POWDER

A Record of 90 Years of Progress

AUSTIN POWDER COMPANY
CLEVELAND

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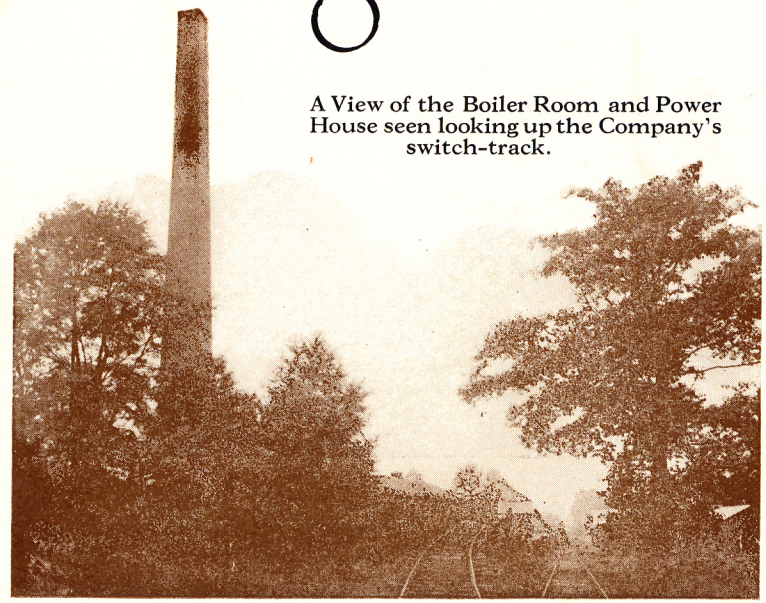
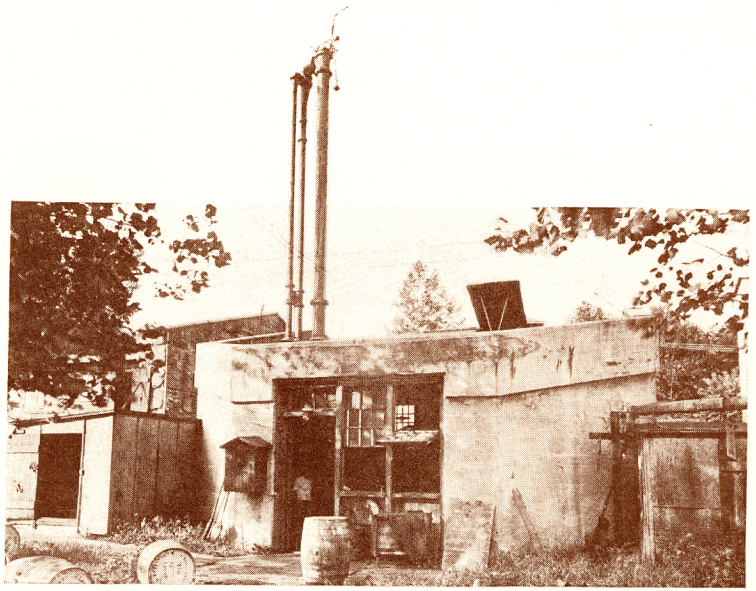
A View of the Boiler Room and Power House seen looking up the Company's switch-track.

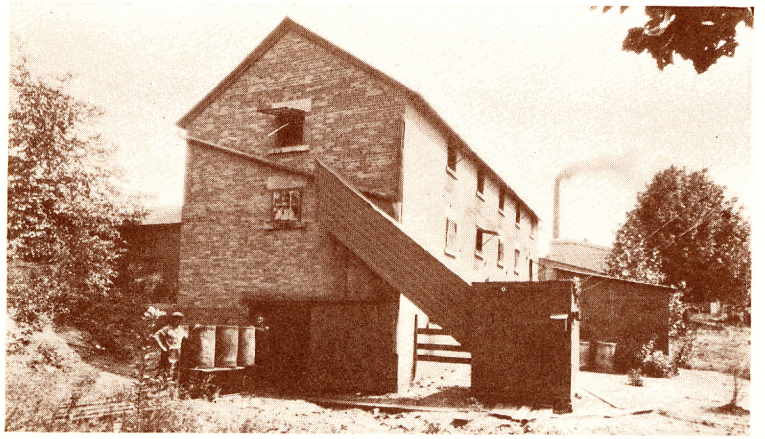




A rear view of the engine and generator house.

