MANGANESE LANDS TO BE DEVELOPED

Ark. Gazette Jan 8-26

Alabama Interests Buy Mines in Batesville-Cushman District.

Special to the Gazette.

Batesville, Jan. 9.—Extensive development of manganese lands in the Batesville-Cushman district lying north of Batesville has begun in this county. A deal was closed the first of the year between T. F. Shell and W. H. Beatty, two of the best-known manganese operators in the district, and Thomas Worthington, a representative of large steel interests of Birmingham, Ala., whereby the Eureka and Roach manganese mines pass to a new company known as the Arkala Manganese Ore Company which has started surveying a narrow gauge commercial railroad from Cushman to the mines, a distance of six miles.

Officers say the company will invest $150,000 in the development of these mines, installing two large morern washers with jiggs and operated by modern machinery. They hope by midsummer to be getting out ore on a large scale. Other manganese deals are pending. Shell and Beatty who still own mines in the Lafferty Creek district are planning to develop this property in the spring.

This section is rich in manganese ore but has been handicapped for years by lack of capital to install modern machinery so the mines could be worked at a profit. Considerable mining was done during the World war when the price of manganese ore soared but after the close of the war, prices slumped and mining was practically abandoned. Shell and Beatty were the only operators left who had confidence in the territory.

They continued to work their mines in the old pick and shovel way. Last fall they installed a 10-foot jig made out of scrap iron and teeth and operated by hosepower and with this equipment they mined in October, 1925 480 tons of manganese ore for which they found a ready market in Birmingham. Mr. Beatty has just returned from Birmingham, Ala., where he has been in consultation with steel interests and says that they have become deeply interested in this field and predict that it will prove one of the best in the United States.

LARGE MANGANESE DEPOSIT IS FOUND

Gazette 12-18-27

Cushman Miners Discover Unusual Ore Pocket in Southern Hill Lease.

Special to the Gazette.

Cushman, Dec. 17.—Henry Mallett and Barney Jones, two manganese miners working on contract for Walter Denison, on the Southern Hill lease, recently struck a large ore cave from which 150 tons of ore has been taken.

From a geological standpoint it is said to be one of the most interesting caves ever encounered in the Batesville-Cushman Manganese Field. The miners were running a drift from the 65-foot level in a shaft, when the head of the drift fell out, exposing the underground opening.

The cave is about eight feet high and 12 feet wide, and has been explored for a distance of about 200 feet. The walls and roof were veneered with lime crystals to a depth of from one to three inches. The ore was found lying in the residual clay in the bottom of the cave. Most of it is in the shape of large boulders, some weighing as much as a ton. The ore is high grade and is being shipped. Only one other ore cave has been found in the district that approaches this one from a standpoint of geological interest.

Manganese ore shipments from the field for 1928 will amount to about 10,650 tons. Shipments of high grade ore amount to 3,200 tons, being slightly higher than last year. All ore in the high grade class runs about 45 per cent metallic manganese. The shipments of low grade manganese amount to 7,450 tons, taking in all ore running from 45 per cent metallic manganese down.

During the last two weeks, ferro-manganese, the metal recovered from manganese ore, has advanced $10 a ton, which probably will cause the price of ore to advance in price. Several new developments now being made in the field will materially increase production next year.

Arkala Mining Company Leave. Cushman Field.

Gazette 1-27-28

Special to the Gazette.

Mount Pleasant, Jan. 26.—The Arkala Mining Company today began dismantling its manganese plant, which was constructed at a cost of $250,000, and will quit the Cushman field. It is reported the company was unable to turn out enough high grade ore to make operations profitable.

The Arkala company entered the Cushman field nearly two years ago. Modern washers and equipment were installed and a seven-mile narrow-guage railroad was built. The plants turned out considerable high grade ore.

More Manganese Development at Guion Planned.

Gazette 2-5-'28

Special to the Gazette.

Guion, Feb. 4.—John Friendlich and associates, who have started manganese mining operations in this section, are exploring a cave on Cagen creek, near this place, that promises to produce a large tonnage of ore.

The cave is high on the hill and entrance is gained through a vertical chimney through the rock, about 30 feet deep. It has two corridors, one of which is unexplored. A considerable amount of ore has been uncovered in the walls and floor of that section of the opening that has been explored.

A manganese cave found near Cushman recently has turned out to be a small bonanza. Four cars of ore have been taken from it and it still is producing a big daily tonnage. Beside the cave, Friendlich and his associates have large holdings in Stone county, across White river, which they are operating.

Arkansas Manganese Ore Company, Batesville, capitalized at $5,000, applied for charter. Gazette 6/1/28

Manganese in Cave.

Guion, Aug. 6.—Investigation of an ore-bearing cave across the river in Stone county, by John Freundlich has disclosed manganese deposits of large extent. The cave has 3,000 feet of laterals. The ore occurs in the bottom, the top and the side walls in clay. A large washing plant is planned to clean the ore from this cave, and adjoining properties Mr. Freundlich has under lease. 8-9-28-1928 Gazette

Manganese Shipments Mount as Demand Increases.

Gazette 12/18/28

Special to the Gazette.

Cushman, Dec. 15.—The demand for manganese ore for the last quarter has been good, and shipments from the Batesville-Cushman Manganese field, have been slightly above an average for that period.

Walter H. Denison has shipped 2,400 tons to southern furnaces since September 1. Production for the year probably will exceed, by several thousand tons, shipments of last year. This is accounted for by the fact that the furnaces are using more low grade ore in iron castings.

MANGANESE OUTPUT TOTALS 7,444 TONS

Batesville-Cushman Field Averages 35 Per Cent, Report Shows.

1/10/29

Special to the Gazette.

Cushman, Jan. 9.—Total production of manganese ore in the Batesville-Cushman manganese field, for the year 1928 as reported to the Bureau of Mines by Reed Denison of this place is as follows: 3,223 tons of high grade, running above 35 per cent metallic manganese and 5,321 tons of low grade running below 35 per cent metallic manganese.

Walter H. Denison was the largest shipper in the field. The high grade ore he shipped averaged 47 per cent, metallic manganese and the low grade, 27.33 per cent. Mr. Denison estimates that 200 tons were shipped from Caddo Gap, that ran above 35 per cent.

HIGHER TARIFF ON MANGANESE ASKED

Mrs. Oldfield Files Brief With Chairman of Ways and Means Committee.

1/24/29

(From the Gazette's Correspondent.)

Washington, Jan. 23.—Mrs. William A. Oldfield, representative from Arkansas, today filed with chairman of the Ways and Means Committee a brief prepared by manganese producers in Arkansas requesting that the committee in framing its bill, at the special session to be called by President Hoover, place sufficient duties on manganese to stabillize this growing industry. The brief was prepared by Thomas Worthington of Batesville representing the Arkansas Manganese Ore Company; Ernest Neil, a manganese operator of Batesville and G. T. Cross, secretary of the Chamber of Commerce of Batesville.

The brief says that the existing tariff on higher grade ores is the sole reason that Arkansas has continued to produce manganese annually on a small scale since the war and that any material reduction in this protection virtually will kill this industry. It is said that the nature of the deposits is such as to prevent the recovery of the high grade ores without including the lower grades, the latter constituting about 80 per cent of the total tonnage handled.

The brief says that there is no promise of change in this condition. The markets for Arkansas manganese ores practically are confined to steel furnaces at St. Louis, Mo., for some 1,500 tons annual of high grade. All the balance of the production of high and all the low grade is confined to the steel and iron furnaces at Birmingham, Ala. All market prices are fixed by the consumer in competition with the imported ores, it is said and the lower grades of manganese are subjected to equally as severe foreign competition as are the highest grades.

Industry Now Unprofitable.

"Under the above conditions" says the brief "the industry in these fields since the war has been, now is, and promises to continue, what may be termed as illegitimate and impossible for any profit to any interest concerned owner, operator, or to the only available laborer, the native citizen, the latter not now averaging a monthly earning of as much as $40.

"This situation is due to the fact that the low grade ores without tariff protection are wasted or sold at a market price below the actual cost of production. Unless remedied production will decline to nil in a very few years.

"Tariff protection being necessary to the industry and the output of high grade ore being limited and decreasing as a result of gradual exhaustion, it would seem beyond argument that the life of these fields depends on having protection on all grades."

The brief says that further protection by an increased duty on high grade manganese will not materially increase that output nor effect the object of a tariff.

"The present rate of duty on high grade ores applied to all grades of manganese ore," the brief continues, "would result in appreciable increase in annual tonnage of high grade, probably double the annual output of low grade and afford a basis for the conduct of this small industry as a legitimate and permanent business with reasonable wages for the native laborer and possible profit to other interests. Investigation will show that the increased cost per ton of manufactured pig iron and steel due to the present rate of duty applied to all manganese ores is so small that it is found practically negligible in the cost to the ultimate consumer of the finished articles manufactured from those products."

New Manganese Ore Cave Is Found Near Cushman.

3-22-29

Special to the Gazette.

Cushman, March 21.—Molett and Lee, two manganese miners operating on the Denison land, a mile and a half east of this place, struck another ore-bearing cave while prospecting recently. It promises to develop into a big producer. The cave is about 10 feet wide and seven feet high, its length not having been determined. The floor is full of high grade manganese ore. The walls also contain large quantities of ore. A cave similar to this was struck in the district last year and yielded approximately 1,000 tons of high grade ore.

HIGHER MANGANESE TARIFF PROPOSED

Senator Oddie Suggests Increase After Hearing of Repeal Effort.

DOMESTIC SUPPLY LARGE

Producers in South and West Say Additional Protection Is Essential to Development.

