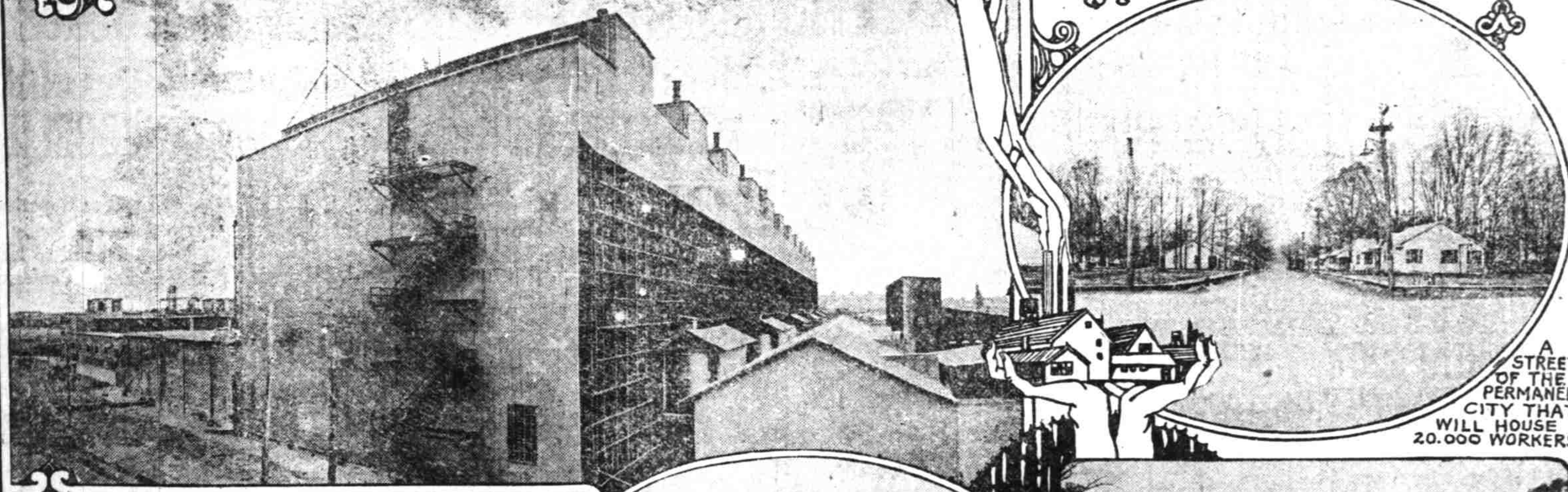


Muscle Shoals, The Nation's Guardian



ONE OF MAIN BUILDINGS OF MUSCLE SHOALS NITRATE PLANT WHICH WILL RENDER FUTURE AMERICAN GENERATIONS FREE FROM AMMUNITION SHORTAGE

By GARRET SMITH.

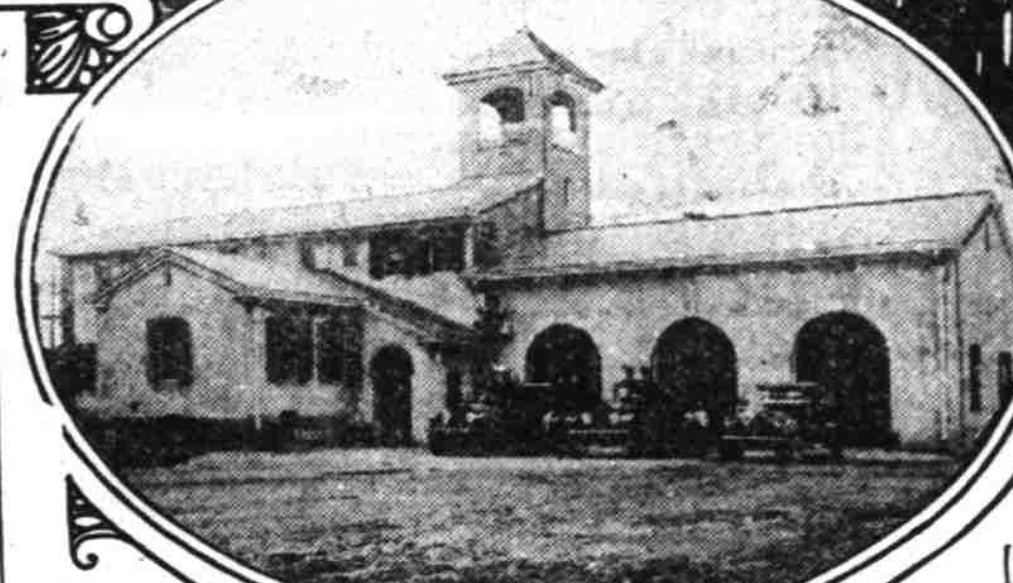
ONE of the chief fortresses of America's new military defense system which developed out of the world war is located at Muscle Shoals, Alabama, on the Tennessee River, over three hundred miles from the seacoast. It is not a fortress of concrete emplacements and mammoth guns, of trenches and barbed-wire entanglements. It is the United States Government's new ammonium nitrate plant, the largest of its kind in the world, capable of turning out 200 tons of high explosives per day. It assures to the United States for all time an abundance of ammunition without which the large army is a helpless encumbrance and it has made this unlimited supply of explosives without resort to raw material from outside of the country.

