

*Toronto Star Weekly*  
*November 12, 1921.*

## **MANUFACTURING**

### ***Cheaper Nitrates Will Mean Cheaper Bread***

#### ***Henry Ford tries to lease big U.S. plant in Alabama to produce them.***

Muscle Shoals means Clam Shallows, but it did not mean even that to most Canadians or Americans until Henry Ford dragged the name out of the wartime morass where it had sunk in company with Hog Island and Eagle Boat and other great war hopes.

Mr. Ford brought Muscle Shoals, Alabama, back into public consciousness when he made an offer to the United States War Department, a few months ago, to buy or lease the great government nitrate plant there for a period of 100 years.

Muscle Shoals is a rocky, shallow place in the Tennessee River in North Central Alabama, where the United States government has built a great concrete-constructed plant for making death and life. It was designed as a death factory, and the largest dam in America was thrown across the river to furnish water power for the manufacture of ammonium nitrate, the base of high explosives. But when the armistice came, scientists set to work converting the grim war plant into an aid to life, and it is now a producer of commercial nitrogen, the element that must be given the soil in order to grow the crops that feed North America and the world.

For years engineers had advocated the construction of a dam across the Tennessee River at the shallows where Muscle Shoals' rocks prevent the passage of steamers up and down the stream.

The country adjacent to Muscle Shoals was surveyed, as a result of this agitation, several years ago. When the United States entered the war, and were at once in need of nitrate in large quantities for explosives, the advocates of Muscle Shoals as a power site pressed their claims to President Wilson and through him convinced the congressional board that the needed nitrate plant should be built at Sheffield, Alabama, three miles from the shoals. A dam was ordered built at the shoals to furnish power for the nitrate project, and at the same time render the river navigable.

After careful consideration the United States government finally decided to build their plant for the manufacture of ammonium nitrate by the cyanamide process and to operate it by steam-generated electrical power until the dam was completed. The nitrate plant was practically completed and in operation two months before the armistice was signed.

It was an interesting situation, a situation interesting to everyone who eats, that forced the United States into the building of the Muscle Shoals nitrate plant. Nitrogen is the base of all explosives, at the same time it is the absolutely indispensable fertilizing element for the growth of the world's great staple crops, corn, wheat, grains and grasses.

Twenty-three years ago Sir William Crookes, the British scientist, made the Startling statement that the world was rapidly approaching starvation. Sir William laid this to the

concentration of an increasing population into cities and the consequent multiplication of food demands upon each acre of tilled land. He pointed out that the grain-eating habit of mankind was rapidly robbing the soil of its nutrition, that there was not enough agricultural land to keep the race going for more than a few decades and that nothing could avert world famine except the development of new sources of nitrogen and the discovery of new methods to apply this gaseous element to the soil in new and usable forms.

Although Sir William's forecast was too pessimistic (he predicted general starvation by 1933), he served a valuable turn to the world by calling attention to the problem of supplying "fixed" nitrogen.

Before the war, the world's nitrate supply was found in the sodium mountain beds located in the arid, desert plateau of northern Chile and Peru. Germany saw that she was amply supplied with "Chile nitrates" before she made war. She valued the Chilean source so greatly, however, that she lost a part of her fleet off the Falkland Islands when Von Spee's patrolling squadron was wiped out by the British navy.

Confronted by the sudden need of commercial nitrates for the manufacture of ammunition in the United States, the government started the building of the Muscle Shoals plant, and, until it was completed, imported the Chilean product, releasing to the farmers only one-sixth of the 600,000 tons of imported nitrates they need annually.

The Wilson Dam, which is to furnish power for the operation of the nitrate plants, is still some months from completion. With the single exception of the Aswan Dam across the Nile in Upper Egypt, and perhaps the Vyrnwy Dam, in Wales, it will be the largest dam in the world.

Although many subprojects will undoubtedly develop out of the Muscle Shoals great water power, due to its great manufacturing situation, its fundamental purpose is the manufacture of nitrogens, and it is as such that Mr. Ford, and recently other agencies, have offered to take it over from the government. Pressure, however, has been brought to bear on the U.S. government to refuse to appropriate money to complete the Wilson Dam, which is the generative heart of the whole project.

The annual loss in depreciation and interest on the already half-constructed dam will be greater than the appropriation needed to complete it. At the rate at which work was being carried on, the entire dam will be completed in about twenty-two more months.

When completed, in whosoever hands it may be, the Muscle Shoals plant will give all of North America what it vitally needs—a source of cheap nitrates for farm consumption. All these nitrates are imported from Chile at present, and their cost will be cut to the bone by American production. Cutting down the cost of nitrates will be a valuable step in reducing the cost of production of all grains and will be a shortcut to lowering the present price of bread.

It seems a long way from a wartime plant on the shallows of the Tennessee River to a reduction in the price of a loaf of bread on a Toronto table, but it is a straight way, if the Muscle Shoals plant is carried on and completed.