Gazette 6/8/29

Washington, June 7—(AP)—Announcement that the steel industry would continue before the Senate Finance Committee its effort to have the duty on manganese repealed stirred some senators to action today and resulted in an amendment being proposed by Senator Oddie, Republican, Nevada, for higher duties.

Both the steel and manganese interests failed before the House Ways and Means Committee to have the present rate on manganese changed from one cent a pound on the metallic content of ore containing in excess of 30 per cent manganese.

Manganese producers of the South and West say that a higher duty would permit an expansion of the domestic industry. The steel interests say that the one cent duty placed in the law in 1922 failed to encourage increased production in this country and that despite the duty the manufacturers had to import 95 per cent of their manganese in the last six years.

Senator Shortridge of California, Republican member of the Finance Committee, recently said his state alone had sufficient manganese deposits to supply the American demand.

Senator Oddie's proposal would make ore containing 25 per cent or more metallic manganese dutiable at one and one-half cents a pound; ore containing between 20 and 25 per cent, one cent a pound; between 10 and 20 per cent, one-half cent a pound, and less than 10 per cent, free.

This proposal together with the arguments of the steel industry, the latter to be presented through the American Iron and Steel Institute, will be heard by the Finance Subcommittee on Metals, headed by Senator Reed, Republican, Pennsylvania, which will begin hearings June 24.

Chairman Smoot today announced a revised and complete schedule of dates for the meetings of the four subcommittees which will begin open hearings next week on the House tariff measure.

After the full committee opens the hearings June 12 on the question of valuation, the subcommittees on tobacco and papers and books will hear witnesses, June 13; the subcommittees on chemicals, spirits, and cotton, June 14; the subcommittees on agriculture and wood, June 17; the subcommittees on earths, earthenware, and glassware and flax, hemp and jute, June 19; the subcommittees on metals, sugar, wool, and sundries, June 24; the subcommittee on silk, July 1, and the subcommittee on rayon, July 8.

Under plans formulated by the committee, the hearings must close by July 10, after which the preparation of the measure for the Senate will begin behind closed doors.

NEW MANGANESE ORE IS DISCOVERED

Assays Reveal That Hitherto Wasted Rock Has Fair Market Value.

7/12/29

Special to the Gazette.

Cushman, July 11.—Recent assays of a heavy gray rock found associated with the regularly known manganese ores of this field, have revealed it to be carbonate of manganese with a fair market value. For years miners in the Batesville-Cushman manganese field have thrown this gray ore into waste dumps.

Recent investigations of low grade ores associated with limestone show that these ores can be converted into high grade ores by calcining. This is done with a rotary kiln at a temperature that will convert the limestone into lime. The lime goes off in solution leaving the manganese in a high grade form. It is probable that a plant of this kind will be placed in the field in the near future.

Miner Finds Large Manganese Cave Near Cushman.

6/14/29

Special to the Gazette.

Cushman, June 13.—Charles Martin, manganese miner working a lease on the Club House mine near this place, recently drove a heading into another large ore bearing cave that promises to yield a large quantity of ore. The walls and the roof of the cavern have begun to slack under the action of the outer air, and he fears a cave-in.

The cave is one of the most wonderful ever opened in this district. The manganese ore occurs in the clay in the floor and walls. This is the third cave which Martin has located in the last two years.

BATESVILLE AS A CENTER OF MINING INDUSTRY.

Batesville Record 1928.

Mining activities that were crowded into the business life of Batesville during the World War, when the allied nations turned to our manganese fields for supplies of that ore for munition purposes, are well remembered. Hundreds of men were given employment in the mines and the pay-rolls helped to swell business prosperity of every merchant, while the miners and their families consumed products which the local farmers had to sell. Investors came from nearly every state to buy land or take mining leases. Those transactions ran into the hundreds of thousands of dollars and many of our citizens were materially benefitted in that way. Not only that, but some of those who were attracted to this country at that time on account of the mining business here, became impressed with its climatic and scenic features and the advantages afforded to homeseekers. As a result, a number of good people from the outside have located in this section.

With the closing of the war, the market for manganese suddenly collapsed for the time and that industry here, as everywhere else, was paralyzed. Since most of the producing mines were being operated on a lease basis, the operators had no alternative except to abandon their leases, many of which had been equipped with valuable buildings and machinery. While the industry has to some extent recovered in this district, it is far short of the possibilities which the known ore reserves would sustain for many years to come.

Manganese was mined and shipped in small quantities from Batesville in early days. It is said that Matthew Martin was probably the first to mine manganese in Independence county, about the year 1851. However, so far as we can find, there are no records of production earlier than ab 1880.

High grade manganese is a valuable factor in chemicals for disinfe ants, and the manufacture of ozyg and for making bronze alloys. Eve ton of steel requires the use of ab 40 pounds of manganese. Thus it is seen that this is a staple mineral, of every-day requirement.

Dr. Henry M. Payne, consulting engineer for the American Mining Congress, after having made a thorough survey of the south, reports that, of all the southern states, Arkansas takes the lead, and is second in the United States, in manganese deposits, principally located in the Batesville district.

The available resources of manganese ore in the Batesville district are set forth by H. G. Miser of the U. S. Geological Survey as being 750,000 tons of 40 per cent or more metallic content, and 170,000 tons

MANGANESE ORE IS PUT ON FREE LIST

Steel Industry Scores Victory With Adoption of Committee Amendment.

REVERSES FORMER ACTION

Borah Says Bill May as Well Be Reported as Senate Will Rewrite It.

Gazette 8-15-29

Washington, Aug. 14.—(AP)—The steel industry won an important victory today with the approval by the Senate Finance Committee Republicans of an amendment to the House tariff bill to permit free entry into the United States of manganese ore.

The Republican committeemen adopted the amendment by a vote of 6 to 5 which was taken in reconsideration on a previous vote of 7 to 4 in favor of granting the domestic ore producers additional protection. No explanation for the reversal of position was given.

Senator Borah of Idaho, one of the Republican independents who is expected to take a leading part in opposition to many individual sections of the measure, said:

"They might as well report the bill now because the Senate is going to rewrite it."

The 11 Republican committeemen approved amendments reducing to .65 of a cent a pound the bill rate of one and seven-eighths cents on ferromanganese, containing more than one per cent of carbon, and maganese metal, silicon, boron, and ferromanganese and spiegeleisen, containing not more than one per cent carbon. The 15 per cent ad volorem rate in addition to the specific duty on maganese metal and the items grouped with that product would not be disturbed.

The present duty of one cent a pound on managanese ore containing in excess of 30 per cent metallic manganese was enacted in 1922 and was retained in the House bill.

The Republican group voted first to retain the duty, but to make it apply to ore having a metallic manganese content of more than 10 per cent.

This change, the ore producers had contended, would have benefited them by curtailing importations of low-grade ores which were coming in duty-free and depriving the mining interests of their home market.

The ore producers, comprising the American Manganese Producers Association, not only had sought this change, but had urged an increase to 1 1-2 cents a pound in the one cent rate on ores containing more than 30 per cent metallic manganese.

They argued that under the present tariff, the known tonnage of commercial manganese ore in the United States had been increased greatly and that further improvements in processes would tend further to enlarge the usable reserves of manganese.

Representatives of the American Iron and Steel Institute contended the duty had failed to encourage growth of domestic ore production, that after seven years of operation of the tariff, the steel manufacturers still were importing 95 per cent of their manganese supply, and that the duties on ore and manganese alloys had cost the steel producers nearly $46,000.000.

W. T. Mossman of Pittsburgh, an executive of the Jones and Laughlin Steel Corporation, saw in the action of the committee Republicans an important step leading to reduction of building costs.

"Reaction of the Republican committee members in returning manganese ore to the free list after seven years' experiment in domestic production," Mossman said, "Does more to reduce construction costs than any other item they could have acted on."

Sundries Schedule Considered.

The Republican committeemen made rapid progress with the sundries schedule during two sessions lasting five and a half hours and indications were that they would reach the controversial sugar duties, the only rates remaining to be decided, some time Friday.

After all the rates are determined and turned over to the Democratic members of the committee for consideration, the Republican members will take up a score of amendments which senators have announced they intended to offer on the floor.

While reports continued to circulate today that the Republican committeemen would approve a sugar tariff somewhat lower than the 2.40 cents a pound on Cuban raws proposed by the House as against 1.76 cents as at present, there was only speculation as to what the rate would be.

Senator Borah, who has an expert working on a sugar bounty plan, said he would not be satisfied even with a two-cent duty as long as Philippine sugar is permitted free entry. He said he would wait to see what rate is determined by the tariff-framers before proceeding with his plan.

Borah, with Senator Thomas, Democrat, Oklahoma, criticized the action of the committee Republicans in voting to retain the House rates on hides, leather and shoes, with some changes in the leather duties, declaring the cattle raiser would not benefit by a hide tariff and would have his cost of living raised unnecessarily by the proposed shoe rate.

Manganese Operators Seeking Increase in Tariff.

Special to the Gazette. 10/6/29

Cushman, Oct. 5.—Manganese mine operators and miners of the Batesville-Cushman manganese field, are making their last stand this week for a tariff on manganese ore.

Petitions have been sent to all Arkansas Congressmen asking them to do all they can to have the present tariff increased a half-cent and a tariff placed on low grade ores. If it is impossible to secure a raise, they are asked to do everything possible to keep the present schedule on ore in force. It is expected that the manganese schedule will come up for discussion in the Senate in a few days.

SENATE INCREASES MANGANESE TARIFF

Cent a Pound Duty Voted After Bitter Dispute Is Waged.

TAX STATISTICS HEARD

$930,181,059 Net Profits for Eight Steel Companies Since 1922, Statistics Show.