BY WAY OF INTRODUCTION

ANY institution that has successfully weathered the vicissitudes of ninety years need offer no apology in presenting to a new generation the simple facts connected with its history or its product. However, sound and substantial merit requires no elaboration or embellishment. In submitting this brief and unassuming record of an industrial enterprise to the comparatively small list of those who are bound to be in some degree concerned, we have at least the gratification of knowing that it will meet a sufficient measure of interest to justify its publication. A continuation of the satisfaction we have given our customers in the past is the aim and endeavor of the present management, with the added assurance that no effort shall be spared to make our service of the highest degree of value, and to win, even further, the confidence that has been granted us in the past.

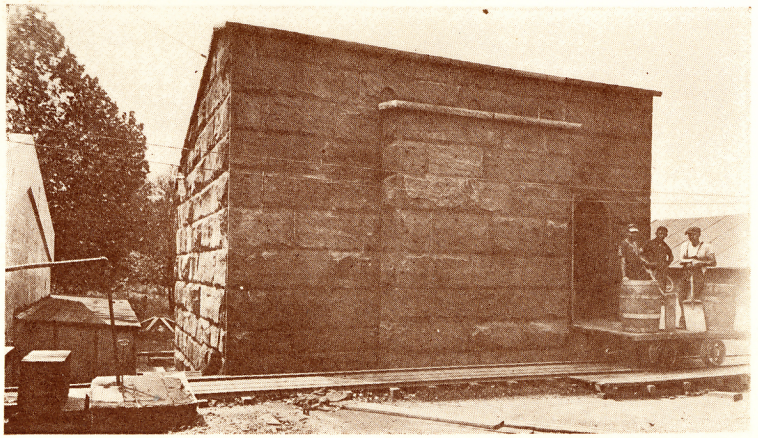


The pulverizing mill where the charcoal and brimstone are prepared.

A RECORD OF NINETY YEARS OF PROGRESS

JUST when and how Powder became an important factor in human life is a question to which recorded history gives no very satisfactory answer. Unsubstantiated legends are many, and any of these may be accepted as fancy dictates. If the ancient Chinese were familiar with gunpowder, it had no bearing on European, and consequently, no influence on the American use of explosives. Certain it is, however, that the use of gunpowder became prevalent during the middle ages, making the humble foot soldier more powerful in combat than the armed Knight, with the result that chivalry, as an institution, sank into decadence.

Modern Chemistry had its foundation in Alchemy, to which it bears the same relation as Astronomy to



A wheel mill where is accomplished the first step in the combination of Nitrate of Soda with charcoal and brimstone.

Astrology. The Elixer of Life, or the transmutation of the baser metals into gold, was the object of the crude experimenter in his cloistered cell, and in the course of his hopeful, but vain experiments, almost every one of the then-known substances were brought into some combination.

Thus tradition has it that a monk, accidentally compounding an explosive mixture, developed the first formula for gunpowder, appreciating at once its value in the art of warfare. Berthold Schwartz, a German monk, and Friar Roger Bacon in England, share the glory of being possible discoverers of gunpowder, sometime between the years 1300 and 1350 A. D.

The discovery of explosives changed the whole course of history—first from a military standpoint,

A glimpse of the wheel mill line showing three of the individual units.

and second, and most important, as the indispensible factor in the development of our great industrial age. Steam power is the basis of practically all manufacturing and transportation whether applied directly or transformed into electrical energy. Without coal, steam would have but limited potency, and without powder, coal would be inaccessible except in negligible quantities. To perpetuate a pun, our vaunted civlization would "blow up" if it lacked the powder to "blow up" coal, to break down rock in quarries, and to speed up canal and railroad construction. Without the blast, our hopes of economic achievement would be "blasted."

