers to bring the cost of production to a point so low that, with our high-priced labor, we cannot produce sugar-beet seed at anywhere near the cost at which it can be grown in Europe. And so, while some of the American factories had been experimenting for several years in the growing of sugar-beet seed, but little commercial seed had been produced in this country prior to the outbreak of war.

In this connection, it may be of interest to note that ordinarily five years of painstaking scientific work are required before a crop of commercial beets is harvested. For instance, let us suppose that in the spring of the first year the original selected seed is planted. The beet is a biennial; so in the fall those plants which pass a physical selection of foliage and root and a chemical test of the root are siloed for the winter, where they are kept from frost and heating. These are known as "mother" beets. In the spring of the second year these "mothers" are uncovered and after passing a second chemical test, are planted in the field and in the fall yield a crop which is known as "élite" seed. In the spring of the third year, the "élite" seed is planted closely in order to grow a crop of small beets, called "stecklinge," which are gathered in the fall and preserved in silos until the next spring. In the spring of the fourth year, the "stecklinge" are planted and in the fall they produce a crop of commercial seed. This is planted the next spring, producing beets from which sugar is extracted in the fall, five full years from the time the scientific work began. If the cycle started this spring it would be the fall of 1922 before the first definite returns were in.

Notwithstanding the intricacies of sugar-beet seed culture, and the tendency of the American beet-sugar manufacturers to import their seed from foreign concerns which had made this their sole business for many decades, after the difficulties of 1914 these manufacturers began to realize the precarious condition of their industry as long as it was dependent upon foreign countries for its seed supply, especially during the continuance of the present war.

It therefore was decided, in the summer of 1915, to take up in earnest the matter of producing their own seed in the United States. In the fall of that year a cooperative beet-seed company was organized with a capital of \$100,000, and several of the individual beet-sugar companies which had conducted experiments in beet-seed growing began increasing their efforts along these lines. It was well understood that under the most favorable conditions, it would be many years before sufficient home-grown seed could be produced to supply the annual requirements of the industry, but while climatic conditions were unpropitious during the first year of the operation of the company, a fairly good start was made. The capital of the company has since been increased to \$300,000 and considerable land has been bought and rented for beet-seed culture, with the results that practically one-third of the seed required for this year's planting was produced in the United States by the cooperative seed company and the individual sugar companies which have extended their work in the production of home-grown seed. While the cost of production is considerably higher than in Europe, there is reason to believe that strains of seed of a higher quality than the European strains, both as to tonnage per acre and sugar content, will be produced.

Three centuries ago Shakespeare penned the words, "Sweet are the uses of ad-

versity," and these words are as true today as they were 300 years ago. Had the American beet-sugar companies not passed through the vicissitudes of the present war, had they not met with almost unsurmountable difficulties in securing foreign-grown beet seed, it is more than likely that we should still have continued to be dependent upon Germany for this most important essential in the manufacture of beet sugar, and that that country would have continued to reap the benefits of this valuable market. As it is, with the energetic efforts being put forth by the domestic industry to produce at home all of its seed requirements, the indications are that when peace conditions again prevail, Germany will awake to find that she has lost a valuable annual market for over a million dollars worth of sugar-beet seed; a new and important American industry will have been established, and the American beet-sugar producers will have become independent of foreign countries for their supply of beet seed.

Launch of the First Fabricated Ship

(Concluded from page 551)

ship before she was launched. The boilers will be oil fired, the fuel being carried in the double bottom in more than sufficient quantity to cover the round trip to Europe.

We have spoken of the "Agawam" as a "fabricated" ship, which means that the majority of the work upon her has been done at various mills, foundries, machine shops, etc., throughout the country; the work at the shipyard consisting merely in the erection of the ship with a minimum amount of plate and frame bending to be done at the yard. Approximately 27 steel mills, 56 fabricating plants, and 200 foundries, machine, pipe, foundry and equipment shops are engaged in the production of the parts to make up the finished ships. It is the belief of the company that, when the yard is in full swing, and the steel and general equipment are coming in on time, it will be possible to launch a ship every two days.

The name, "Agawam," which was selected by Mrs. Woodrow Wilson, means literally "Great Salt Meadows of the Atlantic Coast."