Gazette 11/8/29

Washington, Nov. 7.—(AP)—Settling one of the bitterest disputes since it began readjusting the nation's tariff, the Senate today voted 60 to 18 to increase the duty on manganese, a mineral used in the manufacture of steel, which the pending bill as reported by the Finance Committee placed on the free list.

The vote came on an amendment by Senator Oddie, Republican, Nevada, providing a duty of one cent a pound on ore containing 10 per cent and over of metallic manganese, which would protect both low and high grade manganese producers in the West and South.

The present rate, one cent a pound on ore of 30 per cent and over of metallic content, was retained in the House bill. It first was increased by a vote of seven to four by the Senate Finance Committee Republicans, through a lowering of the dutiable content, but by a later vote of six to five, they eliminated the tariff.

Approval of the higher protection was given after five and a half hours of heated debate in which the first figures obtained from tax returns for use in consideration of the pending bill were divulged, showing eight of the nation's leading steel companies to have made net profits of $930,181,059 since 1922 when the present tariff law was enacted.

Senator Ashurst, Democrat, Arizona, who engaged in a bitter clash over an alleged "manganese" dinner in Washington, with Senator Barkley, Democrat, Kentucky, an opponent of the duty, immediately preceding the roll call, read the tax statistics to the Senate after he had been told by some of his colleagues that it would not be improper.

Majority Overwhelming.

Twenty-nine Republicans, including Chairman Smoot and Senators Couzens, Keyes, and Shortridge, of the Finance Committee, joined 31 Democrats for the Oddie proposal. Two Democrats and 16 Republicans were all the opponents could muster.

Those voting against the duty were Barkley, Kentucky, and Walsh, Massachusetts, Democrats, and Bingham, Dale, Deneen, Fess, Gillett, Goff, Goldborough, Greene, Hale, Hastings, Hebert, Kean, Moses, Reed, Sackett and Townsend, Republicans.

After the Manganese vote, the Senate rejected, 51 to 19, a committee amendment to increase the tariff on structural steel from one fifth to three tenths of one cent a pound.

Ashurst read the tax figures to show that the steel companies could well afford to pay the manganese duty, although the domestic production is small compared with the needs of the steel makers.

For the United States Steel Corporation, alone, net profits since 1922 were disclosed as $642,812,128, with the highest earnings shown last year, $114,173,774.

The Bethlehem Steel Corporation's net profits were given as $15,980,835 last year and $20,246,166 in 1926, the highest in the last seven years.

The figures for 1928 and the highest earning year since 1922 for the other companies mentioned were: Republic Iron and Steel Company, $4,642,450 and $6,644,343 in 1923; American Rolling Mills Corporation, $14,062,978, the highest; Inland Steel Company of Chicago, $10,394.297 the highest; Gulf States Steel Company, $924,745 and $1,576,521; and Otis Steel Company, $3,746,811, the highest.

"The manganese dinner" incident entered the discussion when Senator Barkley inquired as to the truth of a newspaper article to the effect that the Anaconda Copper Company of Montana and the New Jersey Zinc Company had given the banquet to a gathering of senators in Washington.

After Senator Wheeler, Democrat, Montana, had described this as an "unfair insinuation," Senator Ashurst jumped to his feet and said he had attended the dinner and "resented" the implication that the two companies were involved.

Barkley said he had not made the charge.

Barkley said that he had led the successful drive to reduce the pig iron duty and therefore could not be charged with defense of the steel interests He opposed the manganese duty, he said, because all the evidence had shown that domestic producers could not mine sufficient ore for the steel-makers' needs.

Wheeler, urging the duty to protect the manganese producers and miners in his home city of Butte, said he had been informed that President Hoover favored placing the commodity on the free list after the Finance Committee had voted for higher protection on low grade ores.

Chairman Smoot denied the president had made known his views on the duty to the committee.

Ashurst read a newspaper article saying that the United States Steel Corporation, before the committee decision to allow manganese free entry, had contracted with Soviet Russia for from 80,000 to 150,000 tons annually and free entry would permit the corporation to save from two to four million dollars a year.

Senator Reed, Republican, Pennsylvania, who opposed a duty on the ground that the domestic production never could be brought up to the point of meeting the demand, said the United States Steel Corporation had informed him that the Russian contract story was "completely erroneous."

Senator Fess, Republican, Ohio, also argued against a duty, while Senators Oddie and Borah of Idaho, Republicans, and Walsh, Montana; Pittman, Nevada, and others on the minority side spoke in favor of a tariff.

Several committee proposed increases in the metals schedule were approved, but the tariff-framing group lost in an attempt to increase the rates on wire fencing used by the farmers.

The committee had recommended an increase from the 40 per cent duty now in effect and 50 per cent proposed by the House to specific rates ranging from nine to five-sixteenths of a cent a pound depending upon the fineness of mesh, but it was defeated without a roll call. A substitute for this paragraph will not be acted upon until the section from which it was transferred is reached.

Manganese Operators Jubilant Over Tariff Bill Action.

Special to the Gazette. 11/10/29

Cushman, Nov. 10.—New life was given miners and mine owners yesterday when a message was received here announcing that the Senate had voted on the manganese tariff schedule, and that it had carried by a large majority. The new tariff schedule covers low grade, as well as high grade ores, being one cent per pound on all ore carrying over 10 per cent metallic content. If the tariff bill is passed without further changes in the manganese schedule it will mean considerable new development for this field.

During the last few years it has been rather well proved that the manganese ore deposits are not only present in Independence and Izard counties, but extend through Stone and into Searcy counties, enlarging the size of the field many times.

The low grade ore, too, much of which was not of commercial value can now be converted into high grade ore by new methods of treatment developed during the last two years. On top of this is the promised development of the water power on the upper White river, which will supply an abundance of electric energy for operation of electric furnaces in which the manganese ore mined here can be converted into ferro manganese. A spirit of optimism prevailed over the field today. If the tariff had been removed the mines would have [illegible] abandoned.

November Manganese Shipments From Manganese Set Record.

Special to the Gazette.

Cushman, Dec. 5.—More manganese ore was shipped from this place in November than ever was shipped in one month before in the history of the field. Walter H. Denison alone shipped 55 carloads.

Operators in the field are developing new Western markets. Production for the year will show a large increase over that of last year.

Georgia Competition Cu[t] Manganese Production

3/9/

Special to the Gazette.

Cushman, March 8.—The Bate[s] Cushman manganese field will produce such a large tonnage o[f] grade ore this year on account o[f] mines and milling plants in Ge[or] The Birmingham furnaces which been taking all their low grad[e] quirements from this field have their tonnage from Arkansas, probably only one-half the low ore will be mined this year tha[n] mined last year.

There is a difference in freig[ht] nearly $2 a ton between this plac[e] the Georgia point, giving the place a decided advantage. Thi[s] shipped about 12,000 tons of low last year.

NEW ORDER INJU[RES] MANGANESE MIN[ING]

Smelters No Longer Use for Low Grad[e] Ore.

3/2

Special to the Gazette.

Mount Pleasant, March 2 manganese mines in the Cu[sh] Batesville field suffered a blo[w] may close more than half of the Shippers have received notice ship any more low grade ma[n] to the smelters.

Last year 249 carloads of ma[n] ore were shipped from Cushm[an] approximately 75 per cent teste[d] 40 per cent. Manganese testing 40 per cent is classed as low gra[de] has no market value at this ti[me]

One thousand men, women a[nd] dren depend on the wages ea[rn] the manganese mines in the ville-Cushman field, either part wholly.

More money can be made high grade than can be earned low grade, as a ton of high grad[e] the miner about eight times a[s] as a ton of low grade. Nearly miners prospect for high gra[de] but usually make average day mining low grade manganese prospecting for high grade ore, is not so plentiful.

Without the low grade ore them out while they are pros it is believed that a large numb[er] quit the mines and hunt other of support. Several tons of lo[w] ore have been mined that will shipped.

It is reported that a const company in Alabama struck a low grade manganese ore near t[he] mingham smelters that will sup[ply] demand for low grade ma[n] thereby saving the freight fr[om] field and also the rumors say t[hat] manganese will cost the smelte[r] the cost of labor of mining t[he] duct, as it has been given to th[e] to get it moved away.

MANGANESE FIEL[D] MAY BE DEVELO[PED]

Eastern Interests Investigating Ore Bearing Clays Near Cushman.

Special to the Gazette. 1-12-31

Cushman, Jan. 10.—Eastern steel and iron interests are investigating the Batesville-Cushman manganese field with a view of installing a large plant in the field at some central point, to handle a large volume of ore bearing clays, of which there is an almost inexhaustible tonnage. A demonstration will be made Monday on a large body of this clay with a hydraulic nozzle to see about what tonnage can be moved in this manner.

If the investigation proves satisfactory, the plant that will be built will be the first of its kind in the United States. It will combine two of the most successful processes for the benefication of manganese ore that have been developed recently.

There are literally millions of tons of chocolate clay in the field that carry manganese ore values in fine particles, and the new processes that will be used will extract this ore from the clay as well as raising the grade of the concentrates derived from it. Concentrates run about 30 per cent metallic manganese. By the Bradley process they can be raised to 70 per cent metallic manganese.

All the clay will be mined by hydraulic nozzle and carried through pipes to the treating plant, where it will be dewatered and passed through the Miller-Rhinehart process of concentration. After roasting it will pass through the Bradley leeching process. There is enough ore bearing chocolate clay in the field to furnish raw material for almost an infinite length of time for a number of such plants.

that Kemal changed his mind and decided that encouraging organized opposition was too dangerous a procedure.