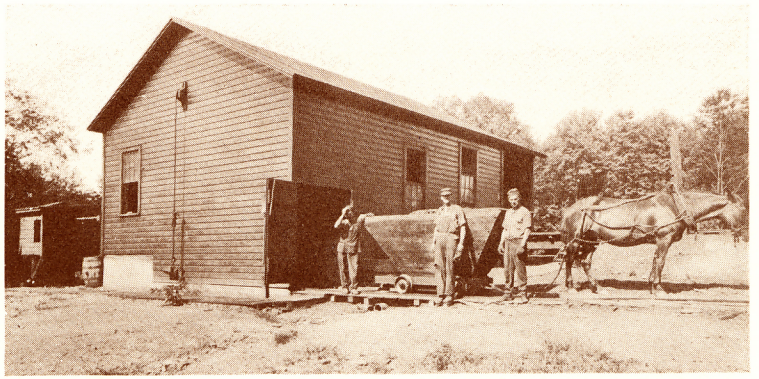
HISTORY AND DEVELOPMENT

In the year 1832, five Austin Brothers—Daniel H., Lorenzo B., Alvin, Linus and Henry M.—imbued with

Soda storage house and mill.

the dauntless pioneering spirit of those days, and foreseeing the great opportunities presented by the vast, undeveloped regions of the western states, came west seeking an advantageous location for a powder mill. They traveled as far as Kansas City, Missouri, but found the surroundings too wild and primitive for their purpose. Turning east, they retraced their steps until they reached what was then called the Fair Grounds, at Akron, Ohio. There, in 1833, they built a plant and commenced the manufacture of powder.

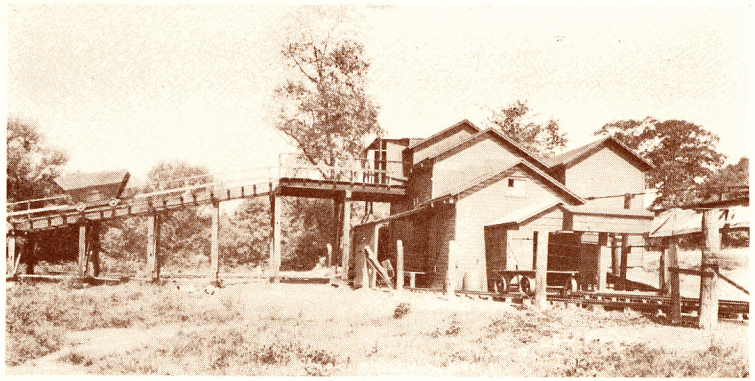
Akron was at that time the center of the coal producing region which served Cleveland and other large cities, and deliveries could be made by canal boat and wagon. The five brothers carried on operations very successfully until the early fifties, when Alvin Austin and Lorenzo B. Austin withdrew from the firm to form a



The Hydraulic press mill where after mixing the powder is pressed into cakes.

partnership with P. F. Carlton. The firm of Austin and Carlton built a powder mill near Xenia, Ohio, which after changing hands several times is now owned by the Hercules Powder Company of Wilmington, Delaware.

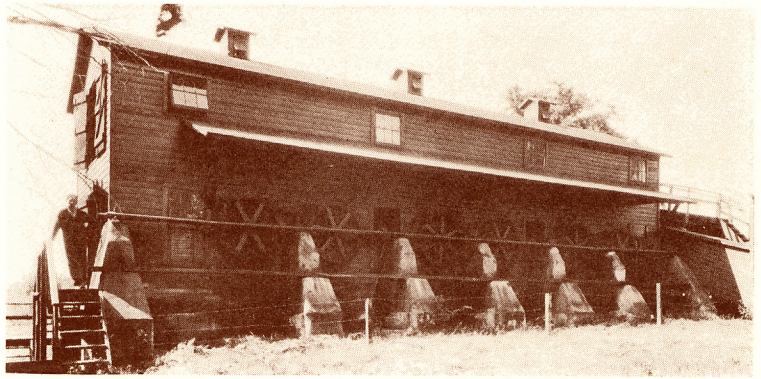
The other brothers continued operations at Akron, and in 1867 acquired the property of the Cleveland Powder Company, located at the Five Mile Lock of the Ohio Canal. For four years this plant, later known as the Brooklyn Plant, was operated in connection with the Akron plant. The Akron plant was then dismantled and its machinery and equipment was moved to the Brooklyn Plant. From this plant they were able to transport powder by canal to the main distributing points, such as Akron, Massillon and Canal Dover. Their increased capacity and the fact that railroad



The corning mill where the granulations are cut.

facilities were then available, enabled them to supply the principal coal fields of Ohio, Pennsylvania and West Virginia.