Collecting Rubbish by Motor Trucks

(Concluded from page 552)

the scientific system under which the fleet of trucks is operated. Housewives place the ashes and rubbish in cans, boxes, barrels and other receptacles along the curbs and a few hours later they are dumped in the body of the trucks. In order to increase the load capacity the bodies of the trucks are built with 24-inch extension sides. This extra height permits each truck to haul 12 cubic yards on a single trip. Each day's work is divided into three sections and each section is in charge of a foreman who has four trucks and a crew of eight men under his supervision. There is a driver for each truck, a man who lifts the ashes from the curbs and another helper who distributes the loads in the truck. The labor of loading is greatly simplified by special openings in the sides of the bodies through which the baskets, boxes and cans are passed. Six trucks are loaded simultaneously in three sections and the motors are kept running continually from morning until night. Despite this the trucks have proven economical to operate and have earned a good profit.

After a truck is loaded, a heavy canvas cover is placed over the body to prevent the ashes falling to the pavement and being blown by the wind. The average distance from the point of collection to the dump where the ashes are deposited, is six miles one way, and in making this haul the trucks travel over definite routes through the city's most congested business thoroughfares.

The ashes are deposited in an old swamp adjoining the League Island Navy Yard, at the extreme north end of Broad Street. The corporation is paid for the ashes hauled to the dump by a wealthy Philadelphia philanthropist who plans eventually to convert the swamp into a public park and playground.

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The Two-Man Tank

THE large British tank which is being taken over the country by the British-Canadian Army to create interest and do its bit toward getting recruits, was left standing on the street in Springfield, Mass., while the officers in charge went to lunch. When they returned they found that the tank—known as "Miss Brittania"—had a little colt toddling by its side. The colt was vigorous and frisky and very imitative.

The colt turned out to be the experimental "two-man tank," thus brought into public view for the first time, with the idea of comparing its performance with that of its big English mother and to see whether there was anything in the big one to offer a suggestion whereby the baby tank could be improved. The inventor is satisfied that the small machine will go anywhere the big one will go and many places where the big one won't go, and that it is much faster. The one exhibited had the ordinary runabout body, so the method of armoring was not disclosed. The inventor hopes to have his machine adopted by the army for the regular use at the front.

Mother and daughter—a British tank and its American offspring

shaft and out at the top, thence making their way to the surface where they can be picked up.

Mr. Nanni suggests the employment of a buoy at the bottom of the shaft, connected to a cable wound on a reel. As the last buoyant safe leaves the shaft the buoy comes through, pulling the cable after it. This buoy not only serves to give greater buoyancy to the safes while they are in the submerged tube, but it marks the location of the sunken vessel for the benefit of anyone who wishes to undertake salvage work.

base of the nose. It will be noticed that this section of the shell was slightly scored by the rifling of the gun as the shell passed down the bore. Since "duds" are comparatively rare with modern guns, this particular example of slacker shell is of peculiar interest.

Copyright International Film Service

Retaining shaft at the right and buoyant safe at the left, used in the trial

Floating Safes for Use Aboard Steamers

THE other day the floating safe of Menotti Nanni of Chicago, Ill., was given an official trial. And it came through successfully, thereby fulfilling the predictions of the inventor and proving to everyone that it is now possible to safeguard mail and treasure aboard steamers, even in these days of lurking U-boats.

Briefly, Mr. Nanni's floating safe is a short cylinder with rounded ends, as shown in one of the illustrations. The cylinder contains suitable buoyancy members, as well as a revolving arrangement of partitions so that any one of the radially arranged compartments may be brought in line with the single door, thus permitting mail, jewelry, money or other valuables to be deposited for safe keeping.

A number of these floating safes are placed one above the other in a long tube or shaft extending down through several decks of the steamer. At each deck a door is provided, so as to give access to the safe opposite that deck. In this manner any safe can be reached with the same convenience as the conventional safe, and by turning the inner arrangement any compartment can be brought in line with the door. The tube has really two skins; the outer one, which is intact but for the exception of the doors at each deck, and an inner or perforated skin. The object of this double skin arrangement is at once evident: it permits water to pour down through the tube to the very bottom of the shaft, so as to give the proper buoyancy to the safes. The top of the shaft, extending through the upper deck, is provided with a buoyant removable cover which, in turn, has a suitable inlet for water.