The president of the court martial at Mennemen declared before the trial began on Friday that the revolutionary plot was the work of secret religious societies. It is certain that Islam will continue to react secretly and openly against the Westernization of Turkey, joining hands with Mohammedans in India in a last stand against Occidental institutions. Whether this resistance will again turn into a revolution and take the form of a holy war is one of the questions which the next few months may answer.

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MINING MANGANESE ORE IS OLD INDUSTRY

(Continued from Page 8.)

is known as the iron group which comprises iron, manganese, cobalt and nickel. It is an essential constituent of many minerals and is found in greater or less quantities in almost all metamorphic, eruptive and sedimentary rocks. It also represents one of the 22 or more elementary substances found in meteorites. Rhodonite, one grade of manganese ore, is often cut for jewels on account of its beautiful pink color, and the purple of the amethyst is supposed to be due to the presence of manganese.

People eat manganese every day and do not know it, as it is represented in many forms of vegetable life. It is present in tea, coffee, potatoes, squash, tobacco, beets, carrots, grapes, apricots, wheat, rye, rice and many other plants. It is also represented in animal life, and is a part of you, forming an essential constituent of the tissues and of the red corpuscles of the blood, being present in the latter in the proportion of one part of manganese to 20 parts of iron.

Manganese was well known to the priests and chemists of the middle ages. The application of manganese in the arts is of great antiquity, and dates back at least as far as the times of the ancient Egyptians. One of its first uses was in glass making, and analyses of Egyptian and Roman glassware show it to contain about two per cent of this metal. Pliny, in his treatise on natural history, mentions the use of manganese for this purpose. He considered it a variety of magnetic iron ore, or lodestone, which he speaks of as magnes.

Denning-Altus School Forced to Close.

Altus, Jan. 17.—(AP)—The Dennong-Altus school of the Altus-Dennong consolidated district has been closed on account of shortage in school funds and resignation of teachers. The latter had received only one month's salary since last September. Financial distress in the district also has resulted in reduction of the Altus "B" class high school to a grammar grade.

Two Manganese Mines Operated In Izard County.

Special to the Gazette. 2-6-31

Melbourne, Feb. 5.—Two manganese mines have been opened in the southern part of Izard county. One is two miles west of Mt. Pleasant and another is a half mile south of Anderson. The mine at Anderson was in active operation about two years during the World war, but has not been worked since 1918, until a few weeks ago. Workmen are able to make from 50 cents to $5 a day. They are paid by the ton.

Miners Brec... New Mang...

Gazette

Mining Manganese

A Valuable Metal in the Manufacture of Steel Has Been Produced in the Batesville-Cushman Field Since Before the Civil War, and It Will Be in Use So Lon as There Is Demand for Steel — It Is Used Extensively in the Arts and Industries.

By TOM SHIRAS

March 19, 1933

By TOM SHIRAS.

Cushman, Feb. 21.—Caraway and Clark, manganese miners working on a lease at the head of Hankins hollow, broke into a large ore-bearing cave last week which promises to produce a big tonnage of ore. Because of caving they have not fully explored the opening but will do so as soon as they can get together the proper equipment. The cave appears to be some 40 or 50 yards long and some 30 or 40 feet wide.

Prospecting near the mouth they came on good ore lying in the clay floor of the opening. Large pieces of the manganese ore which they recovered were coated with a brown onyx, which shows that the opening is years old.

The ore bearing caves of the Arkansas Ozarks are the most interesting caverns in the territory from both a geological and financial point of view. During the last 25 years a number of these caverns have been found in the zinc field as well as the manganese field, and most of them have been very profitable to work for the lucky finders.

Nature is constantly making changes underground in the Arkansas Ozarks. For the most part she does it cunningly with water. She picks up a lot of limestone in solution here, carries it to some opening and re-deposits it as a solid in the shape of beautiful stalacites and stalagmites. She sends a small stream of water seeping through a series of sandstone ledges, picking up the sand in solution, carries it along to some convenient depository and lays it down in the shape of beautiful clear crystals, which some people take for diamonds. Some of these crystals are so hard and sharp that they will cut glass as easily as a diamond or a glass cutter.

Nature does the same thing with zinc ores native to the region, changing their chemical nature as she changes their location. In the north Arkansas zinc field, in Marion, Stone, Boone, Newton and Baxter counties, most of the ore that has been mined in the past has been carbonate of zinc ore, which is known as a secondary ore for the reason that its chemical nature has been changed.

Carbonate ore is derived from jack, or sulphide of zinc. Water passing through bedded deposits of jack or sulphide ore picks up the zinc in solution and carries it along to some opening in the earth where it is redeposited in the shape of carbonate. Most of the large ore bodies in the Rush creek district in Marion county have been deposited in this manner.

This process of nature's is interesting. The water, heavily impregnated with zinc, finds its way into a large under- grou... ing char... of ... clogg... block... up, ... other... into ... time. ... water... lake ... the solids it carries begin to precipitate on the walls and floor of the cavern. Centuries and ages pass and the process continues. Some lucky prospector comes along and drives a pick into it and makes a big strike.

During the zinc mining activity while the World war was in progress a splendid example of nature's action on zinc ore was shown at the Capps mine on Rush creek in Marion county. The ore body was about 16 feet wide and 10 feet high with a four or five foot opening between the top of the ore and the old roof of the cave. From this roof were suspended solid stalactites of pure ore, some of which would weigh 100 pounds. At some time or other the same conditions have been encountered in all of the older mines on Rush creek.

The secondary ore deposits in some manganese bearing caves were formed by nature by the same process she used in forming the zinc bearing caves. In these instances the ore was carbonate of manganese. In other caves the original bedded deposits of ore have been found.

The original bedded deposits of manganese were laid down in the St. Clair limestone, which is easily attacked by water. Water attacks a section of underground territory in which is a bedded deposit of manganese lying between two layers of limestone. Eventually the water carries away the limestone in solution, leaving a big opening or cave. That part of the ore that originally lay between the two layers breaks down after they are carried off and finds a bed in the clay bottom of the opening. Outcroppings of the same ore are also found in the sides of the cave. The lucky man who sticks his pick into one of these ore-bearing caves hasn't anything to worry about for some time, for it is easily and cheaply mined, nature having opened up his mine for him.

Ore-bearing caves found in the Arkansas Ozarks to date have been zinc and manganese caves. Iron and lead do not seem to have the same proclivities as the two ores mentioned above, and no iron or lead caves, to the writer's knowledge, have ever been discovered.

sands of tons to the ore reserves of the field. In years to come millions of dollars worth of this ore will be mined, and its discovery is just like someone handing this section a certificate of deposit for a huge sum to be realized on in future years, which it never knew existed. It is probably the greatest discovery of domestic manganese made in the last quarter of a century, and probably will put the field on a production par with some of the foreign fields, when the carbonate ore bodies are fully developed.

As far as the writer knows the discovery of this new ore has only one parallel in Arkansas. For 100 years a wagon road ran across the diamond pipe in Pike county, before the first diamond was discovered.

They started to mine the oxide manganese ores before the Civil war and have mined them continuously ever since. The oxide ore resembles iron ore and occurs in the clay, in boulder form in some cases, and in very fine particles in others. This oxide ore has always been found in irregular large and small pockets. It was the generally accepted theory that at one time it had been disseminated through the St. Clair limestone, and had been left in the residual clay of this limestone formation when it decayed.

The finding of the carbonate ore, which lies in blanket veins of from three inches to nine feet thick knocks this old theory into a cocked hat. During the last few weeks it has been determined that the carbonate ore is the primary ore, and that the pockets of oxide ore, are only those sections of carbonate veins that have broken off and changed their character by the process of oxidization.

This feature makes the location of the carbonate veins easy. One has only to discover a pocket of oxide ore, and trace it to its source, the carbonate vein higher on the hill.

Price Is Low Now.

During the World war, when miners and prospectors ran rampant over this field, the discovery of this ore would have meant not one, but hundreds of fortunes, to those who were lucky enough to put their fingers on it. Today with the price of ore very low, and with but little demand it is only something to be looked forward to.

Literally hundreds of geologists have visited the field during the last half century but all of them missed it. Only one ventured a guess at its probable presence and that was Penrose, who investigated the field nearly 50 years ago. He said that they might find carbonate of manganese in the field and if they did they would find it below water level. He missed his guess there, too, for it is found rather high on the mountain sides. This remark made by Penrose, however, later published in a report, probably caused the investigation which led to the ultimate discovery of the new ore.

Nature concealed this ore very cunningly indeed. She used the color scheme, just as she gives the bob-white and the grouse the color of dead leaves and grass. It was there always before your eyes if you but knew it. There was no prospector who did not see it several times each day. The miners, for a half century, mined it and threw it into the waste pile for waste rock. It is hard to estimate in dollars and cents how much was thrown away.

The St. Clair limestone known as "gray rock" by the maganese miners, runs in ledges with gray and pink casts, the former predominating. Nature formed the carbonate in these same shades, giving it the general appearance of limestone. The only difference one can see between the two is that the ore is much heavier.

Discovery Was Accidental.

The first knowledge that this heavy limestone rock was manganese ore was gained about four years ago. A miner who sold his ore to Walter H. Denison, sent in a load of boulder ore and it was unloaded in the ore yard. In examining this particular load, the yardman had a hunch that it wasn't just exactly right, and he broke one of the bowlders. It had a veneer of blue

laid the matter before Reed Denison, who was running the business for his father, and Mr. Denison had samples of the gray cores assayed. They ran 40 per cent manganese. He bought the ore. More of this ore was brought in and he bought that, but what in the "heck" was it?

Miners at the Clubhouse mine were mining in a ledge of this gray limestone and finding oxide ore pockets in it that paid to work. They sold the oxide ores and threw the gray limestone into the dump as waste. Mr. Denison had samples of this limestone assayed and found it to be ore. Then the search for more of it began.