Upon the reorganization of the Austin Powder Company at the time of taking over the Cleveland Powder Company, Daniel H. Austin became its President and Linus Austin, Secretary. Upon the death of Daniel H. Austin in 1874, Linus Austin became President and R. T. Coleman, Secretary. In 1887, upon the death of Linus Austin, R. T. Coleman succeeded to the presidency and A. Lent became Secretary. At the death of R. T. Coleman in 1900, A. Lent occupied the Presidency until his death in 1914, at which time Joseph Kendrick became President and J. D. Alexander, Vice President and Treasurer.

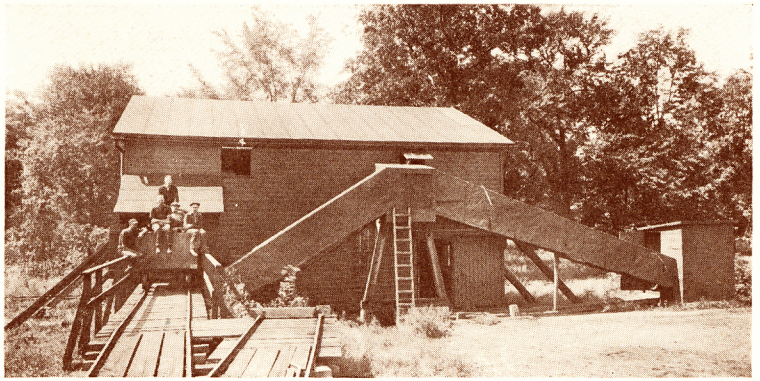


The glaze mill. Here the powder is glazed. This is the last operation before the powder is sized and packed.

SPLENDID LOCATION

The Company continued uninterrupted operation at the Brooklyn Plant until March, 1907, making a full line of sporting and black blasting powders. But in 1891 it had become clearly apparent that the rapid expansion of Cleveland would eventually make the Brooklyn Plant unsafe for production. Consequently the Company purchased a new location in Solon Township, Cuyahoga County, and Twinsburg Township, Summit County, where it now owns and operates what is considered the most modern and efficient blasting powder plant in this country.

The present location covers approximately 1,000 acres of land and is located at Falls Junction Station on the Wheeling and Lake Erie Railway. The location is so well adapted to the powder manufacturing industry that even with the present rapid growth of Cleveland,

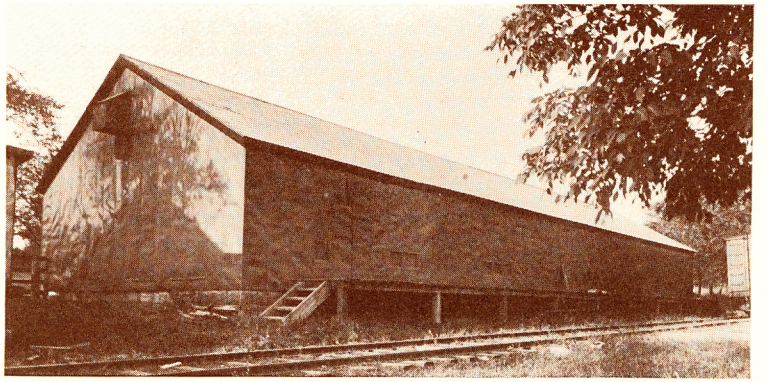


Sizer and packing house.