In modern warfare an abundance of high explosives is an essential equal in importance only by guns and men. How necessary is an abundant supply of ammunition is shown by the estimate that during the world war it required two tons of ammunition to kill or permanently disable one soldier. Modern military explosives are divided according to their use into two classes, propellants for hurling projectiles, and high explosives for bursting the bombs or shells. Both classes are nitrogen compounds made from nitric acid or ammonia or both. The propellants are the familiar gun cotton and nitro-gly-

cerine made by treating cotton or glycerine respectively with nitric acid. The three chief shell bursting explosives are T. N. T., whose full name is Trinitro-toluol, made by treating toluol with nitric acid; picric acid made by treating benzol with nitric acid; and ammonium nitrate which is a combination of ammonia and nitric acid.

Now it will be seen that the essential ingredient of all these explosives is nitric acid. Before the world war the United States was entirely dependent upon a foreign country for the supply of the only chemical from which nitric acid can be made commercially. This chemical, nitrate of soda, had to be imported from Chile over a sea route 4,500 miles long by way of the Panama Canal, or 9,000 miles by way of the Straits of Magellan. It was evident, then, that in case this country became involved in war with any nation that could control the sea our foe would have us at her mercy; for she could cut off our essential means of striking back.

But other nations were equally dependent upon the Chilean nitrate supply. Germany before she became embroiled in the war with the rest of the world was purchasing one-third of the Chilean nitrate supply. She had expected to hold the sea with her submarines but failed and thereby lost the raw material for supplying explosives for her huge army. How



PERMANENT GATE-HOUSE AT MUSCLE SHOALS PLANT

then could the Central Powers continue the war for five years? The answer lay in a process for extracting nitrogen from the air. This process had been successful in producing a high-grade nitrogenous fertilizer from which in turn nitric acid and ammonia could be extracted and combined into ammonium nitrate. Germany, therefore, fell to manufacturing ammonium nitrate from the air on a large scale. Now it happened that in 1907 an American company headed by Frank S. Washburn had secured the American rights to this process and had come into manufacturing the fertilizer on the Canadian side of the Niagara Falls. When America found herself in the

world war still dependent upon the Chilean nitrate supply, the Ordnance Department turned to Mr. Washburn for help. As a result the Air Nitrates Corporation was formed, with Mr. Washburn at its head. It was assisted by several other well known corporations as subcontractors, specialists in their lines, such as the Westinghouse Electric Company, which put up most of the plant buildings, the plant, the permanent city and utilities; the J. G. White Corporation, which designed and constructed the power plant; the Chemical Construction Company, which designed and built the nitric acid plant, and the M. W. Kellogg Company, which furnished

the piping and built the chimneys. Beginning work in November, 1917, a big plant and new city at Muscle Shoals was completed within one year's time.

Had the expected spring drive of 1919 materialized this one plant alone would have supplied 13 per cent. of all the ammonium nitrate used by all the allied armies on all fronts during that drive. As it is, the United States is secure for all time to come against an ammunition shortage.

The United States Government had had its eye on Muscle Shoals ever since 1871, when an abandoned canal the state of Alabama had started to build in 1832 around the Muscle Shoals rapids was partially reconstructed by the government. A reduction in appropriations prevented completion of the plans. In 1889 a board of engineering officers of the United States Army recommended further navigation improvements at Muscle Shoals by canalization. In 1907 another board of army engineers was directed to ex-

amine the condition of the canals and improvements with a view to water-power development, the first real step towards power development for future ammunition manufacturing.

It was not, however, until 1916 that Congress approved the recommendation for hydro-electric development at Muscle Shoals.