This search was no small job, and because there were other things to do, it dragged out over months. Every limestone ledge in the district had to be prospected. They finally found it outcropping high on a hill. They found it in another hill at the same elevation, then it was easy. To date, that part of the field lying between Cushman and the mouth of Lafferty creek has been rather well proven up. It takes in an area some five miles long and two miles wide. The ore vein seems continuous through the hills, and it can be reasonably assumed that the vein is present in all parts of the field where the oxide ores have been found.

The oxide ores, which they have been mining in the field since before the Civil war, are blue. The carbonate ore is for the most part gray, looking exactly like coarse, fray limestone when mined. After it lies in the air for three or four days it takes on a yellowish cast. In two months the outer shell of it oxidizes and looks exactly like the oxide ores.

In the investigations that have been carried on in recent months on the carbonate ore, the old waste piles have been looked into. In some instances pieces of this ore which was taken for limestone when it was mined were completely oxidized into blue ore. In other instances blue exide shells had formed around the gray boulders, leaving a gray core in the center.

The carbonate ore is not all high grade ore. It runs from 20 to 55 per cent metallic manganese. The miners, however, have learned to distinguish the low grade from the high grade largely by specific gravity. The high grade occurs more frequently in those zones where the formation above the ore vein has been cracked and there is a water leakage. The water seems to have concentrated the values.

The discovery of the carbonate ore gives the field an entirely new aspect. The oxide ores occurred in irregular pockets, the size of which could not be well determined by drilling. One just mined them until they were exhausted, then started a new dig.

Because the carbonate lies in a blanket vein, the amount of ore on any one piece of property can be readily determined by drilling before actual mining operations are started, reducing the chances of failure to a minimum.

Manganese is one of the most valuable of the many minerals to be found in Arkansas, and the largest workable deposits of manganese ore are to be found in the Batesville-Cushman field in Independence county, where it has been mined from time to time since before the Civil war. Recent discovery of carbonate of manganese, a new ore, which was believed to be limestone, has added many hundred thousand tons to the ore reserves.

Manganese will be in demand as long as steel is in demand, for it is to steel, by a homely comparison, what baking powder or soda is to biscuit dough. Steel would not be steel, lacking manganese.

Steel is the alloy of iron and manganese and the most noticeable effect of manganese alloyed with iron is the hardness of the product. In addition to hardness, it gives steel elasticity and tensile strength. When you observe a ponderous safe in a bank marked "maganese steel," more than likely the manganese used in its construction came from the Batesville-Cushman field in Arkansas.

The first use of manganese to improve the quality of steel and iron was in England in 1839, the result of researches conducted by Josiah Marshall Heath. To Heath is given credit for use of manganese in the metallurgy of iron and steel, a blend which has become almost indispensible. Manganese is used also in other alloys, such as manganese bronze and silver bronze. It alloys with still other minerals and imparts the hardness for which it is noted.

Manganese is used extensively in the arts and industries. It is used in the manufacture of electric batteries, and in these modern days we depend a great deal on such contrivances. It is used as a decolorizer of glass, and under certain conditions can be used as a color agent too, imparting to glass beautiful shades of pink and violet. It is used as a coloring agent in the manufacture of pottery and produces jet black, browns and grays. As a color agent for paint it develops browns, grays and greens, and it is used as coloring in mottled soap. It is found often in the chemicals. Sulphate of manganese is used frequently as a medicine. The oxide, sulphate, chloride, manganates, permanganates, as well as other salts of manganese, serve many useful purposes in chemical laboratories.

Manganese is one of the elementary substances of the earth's crust. It belongs to what is known as the iron group, which is composed of iron, manganese, cobalt and nickel.

Manganese generally is confined to the mineral kingdom, but it is widely distributed in minute quantities in both the animal and vegetable kingdoms. It is said to form an essential constituent of the tissues and red corpuscles of the blood in the human body, being present in the proportion of one part of manganese to 20 parts of iron.

It enters into the composition of many plants. Manganese is found in the ash of some varieties of tea, coffee, potato and squash. One scientist describes its existence in tobacco, potatoes, beets, carrots, grapes, apricots, wheat, rye, rice, and many other vegetables, fruits and cereals. Manganese represents one of the constituents of many trees. It also occurs in several species of the genus Cinchona, the source of quinine. How do you get it into the blood stream? It is absorbed from the soil by plants and transmitted thence to animal and blood tissue.

The application of manganese in the

Manganese Miners Make Deal To Sell Their Ore.

3-29-31

Special to the Gazette.

Hot Springs, March 28.—Reports received here today from Caddo Gap are that a company engaged in mining manganese has closed a contract with the Carnegie Steel Company for the ore. The Pittsburgh concern, it was said, is paying 50 cents a unit for the Caddo Gap product, which is nearly double the quoted rate. Shipment is over the Missouri Pacific railroad to St. Louis. A unit, it was said, is 20 pounds or one per cent of a short ton.

3,276 Tons of Manganese Ore Shipped From State in 1930.

5-29-31

Washington, May 28.—Shipments of manganese ore from Arkansas during 1930 amounted to 3,276 tons, it is said by the United States Bureau of Mines. Nearly all shipments were from the Batesville-Cushman district. In 1929, Arkansas shipped 4,308 tons of manganese ore.

Geologist Studying Manganese Ore Near Cushman.

10-10-31

Special to the Gazette.

Cushman, Oct. 9.—Hugh D. Miser, geologist with the United States Geological Survey, is making a study of the carbonate of manganese ore deposits recently discovered in this field. He will be joined next week by D. F. Huett, another geologist from the survey.

Discovery of carbonate of manganese in this field is one of the most important revelations in connection with domestic manganese in the last two years. This ore, which resembles the limestone with which it is associated, was believed to be common limestone until Reed Denison, ore buyer, had some of it assayed and found it to be commercial ore. His attention was drawn to it by its weight.

He has bought and shipped about 2,000 tons and it has become a popular furnace ore. For years miners who have encountered it have thrown it into the waste dumps. It also has been rather well determined that this carbonate is the primary ore of the field, and that the oxide ores which they have been mining since the Civil war have been derived from it. The oxide ores have always been found in clay pockets. The carbonate ore lies in continuous blanket formation in ledges from nine inches to five feet thick, and the length and breadth of the ore bodies can be determined by drilling.

Manganese Mining at Cushman May Be Discontinued.

Gazette 3-9-32.

Special to the Gazette.

Cushman, March 8.—Unless a brisker market develops in the steel and iron trade, manganese mining in this field will stop April 1. Shipments for the past year amounted to approximately 5,100 tons, which is below an average. Walter H. Denison, who buys most of the ore, has a large stock on the yards. The manganese mining industry fluctuates with the steel and iron business. Manganese is used to toughen both steel and pig iron.

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arts dates back at least to the ancient Egyptians. One of its first uses was in glass-making and analyses of Egyptian and Roman glassware have shown the presence of two per cent manganese.

Pliny, in his treatise on natural history, mentions the use of manganese among the Romans in decolorizing glass. He considered it a variety of magnetic iron ore, or lodestone, which he speaks of as magnes. During the middle ages it was known as magnesia, and was later referred to as magnesia alba.

The ancient, however, overlooked a few things in connection with manganese in the manufacture of glass. Modern scientists have about concluded that it is the small per cent of manganese in nearly all the glass sand from which glass is manufactured, that keeps the ultra violet ray of the sun from passing through common window glass. We might add that north Arkansas has glass sand deposits which contain no manganese, and probably in the more modern days to come will be very valuable for this reason.

Col. Matt Martin of Batesville was the first to discover the value of manganese ore in what is now the Batesville-Cushman manganese field. Between 1848 and 1850, he and M. D. Fields acquired large tracts of land in the ore-bearing region. Colonel Martin worked this land to a limited extent and as early as 1850 shipped small quantities of the ore to Boston, New York and Philadelphia. The ore shipped during this period was used for chemical purposes and not for the manufacture of steel, for which it is most in demand today. Mining operations have been carried on in the field almost constantly. The production has never been very large, but it has been steady, and affords work for several hundred men during normal times.

Nature is always playing tricks on the mining profession. In the Batesville-Cushman field until last year, all the ore mined was boulder or fine ore, found in clay. It was mined from shafts, drifts and open cuts. Some of the ore pockets were large, some small, but there were enough large ones to make it a paying industry. The ore they produced is an oxide ore with a blue cast.

About a year ago a miner sent in a load of this ore in the form of round, smooth boulders. They looked suspicious to Mr. Baker, who had charge of the buying, and he broke one of the boulders with a sledge hammer. The blue ore was only a veneer on what appeared to be a core of gray rock, or limestone, and he turned the load down. Later this gray rock core was assayed and found to be rich manganese ore.

Investigations proved that this was carbonate of manganese, and blanket veins of this ore are found in many parts of the district, which has increased the reserves of the district. This investigation also showed that all of the oxide ore was once carbonate, and that the carbonates were the original ore bodies of the field. As erosion took place, the carbonate veins were broken down, and on coming into contact with the elements changed their chemical nature from a carbonate to an oxide.

Company Installs Machinery To Work Manganese Mine.

June 21, 34

Special to the Gazette.

Cushman, June 20.—Walter H. Denison, and his sons, Reed and Alvis, are installing drilling machinery on a new manganese ore strike made on the Club House property a mile west of here. The equipment will consist of three engines and compressors and three jack hammer drills. The old Club House manganese mine has been in operation for the last 25 years and was a large producer before and during the World war.

The new strike was made on the same property across a hollow from the old digging. The vein has been opened with a 30-foot breast. It varies in thickness from about 18 inches to five or six feet. The ore is ledge ore, consisting of both carbonates and oxides. Alvis Denison, mining engineer, has charge of the new operations. A laboratory for assaying purposes has been installed in the company's office here.