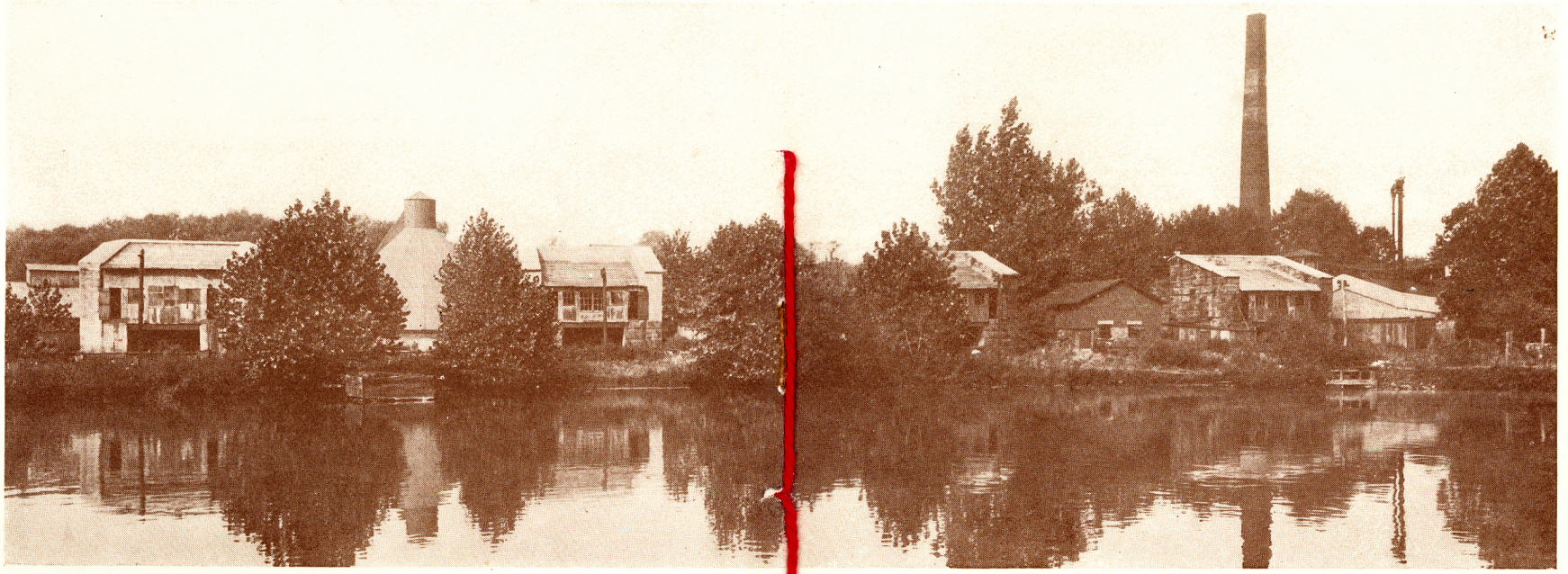
operation can be continued here with perfect safety for many years.

PERSONNEL OF ORGANIZATION

The Company employs about 100 men. Great care is exercised in the selection of men for this class of work, and it takes years to build up an efficient organization. However, when once thoroughly skilled in the operations of powder manufacturing, men usually remain at this work for many years. Most of the Company's employees have been with it from ten to twenty-five years. The pleasant surroundings, agreeable activities and liberal wages offered in this plant, make contented, loyal employees who give their best to their work. In the operation of powder manufacturing, great alertness and familiarity with the work is required, which qualities cannot be found in a shifting, uninterested personnel.



One of the shipping magazines from which powder is loaded directly onto the cars for shipping.



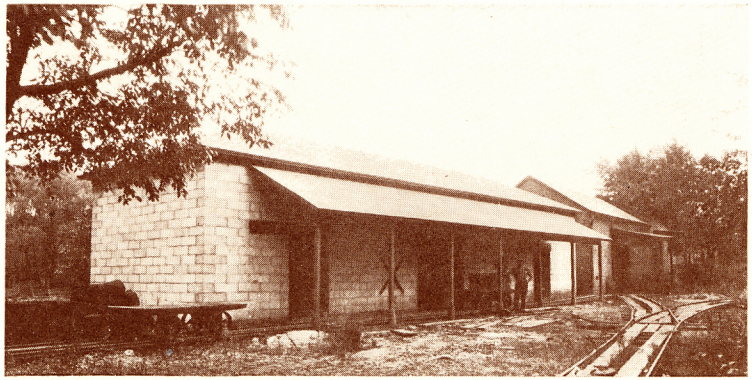
1922 CONTRASTED WITH 1833

The illustration above shows a part of the wheel mill line of the Austin Powder Company as it is today. Some of the important units are hidden by the trees, which, however, add greatly to the attractiveness of the surroundings of the plant and take away the bare and dismal appearance too often characteristic of manufacturing institutions.

The illustration on the bottom at the left shows a wheel mill of the 1833 type where pulverize and Nitrate of Soda were incorporated. Illustration on the right at the bottom shows a type of the 1833 nitrate of soda storage and preparation mill.