When the arrangement was finally made for building the big air-nitrate plant at Muscle Shoals, work was begun on a power dam at the same point. This work is being conducted directly by the United States Engineers Corps and not by contract. It will not be completed, however, for two or three more years. It was necessary, therefore, simultaneously with the building of the nitrate plant and in order to insure immediate operation when it was completed, to construct a \$10,000,000 steam power plant, one of the largest steam electric plants in the world. This power plant is capable of operating the nitrate plant at full capacity. When the water-power plant

is completed, the steam plant will serve as auxiliary power in time of low water. Even had the water-power plant been completed during the war it would have been necessary also to construct a steam plant in order to insure the working of the nitrate plant at full capacity at all times during the year, and the other industries that will grow around the hydro-electric plant.

Now this huge combination of manufacturing plant, power plant and permanent city cost the government \$60,000,000. It was put through at a time when the costs of materials and labor were at their summit. It was built at record speed and speed costs money. The question naturally arises, then, as to whether Uncle Sam got his money's worth.

Tests made after the plant was in operation showed that ammonium nitrate produced at this plant at a cost of less than one-half the standard fixed price paid by the government for ammonium nitrate produced by the older methods. This cost is only about one-fourth to one-fifth the cost of other high explosives of equal strength. Compared with the older process for making ammonium nitrate, the savings made by this plant would have paid for the entire plant in about one and one-half years of operation. As a military weapon it would have proved, had the war lasted, to be the wisest and most economical expenditure that the Ordnance Department had undertaken.

But just before the plant went into operation Germany capitulated, so that the nitrate made at Muscle Shoals was never used in the world war. Nevertheless, there can be no doubt that the knowledge of the German High Command that the United States had completed its mammoth plant and was ready to supply unlimited ammunition to its armies was one of the chief reasons why the Central Powers did not risk a campaign in 1919. If we compare the cost of the Muscle Shoals plant with the cost of continuing the war for another year and admit that that plant contributed materially to the stopping of the war, it will be conceded that \$60,000,000 was a small price to pay for such a result.

But the chief value of the Muscle Shoals plant will be to coming generations. This defense will tend powerfully toward making other nations slow to attack this country. Should such an attack come, we will be prepared to defend it. Never again will the American people have to face the disgrace of being unable to provide even the smallest of standing armies with more than two or three rounds of ammunition. Never again will a predatory power, believing us helpless to defend ourselves, arrogantly flaunt our diplomatic notes of protest against international wrongs. If the League of Nations is to be a success, that success will be assured because it has the backing of the great powers of the earth ready to resist with armed force any outlaw nation that seeks to violate the new principle of international brotherhood. The world looks to the United States as one of those guardians of future peace.

Muscle Shoals is one of her chief credentials.

A STREET OF THE PERMANENT CITY THAT WILL HOUSE 20,000 WORKERS

PERMANENT STAFF QUARTERS AT MUSCLE SHOALS

SEED
We have in stock, cleaned, some of the best varieties of:
SPRING WHEAT
GREY AND WHITE OATS
CLOVER SEED
VETCH SEED
GRASS SEEDS

UTAH LAND PLASTER
We have a car that will be here in several days and will make special price if taken from the car

FEED
We manufacture millrun, short middlings, ground barley, rolled barley, ground wheat, rolled oats. We work on close margins—get our prices

Also carry molasses shady brook alfalfa meal—dry alfalfa meal and poultry supplies
CHERRY CITY MILLING CO.
300 South Church

Follow the crowd and you will go to

NO VARY GROCERS
383 Court St. Phone 409

Read the Classified Ads.

STATE EDITORS MEET AT EUGENE

Henry M. Hastings, Printing Expert Slated for Principal Address for Today

EUGENE, Or., Feb. 20.—Oregon editors to the number of about 50 are here for the annual newspaper conference at the University of Oregon. The sessions of the conference began this afternoon and will continue until tomorrow afternoon.

A feature of the first day's session was a banquet given to the visiting editors by the Eugene Chamber of Commerce tonight, during which B. F. Irvine of the Oregon Journal, Edgar B. Piper of the Oregonian, E. B. Aldrich of the Pendleton East Oregonian, C. E. Ingalls of the Coquille Gazette-Times and other prominent newspapermen of the state spoke.

President P. L. Campbell of the University and Leith Abbott of Ashland, a junior and student in the department of journalism, were also on the program. This afternoon Henry M. Hastings, printing price expert of San Francisco, was the principal speaker.