MANGANESE MINING GREATLY INCREASED

Farmers of North Arkansas Regaining Losses From Drouth.

Aug. 3, 1934

Special to the Gazette.

Cushman, Aug. 2.—More manganese ore has been mined and shipped from the Batesville-Cushman field during the last 30 days than was shipped during the entire year of 1933. Reed Denison, ore buyer, reported shipment of 1,300 tons, most of which went to the furnaces at Birmingham. Farmers who lost their crops by the drouth are regaining their losses by mining. An executive order signed by the president in March, to the effect that all material entering in government contracts had to be of domestic origin, is helping the demand for ore in this field. Tom Shell and A. B. Reither have 35 men working at the Martin mine near here, which they recently opened. They are taking a good production from a four-foot vein of carbonate ore.

TARIFF NEEDED BY MANGANESE MINERS

Arkansas Operators Protest Removal or Reduction of Duty.

(From the Gazette's Correspondent.)

Washington, Aug. 6.—When America entered the World war it possessed within its own boundaries sufficient quantities of all but seven of the minerals necessary for munitions and war material. One of the seven it lacked was manganese, a metallic element found principally in Montana, Washington and Arkansas, which has taken its place as an essential as an alloy for steel and copper. Mixed with these metals it increases their hardness, tenacity, and elasticity in the gearings and wearing parts of heavy machinery, ordnance, and armor plate.

On August 3, a meeting of manganese producers, operating small [illegible] throughout the country, was held in Washington with a view to forestalling attempts of consumers to have the protective tariff removed or reduced and also with a view to furthering research work of governmental bureaus looking to more practical mining practices and improvements in beneficiating processes whereby the standard of low grade ores is raised.

So important was this meeting considered to Arkansas that Acting Governor Parnell dispatched George C. Branner, state geologist, to Washington to attend the proceedings and report developments.

In view of this interest in a local product which may some day prove of considerable value to the state it may be well to describe some of the characteristics of this little known and elusive mineral.

Resembles Iron.

Manganese resembles iron but is not magnetic. It has a grayish luster faintly tinged with red, and rusts rapidly in moist air. Pure manganese is only a chemical curiosity. "Speigeleisen" is an iron with about 12 per cent manganese, and is made in a special high-temperature furnace; "ferro-manganese" has about 70 per cent. Both are largely used as steel alloys and are added to the molten steel as it comes from the converter or open hearth furnace. Salts derived from manganese are used in chemistry, medicine and the arts. "Condy's fluid," a familiar disinfectant, is sodium permanganate in solution.

Prior to 1914, Russia was the greatest producer of high grade manganese. Brazil and India ranked next. The use of the low-grade deposits in the United States involves too heavy expense, under present mining methods, to be very profitable in normal times.

One day in 1868 an English metallurgist, Robert F. Mushet, noticed that a steel tool with which he was cutting metal at a lathe did not lose its edge even when heated red hot by friction. He had the steel analyzed and found that it was an alloy or mixture of steel and tungsten, a metal little known in those days.

Since then it has been found that certain other metals, when mixed with steel in just the right proportions, will give the alloy this same quality. Among them are chromium, vanadium, cobalt, manganese and molybdenum.

Revolutionized Metal Working.

The discovery of these "high speed" steels, as they are called, revolutionized metal working the world over.

Although nearly all metals are used in alloy forms, the alloys of steel and iron are by far the most numerous and the most useful. Nor does the nature of an alloy depend alone on the kind of metal used, for often it is greatly altered by varying the proportions of the same metal.

It is possible for great flying machines to skim through the air because engines can be built of these new alloys that weigh no more than two pounds per horsepower. When a proportion of manganese is added to steel, it becomes so hard that it cannot be machined, but has to be cast or ground into shape. This steel makes armor plate that can not be pierced except with projectiles pointed with the same material.

A combination of nickel steel with manganese, silicon, and chromium gives the hard alloy invar, which is much used for measuring implements and pendulum rods because it is practically nonexpansive within normal temperature variations.

Manganese also is used in the manufacture of colored glassware, which is made by adding small amounts of various metallic oxides. Chromium give green shades, manganese shades from pink to purple; copper yields reds and blacks; uranium, yellows and greens, and cobalt a great variety of blues.

Tariff Encourages Operators.

The tariff on manganese continues to encouage new operators to become producers of manganese, and a large number of new producers have become active during the past three years. However, the number or shippers who contributed only one or two carloads to the total is surprisingly large. This condition is exemplified in Georgia, where there were eight shippers of high grade ore in 1924 who made total shipments of only 1,093 gross tons, an average of less than 140 tons for each operator.

The world at present depends upon four great sources for its manganese: Russia, India, Brazil and the Gold Coast. In 1925, the world's production was approximately 2,570,000 tons, of which Russia produced 32 per cent; India 24 per cent; Brazil 12 per cent and the Gold Coast 13 per cent. The Tchiaturi deposit, in the Province of Kutais, Republic of Georgia, south of the Caucasus, may be classed as the largest single deposit of manganese ores now known. It covers some 22 square miles, and estimates of the total commercial ore range from 44,000,000 to 200,000,000 tons.

Demand Exceeds Supply.

In the United States the production of manganese, except during a few years prior to the advent of the Bessemer and open-hearth processes for making steel, has never been able to satisfy the domestic demand. The occurrences of manganese in this country are, broadly speaking, well known, and if the past history of the mining of this metal is taken to indicate the trend of the future, the United States does not possess a supply that can meet its demands. Unless methods are evolved for beneficiating low-grade manganiferous ores, this country must remain dependent upon foreign sources as long as manganese is required in the manufacture of steel.

Mining of manganese in the United States began in 1832 at the Paddy Run Mine, Frederick county, Va., and during the first few years of its operation some 5,000 tons of high-grade ore was shipped to England.

Since 1890 the domestic production has ranged from a fraction of one per cent of the domestic needs to some 32 per cent during the war years of 1917 and 1918. The ores produced during these years were mixed with high grade imported ores in order to render them usable. And their utilization was made possible only by modification of peace-time specifications. Except for the chemical ores produced in the Philipsburg district of Montana, the supply of high-grade metallurgical manganese ores in the United States is meager.

DEBATE HEARD ON PRODUCTION OF MANGANESE

Feb. 8, 1936

Steel Men Oppose Developing Industry

Washington, Feb. 7 (AP).—Prompt development of the nation's manganese resources to permit a quick war-time expansion of steel manufacturing was urged before the Senate Munitions Committee today.

Representatives of the steeel industry agreed that without manganese there can be no steel. However they argued that such a development would exhaust America's readily available supply, and force the nation to depend on imports in case of war.

Behind the argument lay a tariff dispute long before Congress. Manganese producers have been seeking a stiff rate on imports. Steel companies have been asking a low tariff. A duty of 14 cents a pound, imposed by the tariff law of 1930, was cut in two by the reciprocal tariff treaty with Brazil.

J. Carson Adkerson, president of the American Manganese Producers Association, argued that the 1930 rate should be restored to encourage development of the mines and have them producing should an emergency arise.

He reminded the committee that the War Department has proposed that the government acquire a stock of 600,000 tons of manganese. He said that he was informed that the War Department recently has increased its estimate of emergency need to 1,000,000 pounds. He said that this could be supplied, for a cost of $30,000,000.

He intimated the investment of the manganese industry at $20,000,000.

Adkerson also said that during the 1920s, the steel industry bought foreign manganese at prices $4 a ton higher than the delivered price of similar manganese from domestic mines.

Steel Producers Argue.

W. H. Johnstone of Bethlehem Steel replied that his company relied upon imports because of "price, grade and assured quantities of delivered supply."

He said Bethlehem had no interest in any manganese deposit outside this country, and denied a report that Bethlehem was obligated to accept a specific portion of imports from Russia.

Profit Figures Given.

During the day three contracts taken at random by committee investigators from the files of the Carnegie Steel Company showed profits ranging from 42.7 per cent of cost on orders for steel armor plate supplied to the navy. The profit figures on the three orders were $130,964, $64,919 and $43,418.

for other metallurgical industries somewhat awkward.

About half of the country's annual consumption of 500,000 tons of manganese ore represents domestic production. (Comparisons are difficult because of the varying manganese content of ores.) Arkansas's stake in manganese mining may seem to be comparatively small. In 1917 our production of high and low grade manganese ores, stimulated by World war demand and prices, rose to nearly 20,000 tons. At present it runs from 2,000 to 5,000 tons a year, all grades. But still Arkansas manganese producers might inquire how, in fairness, they can be asked to jeopardize their modest production while steel tariffs remain unchanged.

STEEL, MANGANESE, TARIFF AND ARKANSAS.

Feb 10, 1936

Feb 10, 1936

In the controversy provoked by the 50 per cent cut in manganese import duties provided for in Secretary Hull's reciprocal trade agreement with Brazil there is another example of the complex problems inherent in tariffs.

We can not sell abroad unless we buy from abroad. A tariff law that unduly restricts imports reacts on export opportunities. Secretary Hull has been seeking to re-open clogged trade channels by reciprocal concessions. But every time he concedes anything on the part of the United States the affected domestic interest protests.

In the case of Brazil and manganese, the great steel interests are for the concession. They want cheap manganese. They undertake to justify their position by arguing that America should depend on foreign sources for its ordinary supply of manganese, indispensable for steel making, and conserve its own manganese ore lest the readily available supply be exhausted and the country have to depend on imports in a war emergency.