A MODEL TOWN

Most of the employees live in the Company's town, Glenwillow Village, Ohio, and in the Company's houses. Glenwillow snuggles picturesquely among pleasant wooded hills, and the homes are charming, comfortable residences. With all the health and beauty of the countryside, added to the amenities of the city, Glenwillow is an ideal place in which to live. The town has a church, a graded school with able teachers, and a general store at which necessities may be obtained at reasonable prices. The community life is highly enjoyable. It is appropriate that in surroundings like these a high-grade product should be manufactured.

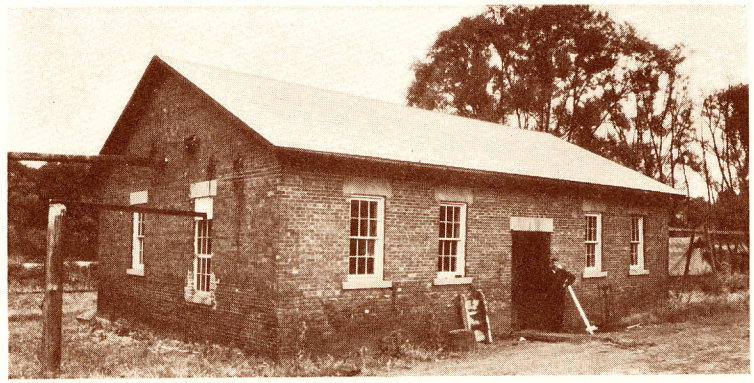


Buildings for sulphur and charcoal storage.

SCOPE OF BUSINESS

The manufacture of black mining powder is the principal business of this company, but high explosives and blasting accessories are also handled extensively. From their many distributing magazines, they are able to make prompt delivery of explosives and blasting necessities of all kinds. All the principal quarry and mining districts are within the scope of the Company's activities except the extreme west, and a careful study has been made to meet the needs of each industry in the powder field.

The capacity of the plant is ample to furnish an uninterrupted supply to all customers at all times, and a competent sales organization, under the direction of M. K. Wilson is constantly in the field to care for the interests of the company and its customers.



Machine Shop. All the necessary machine repair work connected with the Austin Plant is done here.

RAW MATERIALS

Austin Powder is manufactured from the finest raw materials obtainable in the markets of the world. In view of the low cost of such a tremendously important product as black mining powder, it is interesting to know the distances from which its ingredients are transported.

Nitrate of Soda is mined on the west coast of South America and is the principal ingredient in the manufacture of "Soda" or "Black" Blasting powder, for mining purposes. This substance is taken from the mountains of Chile in a crude state and is then refined.

Saltpetre is obtained in very much the same manner, but comes from India, the only source of that commodity. Saltpetre is used in the manufacture of black sporting, or rifle powders, and in some grades of blasting powder.

Formerly all the Sulphur or Brimstone used in this country, not only for the manufacture of explosives, but for chemical and other purposes, was mined in Sicily. But about the year 1900, Mr. Herman Frash, while drilling for oil, discovered sulphur deposits of a very high grade in Louisiana. After effort, Mr. Frash and his associates devised a process by which sulphur could be brought to the surface in a liquid state. As a result, America is not only supplying her domestic market with sulphur, but also exporting it in considerable quantities. Similar sulphur deposits were later discovered in Texas, from which state this company obtains its supply.

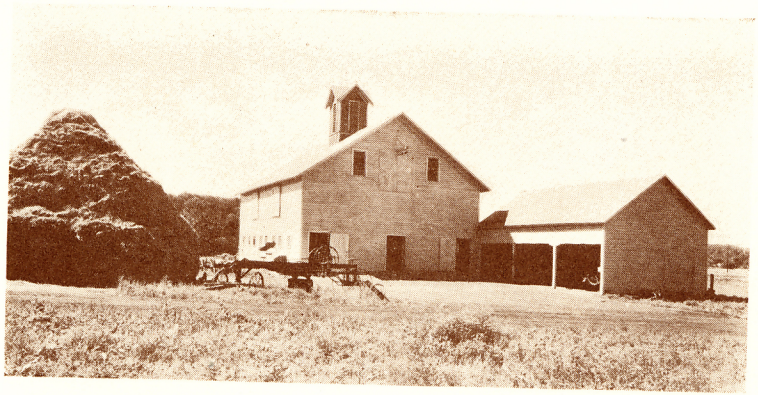
A view of the keg manufacturing plant. The Austin Powder Company manufactures its own containers as well as the powder.