COLLEGE HEADS PLEAD FOR COIN

Millage Tax Necessary to Operate Schools Under Increased Expense

PORTLAND, Feb. 20.—P. L. Campbell, president of the University of Oregon, and W. J. Kerr, president of the Oregon Agricultural College, declared in public addresses here today that unless the proposed millage tax bill for the raising of funds to increase higher school facilities in Oregon shall pass at the May election more than one thousand would-be students must be turned away from the two institutions next year for lack of facilities for their schooling, in addition to the large attendance already at hand. The present situation, they said, is critical.

SICKNESS OF JUROR HALTS RADICAL TRIAL

(Continued from page 1)

prohibiting separation of the jurors during a murder trial. Bailiffs carried meals to the sick man and to

the others who enjoy good health.

Other I. W. W. Found Guilty

A jury in another department of the Grays Harbor county superior court brought in a verdict of guilty shortly before noon today against 11 alleged I. W. W. charged with violation of the Washington criminal syndicalism laws. Thirteen were originally charged with the offense, which is a felony, but one was dismissed by the court for insufficiency of evidence and another because of illness. All of the men found guilty today were arrested in southern California last night. The jury deliberated from 3 o'clock yesterday afternoon until about 11:30 o'clock this morning, being locked up during the night. A new trial will be asked, it was said today. The law does not provide a specific penalty, but would come under the felony statutes which provide a sentence of not more than ten years imprisonment or \$5000 fine, or both.

BYRON HELD ON FRAUD CHARGE

Man Under Sentence in Oregon Convicted of 46 of 50 Counts at Seattle

SEATTLE, Wash., Feb. 20.—Carlos L. Byron, of Portland, Or., and Edward M. Comyns, Seattle, charged with having used the mails to defraud in connection with a land settlement scheme, were found guilty of 46 of the 50 counts against them by a jury in federal court here tonight. The jury was out five hours. The state charged that Comyns and Byron entered clients upon land that previously had been filed upon and accepted money for such service. The defense claimed these entries were due to clerical errors. The alleged fraudulent scheme, government witnesses testified, extended throughout the northwest. Comyns was formerly an employee of the United States land office at Washington, D. C.

New Coalition Party Is Latest Proposal

NEW YORK, Feb. 20.—A plea for a "new coalition party" with a businessman of the highest standing as its presidential candidate, was made tonight by U. H. McCarter, president of the Fidelity Trust company of Newark, N. J. Mr. McCarter spoke at the annual banquet of the trust company's section of the American Bankers' association here which was attended by 750 bankers from all parts of the country.

FLIRT IS BESTED IN STREET BOUT

Pretty Auburn-Haired Miss Settles With Man Who Would Force Attention

Not a little excitement occurred at the corner of Commercial and Court streets shortly after 10 o'clock last night, when a pretty auburn-haired maiden, angered by the enforced attentions of a well-known state employee, struck the man a stinging blow on the mouth. The fellow did not tarry to return the "compliment," but hit out for his home, probably content to escape arrest and prosecution in the city courts.

According to the story told by the young woman she was followed by the man for several blocks, but not wishing to gain the notoriety attendant to a trial in court, took the law in her own hands. Upon reaching the corner of Commercial and Court streets the girl halted as if waiting for a car, and the man approached. "Hello, Fairy," he said in endearing tones, and later asked "if he could see her home."

At that juncture of the proceedings the young woman swung a mighty right to the jaw of the unwelcome male flirt, with the remark that she was perfectly capable of looking after her own welfare. The young man then vanished, and the few spectators attracted to the scene lauded her for her pluck.

It is said that this same fellow has been causing trouble in different parts of the city recently, and only a few weeks ago was detected while peering in a window of a private home. The police were summoned on that occasion, but were unable to find any trace of the individual, just "woman crazy" was the way one young woman who witnessed last night's fracas diagnosed the case of the young degenerate.

Elimination of Mace's History Now Demanded

WALLA WALLA, Wash., Feb. 20.—The removal of Mace's history from the schools because of alleged unfair statements concerning the war in the Philippines and of the Essentials in Geography by Briham and McFarland because of alleged German leanings, is demanded in a report of a joint committee of the Spanish War veterans and the American legion made public tonight. The fight will not only be pushed in Walla Walla county but all over the nation and

against all text books found which are not 100 per cent American, it was said by a member of the committee here tonight.

Bitter Cold Wave Sweeps Over Most of Montana

HELENA, Mont., Feb. 20.—Most of the state is in the grip of storms, with low temperatures general, and severe cold is expected Saturday and probably Sunday. Missoula, after weeks of mild weather, today was visited by a cold spell and the mercury dropped to 18 degrees above. Snow fell generally east of the Rocky mountains. Great Falls reported a temperature of 9 above; Bozeman 10 above, with a biting east wind, and Butte 10 above.