Should the vessel be sunk, water would enter through the inlet in the buoyant removable cover of the shaft, and pour down between the skins and through the perforated inner wall to the safes. Soon the safes have sufficient buoyancy, and press up through the

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Buoyant safe coming to the surface after freeing itself from the shaft

German 15-inch Shell Thrown into Nancy

AFTER the disastrous defeat of a great German army in its attack on Nancy in 1914, the Germans were pushed back, and ultimately dug in permanently at a distance of several miles from this city. In accordance with their policy of attacking the civilian population as well as the armies of the enemy, they have emplaced batteries of heavy guns behind their own lines, and have engaged in a desultory bombardment of such French cities as they were able to reach. A most conspicuous and outrageous instance of this is the bombardment of Rheims, which, with its glorious cathedral, is now utterly

Unexploded 15" shell, thrown by the Germans into Nancy

Launch of the First Fabricated Ship

IN the autumn of last year we presented plans of the great shipbuilding yard, which was then under construction at Newark Bay, New York, for the Submarine Boat Corporation. This firm is the same that built the 550 standardized submarine chasers which have done excellent work in European waters.

The yard is equipped with 28 shipbuilding ways and with a wharf of sufficient capacity to accommodate the ships after they are launched and during the period of outfitting with engines, boilers, etc. At the present writing, the keels have been laid for 28 5,500-ton steel fabricated ships, which are in various stages of completion. The first of these was laid early in December, and the ship was launched on June 1st in the presence of Charles M. Schwab, Director-General of the Emergency Fleet Corporation, and Henry A. Carse and H. R. Sutphen, respectively the President and Vice-President of the Submarine Boat Corporation. The "Agawam," as she is called, is the first of 150 vessels of exactly the same size and type which this company is building for the Emergency Fleet Corporation of the United States Shipping Board. She will have a displacement, approximately, of 7,800 tons when fully loaded and a dead weight capacity of about 5,500 tons. She measures 343 feet on deck, and is 46 feet broad and 28 feet, 6 inches deep. The estimated maintained speed of the vessel at sea, on a mean draft of approximately 23 feet, will be 10½ knots. The ship will be driven by a Westinghouse steam turbine running at 3,600 revolutions per minute, which will drive a single screw propeller at 90 revolutions per minute through a Westinghouse reduction gear. Steam will be furnished by two Babcock and Wilcox water tube boilers, which, by the way, were installed in the

Launch of the "Agawam", first of the "fabricated" ships, at Newark Bay Shipyard

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quires so much technical skill, the utilization of intricate scientific methods, and the outlay of large sums of money in its inauguration. The European sugar-beet seed growers have been engaged in the industry for decades. Through scientific research extending over a period of nearly a century they have succeeded in producing strains of seed of such high grade that it seemed impossible to increase the standard of quality appreciably. In addition, women and children do the bulk of the field work on European sugar-beet seed farms; and the low wage paid to this class of labor has made it possible for foreign growers to bring the cost of production to a point so low that, with our high-priced labor, we cannot produce sugar-beet seed at anywhere near the cost at which it can be grown in Europe. And so, while some of the American factories had been experimenting for several years in the growing of sugar-beet seed, but little commercial seed had been produced in this country prior to the outbreak of war.

In this connection, it may be of interest to note that ordinarily five years of painstaking scientific work are required before a crop of commercial beets is harvested. For instance, let us suppose that in the spring of the first year the original selected seed is planted. The beet is a biennial; so in the fall those plants which pass a physical selection of foliage and root and a chemical test of the root are siloed for the winter, where they are kept from frost and heating. These are known as "mother" beets. In the spring of the second year these "mothers" are uncovered and after passing a second chemical test, are planted in the field and in the fall yield a crop which is known as "élite" seed. In the spring of the third year, the "élite" seed is planted closely in order to grow a crop of small beets, called "stecklinge," which are gathered in the fall and preserved in silos until the next spring. In the spring of the fourth year, the "stecklinge" are planted and in the fall they produce a crop of commercial seed. This is planted the next spring, producing beets from which sugar is extracted in the fall, five full years from the time the scientific work began. If the cycle started this spring it would be the fall of 1922 before the first definite returns were in.