Falls Junction on the Wheeling & Lake Erie. The railroad station of Glenwillow.

screens of gun-metal. After this in the sizer and packing house the grains are separated and sized by means of screens of varying mesh.

In glazing, the finishing process, the powder is revolved in wooden barrels. A little plumbago is added to the powder during this process to make the powder impervious to water as much as possible.

The process of manufacture used by The Austin Powder Company insures the greatest uniformity of quality and consistency. The details given above are manifestly very sketchy and only outline the procedure in a very general way. It may be added, however, that the most modern methods and up-to-date equipment permit the making of the highest grade of dependable powder for the specific purposes for which it is to be used.



Barns on the Glenwillow Farm of the Austin Powder Company. Because of the large area required for a powder plant, agriculture is a by-product.

SERVICE

From 1833 to 1922, this Company has conscientiously and competently served its patrons' needs. Its original ideals of service, adhered to unswervingly for nearly 90 years, have crystallized into traditions. These long years of growth and service stand for more than reliability and fair dealing in ordinary business exchange. Its record is a source of pride which spurs it on to even greater efficiency and greater service—a pride in the fundamentally important part explosives have played in the progress of civilization and in its own part in hastening this progress by faithful service to its patrons.

Glenwillow Hotel, maintained for the convenience of Austin Powder Company employees who do not have families.

THE PROCESSES OF MANUFACTURE

The manufacture of powder in a modern plant involves a number of operations which may be briefly described as follows:

The first is the mixing of the charcoal and sulphur or brimstone. This is carried out in revolving drums or mills containing metal balls which are agitated by baffle plates in the drums. This operation requires about 8 hours and is known as pulverizing. Upon the completion the charge is then sifted and removed to the incorporating or wheel mills.

The incorporation of the pulverize, that is, the mixture of charcoal and sulphur with the nitrate of soda, is accomplished by a series of two ten-ton mixing or incorporating wheels. In the previous process no

Coleman Avenue, Glenwillow Village, showing the pleasant surroundings in which Austin employees live.

danger whatever is involved but in this incorporating or milling operation the actual powder is made and consequently this operation requires the greatest care.

Next the powder is compressed by means of heavy hydraulic presses in which is applied a pressure of about four thousand pounds to the square inch. The powder is placed in the press box and separated at regular intervals by finger boards so that the powder is pressed into a number of individual cakes, so to speak.

In the next process, that of granulating or corning, the cakes are passed through a series of three or more pairs of toothed gun-metal rollers revolving toward each other. Between each pair of rollers are vibrating

A view of the outskirts of Glenwillow Village, showing additional Austin employees homes.

In the early days, the Company manufactured its own charcoal from soft maple timber gathered in Cuyahoga and Summit Counties, Ohio. With the advent of chemical charcoal, this method became obsolete as well as expensive and the manufacturers of chemical charcoal became the source of supply.

The preparation of all materials is conducted with the utmost care in order that no foreign materials should be included, which might increase the hazard of manufacture. Explosions are unavoidable in this business, but considering the great volume of explosives handled, the loss of life and property is extremely small.

SPECIAL GRANULATIONS

Very important in the manufacture and use of powder is the matter of granulation. The Austin Company manufactures special coal and quarry granulations.

Street scene in Glenwillow showing store. This store is not operated by the company.

The grains of powder are carefully separated at the factory, and grains of approximately one size only are shipped in each container. The chief purpose of this precaution is to insure, as far as possible, uniformity in the rate of burning. Another advantage of uniform sized grains is the standardizing of results, which makes possible the selection of powders suited to certain requirements. Fine grained powders are quicker and tend to shatter the material more; coarse grained powders are slower and have more lifting effect. The grains are usually glazed with graphite to render them impervious to moisture.

For many years the package or container presented a serious problem. The original containers were small wooden barrels or kegs. The advent of sheet steel solved the problem by permitting the manufacture of a container which is both better and cheaper.

Main Street in Glenwillow Village, showing types of homes occupied by employees of the Austin Powder Company.

AUSTIN POWDER COMPANY

CLEVELAND

The Glenwillow School House where the children of the Austin Powder Company employees are educated.

THE O. S. HUBBELL PRINTING CO.
CLEVELAND, OHIO