Morale of Teaching Staff Is Weakening

CLEVELAND, O., Feb. 20.—The morale of the teaching forces of American public schools is breaking, in the opinion of delegates to the convention of the national council of state normal school presidents and principals here today. Speakers declared that low salaries are driving these teachers into affiliation with union labor, restlessness of the teaching forces is transmitting itself to the pupils and the public's neglect of the schools is reacting through the home.

Conflicting Reports On Lineman's Strike

TACOMA, Wash., Feb. 20.—A strike of linemen of the Pacific Telephone and Telegraph company was called in Tacoma at 8 o'clock this morning, according to an announcement made tonight by officials of the local union. The men were "100 per cent out," the union officials stated, having left their work promptly while, on the other hand, company officials said tonight that service had not been impaired and that "if there was a strike they hadn't heard about it."

Legal Action Against Minister Is Continued

PORTLAND, Feb. 20.—The suit of the board of school trustees of the Episcopal church of Oregon against the Reverend A. A. Morrison, involving the misuse of school property and fraud on the part of Reverend Morrison, set for February 26, again was postponed today because of the absence from the city of one of the attorneys in the case.

U. OF O. DEFEATS CALIFORNIA U.

Duron Stars in Fast Opener Played at Berkeley Friday Night

BERKELEY, Cal., Feb. 20.—The University of Oregon basketball team defeated the University of California five 29 to 27 in the first of a two-game Pacific conference series here tonight. The second game will be played tomorrow night. California led at the end of the first half by a score of 14 to 10. Durno, Oregon forward, and the smallest player on either team, was the star of the game, scoring 17 of the 19 points Oregon chalked up in the second half.

SPURIOUS PLUG BRINGS ARREST

Imitations Made and Sold Cause Investigation of Nation-Wide Trade

CHICAGO, Feb. 20.—A search made today of the home of William A. Bentley, arrested yesterday as being implicated in an alleged \$1,000,000 spark plug conspiracy brought to light several thousand spurious plugs, according to H. F. Heard, special investigator for the Champion Spark Plug company of Toledo. He charged that there is a national chain of manufacturers and dealers who for the past five years have flooded the country with imitations of a spark plug manufacturer in Toledo.

Mr. Heard declared tonight that records taken from Bentley showed that from 5,000 to 20,000 imitation plugs were turned out monthly in Chicago for the last five years. He said that the federal court would be asked to issue an injunction against many jobbers and automobile accessory dealers to stop them from disposing of spurious spark plugs.

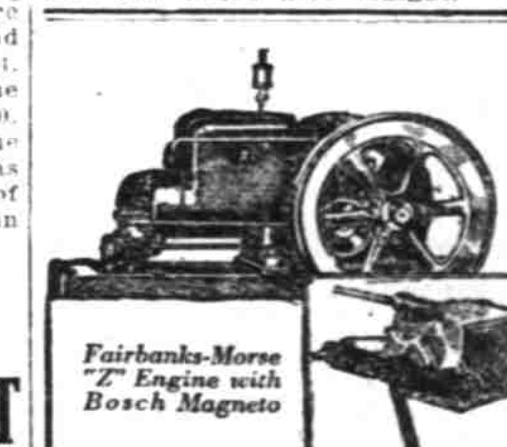
Wheat Standards Are To Retain in Force

WASHINGTON, Feb. 20.—Federal grades for wheat will continue to be enforced under the grain standards act after the United States grain corporation has ceased to function, the department of agriculture announced

today in denying reports which were said to have gained currency that the federal grading system and the grain corporation would pass out of existence simultaneously. The department explained that fixing of grades for wheat was authorized by permanent and not war emergency legislation.

Idaho Man Is Murdered in Street Battle, Report

BOULDER, Idaho, Feb. 20.—A man known here as "Sandy" who is said to be a resident of Twin Falls, was shot and killed here tonight.



Fairbanks-Morse "Z" Engine with Bosch Magneto

Greater Engine Value

OVER 250,000 farmers bought the "Z" engine. They know it is powerful, dependable and practically fool-proof—truly a great engine. But now we announce the one addition which could possibly improve the "Z" performance—Bosch high tension, oscillating magneto, ignition. So let us show you in detail this greater engine value. Our service to you is remarkably complete and we are assisted by a nearby Bosch Service Station. Prices—1 1/2 H.P. \$75.00—3 H.P. \$125.00—6 H.P. \$200.00. All F.O.B. Factory.

Lot L. Pearce & Son
236 N. Commercial St.