But the manganese interests retort that what national safety dictates is the development now of domestic sources, so that the country may be ready for a war emergency. Moreover, steel is firmly entrenched behind a high tariff wall, which makes its attitude as an opponent of protection

MANGANESE OBTAINED FROM LOW GRADE ORE THROUGH NEW METHOD

May 29, 1936

Washington, May 28 (AP).—A new process for extracting manganese from low-grade American ore, holding potentialities of freeing this country from dependence on foreign supplies of the important metal, was announced by the Bureau of Mines today.

For the first time pure manganese can be recovered electrolytically from ore containing as little as 10 to 15 per cent of the metal, R. S. Dean, chief metallurgist of the bureau, said.

Heretofore the United States has depended almost entirely on Russia, Brazil and parts of Africa for its annual requirement of about 370,000 tons of manganese.

Solves Old Problem.

Because it is indispensable in the making of steel, a method for using this country's deposits has been sought for years. During the World war considerable difficulty was encountered in maintaining imports in quantities needed for commercial and war needs.

Up to the present extraction of manganese from low-grade American ore was impractical because it oxidized, or combined with oxygen, immediately after it was liberated as a pure metal, and thus the almost unlimited supplies available were practically useless.

Oxidation Prevented.

The new process, invented by S. M. Shelton, metallurgist of the bureau, makes recovery possible by keeping the acidity of the bath in which the metal is deposited absolutely constant and by including a reducing agent to prevent oxidation.

Manganese is dissolved from the ore with sulphur dioxide, a by-product of smelting operations formerly discarded in large quantities. An excess of finely divided ore is suspended in the tank to control acidity.

Iron rods or plates then are inserted in the solution, an electric current is turned on, and the manganese separates from other elements to cling to the iron. After a thick deposit accumulates the rods or plates are lifted out, the manganese is broken off and the process is repeated.

Silver Recovery Possible.

Silver can be recovered as a by-product of the process because most manganese ores of the West contain the precious metal, and thus the cost of producing manganese can be materially lowered.

Manganese is extensively used in the steel industry for making extremely hard alloy steels and in purifying all steels during manufacture, and is also used in making many alloys which do not contain iron, being absolutely essential in many manufacturing steps.

With $84,600 expected to be provided in an appropriation bill now before Congress the bureau plans to build a "pilot" plant at Boulder City, Nev., to demonstrate the value of the process by producing several hundred pounds of the metal daily and to obtain accurate cost figures

Manganese Process Might Benefit State

May 30 1936

Dr. George C. Branner, state geologist, said yesterday that if a new method of separating manganese from ore, described in yesterday's Gazette, proves successful from a commercial and quantity production standpoint, manganese mining probably will become a profitable industry in Arkansas.

He said there are large deposits of manganese in Independence, Izard and Stone counties and in the Ouachita mountains, but that absence of a successful and economic method of separating the metal from its ore has prevented production.

A manganese plant was established at Batesville several years ago but soon suspended operations because the method of production was too expensive.

Dr. Branner said the War Department long has been interested in development of a method by which domestic production can be increased.

A recent publication placed the requirements for the first year of a war emergency at 825,000 tons of high grade ore, 511,000 tons of intermediate grade ore and 2,500,000 tons of low grade ore.

Domestic production in 1934 was only 14,978 long tons of high grade ore, 23,231 tons of intermediate grade and 198,501 of low grade ore, Dr. Branner said.

Manganese is essential in the manufacture of steel and the United States has had to depend on imports almost entirely in the past because a successful method of reducing American ore to pure manganese had not been developed.

Electric Furnace At Batesville Planned

Special to the Gazette. 7-26-36

Batesville, July 25.—Tentative plans have been approved for the erection of an electric furnace and ferro-manganese plant at Crocker's Spur, 18 miles north of here. John W. O'Bannon of New Orleans, consulting geologist for Wilbur Thomas, Vicksburg, Miss., said today Mr. Thomas plans to install the plant within the next few weeks.

It will be necessary to build a branch power line to the location of the plant, and E. H. Glenn, manager of the local office of the Arkansas Power and Light Company, has assured Mr. O'Bannon that if the volume of business justifies the erection of a branch line, proper voltage for smelting ferro-manganese can be obtained.

Mr. O'Bannon considers the location favorable because of both rail and water transportation facilities and says that manganese can be made here cheaper than anywhere in the United States because of the advantage of natural conditions.

Ford, Bacon & Davis, erecting engineers of New York city, probably will build the plant, which will be a duplication of the ferro-manganese plant at Alloy, West Va.

New Process Expected to Aid Arkansas Manganese Field.

Cushman, Aug. 15.—Manganese mine operators here believe that the new electroletic process for recovering ferro manganese from manganese ore will give this manganese field a new favorable position in the domestic industry.

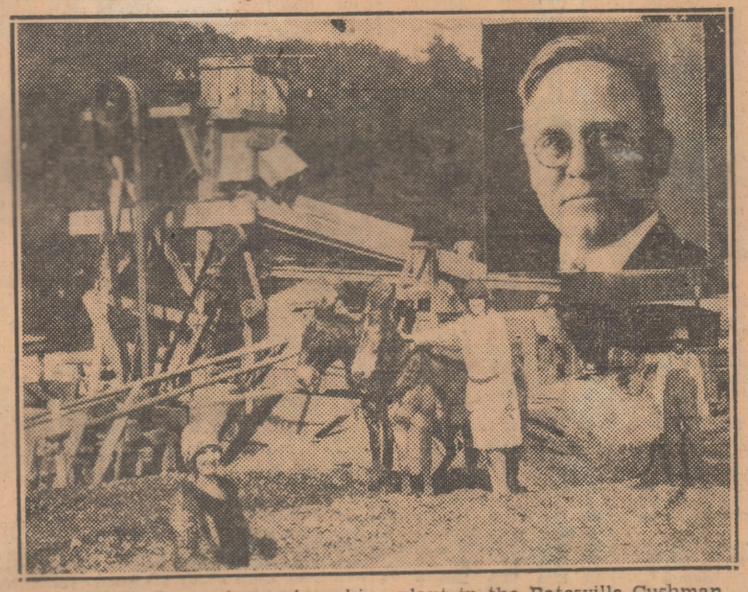
The new process consists of breaking down the crude ore with chemicals, releasing the manganese content, which is then picked up on big electrodes. It is said that ore as low as 10 per cent can be handled profitably by this method. All manganese ore in the past has been smelted with heat. There are literally millions of tons of low grade ore in the Batesville-Cushman field. With electroletic plants in the field, pure ferro manganese, instead of the ore, will be shipped, which will show an enormous saving in freight. With the construction of the Wildcat Shoal hydro-electric plant in White river, in Baxter and Marion counties, the erection of these new plants here will be feasible.

At this time and for years past a large part of the manganese used in the United States has been imported. To the whole, the United States has contributed 26,000 tons; Russia, 153,000; India, 56,000; Gold Coast, Africa, 95,000; Cuba 45,000, and Brazil, 29,000.

Of that part of the high grade ore produced in the United States, the Batesville-Cushman field last year produced 39 per cent. With a better price for the ore, it is capable of producing a much larger tonnage. With electroletic plants, which the Bureau of Mines is now experimenting with and which would utilize the low grade ores, the production would be enormously increased.

MORE ACTIVITY IN BAT

MANGANESE AND LEADER



A manganese mine and washing plant in the Batesville-Cushman field. Inset—Walter H. Dennison, actively engaged in the manganese industry 50 years.

Career of Producer Interesting

Gazette 9-27-36

By TOM SHIRAS.

Cushman, Sept. 26.—Walter H. Denison of Cushman, who has been actively connected with the production of Arkansas manganese ore in the Batesville-Cushman manganese field for the last 50 years, has been identified with the industry longer than any other man in the game, and has probably pursued mining as an occupation for more years than any other man in the state.

His mining career has been rather remarkable. Probably no other occupation holds the charm for the average person than metal mining holds. To the inexperienced and uninformed mind, metal mining promises quick riches, but few of the people who leave the more firm channels of trade and barter, or the professions, wearing ruby glasses, last more than a few years. Financial hazards lurk in most mining ventures and the less informed a man is about the industry the more hazards.

Has Passed Through All Phases of the Industry.

Mr. Denison has passed through all of the vicissitudes of the manganese mining industry, and in mining terms, "still has a whole skin." You could blindfold him, and hand him a dozen kinds of rocks and ores, one by one, and he would be able to identify manganese sample, and by its weight and feel probably tell you within a point or two what its metallic content is. He not only knows Arkansas manganese but believes in it, and thinks that some day the Batesville-Cushman field, will be a great field. Those who are acquainted with the foreign and domestic angles of the industry, and the new methods of recovery are inclined to agree with him. He has consistently backed up his faith with his money and now owns several thousand acres of manganese land in the field. He produces the bulk of the ore produced in the field, and buys most of the ore others produce. His name is familiar in every steel plant in the United States. When he takes a contract for a certain grade of ore they know they can depend on getting just what they bought. And getting what they want is essential to the steel industry, for they can't make steel without manganese. It gives steel that tough, tensile strength so necessary in its various uses. It is used in cast iron, giving it an added protection against breakage.

Started in Manganese Industry From the Bottom.

The first ore produced in the Batesville-Cushman Field, was mined in 1848, but the production was both light and spasmodic because transportation facilities were bad. The industry really took on permanent life, when the old St. Louis and Iron Mountain built its branch line to Batesville, and on to Cushman.

Mr. Denison became identified with the industry in 1885. In October of that year, the Keystone Iron and Manganese Co., a Pennsylvania concern, acquired a large tract of manganese land in the field and started operations. Mr. Denison, then a boy of 18, got a job weighing ore for them. Leading up to his first job in the field he had rather a hectic time.