Notwithstanding the intricacies of sugar-beet seed culture, and the tendency of the American beet-sugar manufacturers to import their seed from foreign concerns which had made this their sole business for many decades, after the difficulties of 1914 these manufacturers began to realize the precarious condition of their industry as long as it was dependent upon foreign countries for its seed supply, especially during the continuance of the present war.

It therefore was decided, in the summer of 1915, to take up in earnest the matter of producing their own seed in the United States. In the fall of that year a cooperative beet-seed company was organized with a capital of \$100,000, and several of the individual beet-sugar companies which had conducted experiments in beet-seed growing began increasing their efforts along these lines. It was well understood that under the most favorable conditions, it would be many years before sufficient home-grown seed could be produced to supply the annual requirements of the industry, but while climatic conditions were unpropitious during the first year of the operation of the company, a fairly good start was made. The capital of the company has since been increased to \$300,000 and considerable land has been bought and rented for beet-seed culture, with the results that practically one-third of the seed required for this year's planting was produced in the United States by the cooperative seed company and the individual sugar companies which have extended their work in the production of home-grown seed. While the cost of production is considerably higher than in Europe, there is reason to believe that strains of seed of a higher quality than the European strains, both as to tonnage per acre and sugar content, will be produced.

Three centuries ago Shakespeare penned the words, "Sweet are the uses of ad-

versity," and these words are as true today as they were 300 years ago. Had the American beet-sugar companies not passed through the vicissitudes of the present war, had they not met with almost unsurmountable difficulties in securing foreign-grown beet seed, it is more than likely that we should still have continued to be dependent upon Germany for this most important essential in the manufacture of beet sugar, and that that country would have continued to reap the benefits of this valuable market. As it is, with the energetic efforts being put forth by the domestic industry to produce at home all of its seed requirements, the indications are that when peace conditions again prevail, Germany will awake to find that she has lost a valuable annual market for over a million dollars worth of sugar-beet seed; a new and important American industry will have been established, and the American beet-sugar producers will have become independent of foreign countries for their supply of beet seed.

Launch of the First Fabricated Ship

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ship before she was launched. The boilers will be oil fired, the fuel being carried in the double bottom in more than sufficient quantity to cover the round trip to Europe.

We have spoken of the "Agawam" as a "fabricated" ship, which means that the majority of the work upon her has been done at various mills, foundries, machine shops, etc., throughout the country; the work at the shipyard consisting merely in the erection of the ship with a minimum amount of plate and frame bending to be done at the yard. Approximately 27 steel mills, 56 fabricating plants, and 200 foundries, machine, pipe, foundry and equipment shops are engaged in the production of the parts to make up the finished ships. It is the belief of the company that, when the yard is in full swing, and the steel and general equipment are coming in on time, it will be possible to launch a ship every two days.

The name, "Agawam," which was selected by Mrs. Woodrow Wilson, means literally "Great Salt Meadows of the Atlantic Coast."

Collecting Rubbish by Motor Trucks

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the scientific system under which the fleet of trucks is operated. Housewives place the ashes and rubbish in cans, boxes, barrels and other receptacles along the curbs and a few hours later they are dumped in the body of the trucks. In order to increase the load capacity the bodies of the trucks are built with 24-inch extension sides. This extra height permits each truck to haul 12 cubic yards on a single trip. Each day's work is divided into three sections and each section is in charge of a foreman who has four trucks and a crew of eight men under his supervision. There is a driver for each truck, a man who lifts the ashes from the curbs and another helper who distributes the loads in the truck. The labor of loading is greatly simplified by special openings in the sides of the bodies through which the baskets, boxes and cans are passed. Six trucks are loaded simultaneously in three sections and the motors are kept running continually from morning until night. Despite this the trucks have proven economical to operate and have earned a good profit.

After a truck is loaded, a heavy canvas cover is placed over the body to prevent the ashes falling to the pavement and being blown by the wind. The average distance from the point of collection to the dump where the ashes are deposited, is six miles one way, and in making this haul the trucks travel over definite routes through the city's most congested business thoroughfares.

The ashes are deposited in an old swamp adjoining the League Island Navy Yard, at the extreme north end of Broad Street. The corporation is paid for the ashes hauled to the dump by a wealthy Philadelphia philanthropist who plans eventually to convert the swamp into a public park and playground.

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