His father, Joe Denison, was a plantation owner in Alabama. When the Civil war began, like all loyal Southerns, he joined the Confederate army and fought through the war. The end of the conflict found the family bereft of all their worldly possessions, living on a river boat at New Madrid, Mo. Walter Denison was born on this boat.

When he was a very small boy the family moved to Independence county, locating on Polk bayou. Later they moved to Bethesda, a little village lying a few miles west of Batesville. His mother had died and his father had married again. In order to pick up a little pocket money he sold penmanship books and other books in the neighborhood. Occasionally now, he meets some former customer of his, gray haired and reminiscent. His father also promised him that if he would stay at home on the farm until he was 21 that he would give him a horse.

Leaves Home and Makes His Way Into Texas.

He never put a saddle and bridle on this promised horse. He relinquished all rights and title to the animal, when he got into an argument with his stepmother one day and left home for good.

Texas was the land of honey and fritter trees in those days, and he hitch hiked to the Lone Star state. He stayed there for a couple of years working at this and that, and came back to Arkansas riding a good horse and leading four more.

Immediately he returned from the Lone Star state he began to look around for a job. The Keystone Iron and Manganese Company was just starting operations, he was a likely looking kid, and they gave him a job weighing ore. During the life of their operations they produced thousands of tons of ore, but all of their production was not profitable. Not as much was known about the ore bodies in the field as is known now, and a lot of their work was in barren ground. Practically all of their mining was on what is known now as pocket ore, and many of the pockets were exhausted before they got a profit out of them.

Works Out Plan To Keep Operations Going.

At one time when it looked like the concern would have to shut down operations, Mr. Denison worked out a contract plan for mining, whereby the company furnished the land and bought the ore from the miners. He took the plan East, laid it before the company and it was accepted. Most of the ore in the field since has been mined on this basis.

Even as a young man, Walter Denison had faith in manganese and in the Batesville-Cushman field. Every cent he could rake and scrape together went into managanese land. Where he didn't have the money to buy the fee of the land outright, he would buy the mineral rights to the land. Like all land investments some of his purchases have turned out very well indeed, while others have not been so good, but the average has been very satisfactory.

He hadn't been back from Texas very long before he courted and married Mary Shell, daughter of Nancy Shell, of Mount Pleasant, in Izard county. It won't be long until they celebrate their golden wedding. Her father, Reed Shell, served in the Federal army, while his father, Joe Denison, served in the Confederate army. But both of these old pioneers met on one common ground. They were both preachers. His father was one of Batesville's early day mayors.

Mr. Denison and his wife reared a large family of boys. Looking around, he didn't think that the manganese field would be big enough to hold them, and he branched out into the contracting business. Reed Denison, one of his sons, stayed at home and handled the big end of the manganese business. The rest of the boys are out on contracting jobs most of the time and it takes a pin map to keep track of them.

World War Big Boon To Manganese Fields.

The biggest boom the Batesville-Cushman Manganese field has ever had was during the World war. Manganese was not only a war metal but a war baby. A great deal of the manganese ore used in domestic consumption, is of foreign origin. Russia, Brazil and Cuba are the largest foreign producers. Shipping conditions were very, very bad, and the government called upon domestic producers to deliver every pound they could.

Zinc rode high, wide and handsome during the first part of the war, but the price collapsed late in 1917, and all the zinc miners in North Arkansas and the mid-western fields flocked into the manganese field. The government wanted manganese ore and the mining men wanted to give it to them. While the horde that poured into the Batesville-Cushman field were mining men, they knew little about manganese. Those were Walter Denison's busiest days. He had the information these men wanted and gave it to them freely. Conferences, conferences, conferences. Besides this, he had his own production to keep at a peak all the time. For one solid year he was on the go night and day.

In contrast, take a look at the industry during the first part of the depression. The price took a tumble, the demand was light and ore sales were few. But the men who mined this ore had to have work else they could not eat. There wasn't anything else that they could do. During this bad period Mr. Denison did not stop production. Every cent he could rake and scrape together he put into production. The ore piles in the shipping yards got higher and higher, and he had thousands of dollars tied up in ore from which he could not derive a cent.

Spends Much Time Working For Right Protective Tariff.

It was nearly a year before he got a break and ore began to move toward the furnaces again. Because a great deal of the manganese ore used in the United States is of foreign origin, tariff plays a big factor in the price. Some of Mr. Denison's hardest battles have not been in production in the field, but in Washington, fighting for enough tariff to keep the price of ore high enough to operate on. Generally he has been successful in these fights.

and ten, he has got plenty ... ing blood left yet to put up a good battle for anything he thinks is ... 155

Arkansas Manganese Mines May Be Aided by Naval Bill.

3-9-37

Washington, March 8 (AP).—Representative John L. Miller of Searcy, Ark., said today an item of $5,000,000 in the naval appropriations for "strategic materials of war" may revive large scale manganese mining in Arkansas.

Independence county, Miller said, produces about one-fifth of the domestic supply of manganese. Deposits of ore there are so extensive, he said, that production may be expanded "to the limit of the demand."

The Appropriations Committee reports listed "strategic materials" as manganese, antimony, chromium, nickel, tin, tungsten and ferrovanadium. The bill passed the House and is before the Senate.

Manganese Fields Prosper.

Dispatch 12-29-37

Melbourne—With manganese ore valued at $10 per ton, and every prospect for increase in price, prosperity has returned to the Cushman mining fields for the first time in eight years. Weekly shipments now average six cars, or an equivalent of approximately 1,280 tons. Miners are now averaging from $3 to $5 daily digging the ore, with a possibility of earning from $10 to $40 daily later.

Gazette 5-30-37

Manganese Field May Be Aided by Act

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Cushman, May 29.--The Batesville-Cushman manganese field expects to benefit from the naval appropriations bill passed by Congress recently and which carried a provision for the expenditure of $3,500,000 for strategic war minerals. Manganese is probably the most important mineral on the strategic war mineral list, and Arkansas will probably contribute its quota to the purchase.

There are other minerals in the strategic minerals list, and just how much of the $3,500,000 will be spent for manganese is yet undetermined. It will depend largely upon how the joint board representing the army and navy, in the purchases divides it. The plan before the bill was passed was to create a stock pile of 250,000 tons of ferromanganese, which is the metal obtained from manganese ore, which would have taken from 500,000 to 750,000 tons of ore to produce. The appropriation was slashed when the bill was passed, and the present appropriation will not permit any such tonnage to be purchased.

Congressman John E. Miller of the Second congressional district, who was instrumental in having the provision for the purchase of strategic minerals attached to the bill, said: "It was provided in the bill as originally passed in the House that only strategic minerals should be purchased, and they should be purchased from American producers. However, the compromise provision does not provide that only home produced minerals shall be purchased, but we have a law that provides that the army and navy shall purchase materials that are produced in America, whenever the material is available, and relying on the general law, we agreed to accept the compromise."

The idea of the government acquiring a large stock pile of ferromanganese was probably born from the experience of the government during the World war. When this country entered the conflict, most of the manganese ore entering into the manufacture of steel, was being imported from Russia and Brazil. Owing to the hazards of ocean transportation these imports were cut off, and the steel industry had to turn to domestic producers for this necessary war metal. For nearly two years government agencies urged every manganese mine operator to produce his maximum output, and encouraged miners of other ores to enter into the industry, as the nation was in dire need of it for munition purposes.

With a big reserve of manganese on hand, the situation would be different. If anpther was broke out domestic producers would have time to get mining operations under full headway before the stock pile was exhausted.

LONE MINER SHOWS PATIENCE OF A JOB IN MANGANESE AREA

Gazette 6-20-37

By JOHNNY ERP.

Batesville, June 19.—Job, the patient man of Biblical days, has a counterpart in S. S. ("Red") Gilbert, Cushman manganese miner.

Job was afflicted with ills and physical ailments.

"Red" was worried with an idea.

In fact, he's still bothered.

But like Job—he's patient.

"Red" has something else besides patience. That is faith.

And with this faith, patience, a good right arm, and a pick and shovel, "Red" set about to move a mountain—a shovel full at a time.

Heard Old Story.

"Red" got his idea back years ago when he heard the story how Henry Mallet, a miner, had sunk a shaft down on a rich lead of manganese ore in the grub-cut mining field, one mile north of Cushman.

Mallet, a well known miner of the the mining industry and the "lost lode" became just a myth and people began to doubt that it even existed.

That is—they all did—but "Red."

That was in 1932.

With all the confidence of a sophomore on freshman stunt night, "Red" picked up a pick and a shovel, a fresh chaw of "fishhook" and moved down to the bottom of the hill and started a six and one-half foot by four and a half foot tunnel in the general direction of the mythical vein.

"Red" used a wheelbarrow at first to haul out the dirt and refuse.

But after a year or so of this back-breaking exercise, he built a track and has since used a small dump car.

Time elapsed.

"Red" kept on digging.

Now, with nearly five years passed, during which "Red" has picked his way slowly through flint and soil, living half of his time from the sunlight, and enduring discomforts under ground in a mining tunnel, "Red" is still patient.

He has staked his life daily against the dangers of poison air pockets and body-crushing cave-ins. That hasn't worried him a bit.

Today, his tunnel reaches 200 yards back into the hill and is now only a few yards from the supposed location of the "lost lode."

"Red" may reach the end of his rainbow deep down under the surface of the earth. Any minute may bring about the fulfillment of what dubious-minded men call "a pipe dream." Any strike of the pick may reveal the blue, shining vein that has caused a man to transform himself into a human badger and for the last five years to meander around in the bowels of Mother Earth, converting a mountain into a veritable shell.

"Red" seems to the least worried man in these parts.

Like Job—he's patient!