

matter what Territory should be required.

Jefferson, Madison and Monroe all vetoed bills for internal improvements on the ground of unconstitutionality, but their Democratic successors in the present Congress find nothing of the kind in appropriating \$20,000,000 for such improvements. The imposition of tariff duties was considered unconstitutional, but today there is scarcely a thought given to this matter. It is now merely a question of expediency or of national economics.

The Constitution provided for the election of President by a college of electors, which was intended to be a deliberative body, but the President today is really elected by the people.

Alexander Hamilton's idea was a strong central government, hence his advocacy of enlarged powers of Congress and more authority in the executive. Thomas Jefferson believed in the people, and sought to retain the chief power in their hands. From these opposite grounds have grown our present Democratic republic, and if both statesmen could revisit their country today they would be satisfied. The Constitution had in it the germs for an aristocratic or a popular government, just as it might be interpreted, expounded or expanded. Owing mainly to the teachings of Jefferson the expansion assumed the popular form, while through Hamilton's teachings the idea of a united nation went along with the popular idea; hence the perfection of the republic as it exists.

UTAH COAL AND IRON MINES.

The Chamber of Commerce has sent the following to Witcher Jones, San Francisco, in response to a telegram received from him at that place:

SALT LAKE CITY, May 11, 1892.

Witcher Jones, Esq., Palace Hotel, San Francisco:

Dear Sir—Replying to your telegram of the 7th inst., I beg to submit the following:

The Utah Coal fields are the nearest to the Pacific Coast south of Oregon. There is no coal in Nevada, and the few veins in California are so poor in quality as to render them practically worthless.

The coal belt enters Utah at Evanston, Wyo., near which town the large Almy mines are in operation. The belt forms a large basin near Coalville, and then runs easterly along the south side of the Uintah mountains to their junction with the Wasatch range, and follows this range (which is the watershed between the Salt Lake basin and the Colorado river) southeasterly to Cedar City and Kanarra. The belt disappears just west of Kanarra, and no coal is found between there and the Pacific Coast. This belt is nearly 500 miles in length and is five miles wide in its narrowest place, while in others it will run up to fifty miles. The total area of the known Utah coal is about 2500 square miles. This does not include the coal along the Utah-Colorado line, or in the southeastern portion of Utah, nor on the Kanab river, near the Utah-Arizona line, as these fields have been but little examined and no practical work has been done upon them.

The Almy mines should be considered Utah mines, as they belong to the Utah coal fields, though just inside the Wyoming line. The vein runs from twenty to thirty feet in thickness. The coal is brought out to the Union Pacific railroad at Evanston by a branch line of three miles. The distance to Salt Lake by rail

is 116 miles. The output is sold principally to the Central Pacific railroad for engine fuel.

The Coalville mines are directly tributary to the Park City branch of the Union Pacific railway. The distance to Salt Lake by rail is eighty miles. The air line distance to Salt Lake is twenty-five miles, and when the Utah Central (which is now running to Park City) is extended to the mines the rail distance will be reduced to forty miles. The veins are from six to twelve feet in thickness. The output is sold principally to the silver mines at Park City. The Home Coal company of Coalville sell their product for domestic use in Salt Lake, where it is a favorite coal.

The Pleasant Valley mines are located at Scofield; they are connected with the Rio Grande Western by a branch fifteen miles long and are 112 miles from Salt Lake City by rail. There are two veins worked here, one thirteen and one twenty-eight feet in thickness. The output is used by the Union Pacific and Rio Grande Western for engine fuel and for commercial purposes, being sold in all towns from Colorado to Idaho. The Union Pacific own mines at Scofield, from which they mined in 1890 200,000 tons of coal.

The Castle Gate mines are at the station of that name on the main line of the Rio Grande Western. They are 111 miles from Salt Lake by rail. There are several veins worked here, the largest being fourteen feet thick. This is the only coal so far found in Utah that will coke. A set of eighty coke ovens is now in operation there. In 1890 there were 7778 tons of coke made there, which was sold to the Salt Lake smelters at \$18.50 per ton. The Pleasant Valley company mined in 1890 at Scofield and Castle Gate 234,487 tons of coal. The Castle Gate coal is used all over Utah and is shipped as far west as San Francisco.

The Castle Valley mines are situated southwest of Castle Gate, and are not worked at present, as they have no rail communication. The U. P. in 1890 located a line to them from Juab, and purchased most of the right of way with the intention of taking the coal southwestward on the line they were building toward Picoche and Los Angeles. All work was suspended on these lines in October, 1890. The distance by rail from Salt Lake would be 130 miles.

The Cedar City and Kanarra mines are at the southwestern extremity of the coal belt. They have no rail communication, and are mined only for domestic use in the adjacent towns. The veins are from four to twelve feet in thickness.

IRON IN UTAH.

The ores of iron occur all over Utah Territory in great variety. There are beds of micaceous hematite sixty-five feet thick at Smithfield, Cache county, about thirty miles north of Salt Lake. In Weber county, forty miles north of Salt Lake, occur deposits and ledges of various kinds of iron ore. On the Provo, below the Kanab on the Weber and in the Ogden canyon about fifty-five miles southeast of Salt Lake, on the Wasatch above Willard and above Bountiful, in the City Creek canyon a few miles from Salt Lake City, at Tintic, eighty miles south of Salt Lake City, in the Cottonwoods near Salt Lake City, scattered over the desert, bursting out of the mountain slopes on the north, the centre, the south, the east and the west, iron ores in all varieties save the spathic ore alone, are found. Many of the silver mines have a stratum of iron ore, carrying enough silver to make it valuable aside from its use in fluxing silicious ores.

In all the eighty-five mining districts of Utah, it is probable that iron ores are more plentiful than any other. Some of the prominent and accessible deposits have forced themselves into notice, but there will not be much definite know-

ledge, either of the quantity or quality of the iron ores, until someone shall have established the business of iron making in all its branches in Utah.

For the purpose of fluxing silicious silver ores, the iron cropping out on the slope of the Wasatch above Willard, some deposits in Morgan county, near the line of the Union Pacific, and the Iron county deposits have been drawn on to a slight extent. The chief source of supply of the Sandy smelters have been in the Tintic mining district, eighty miles south of Salt Lake. Five hundred thousand tons have been quarried out of this belt for fluxing purposes. It is easily selected so as to yield 50 to 60 per cent. of iron, and it generally carries a little silver and gold.

The most important iron deposits, however, known in Utah, are in Iron county, about three hundred miles south of Salt Lake City. The country rock is granite and the ores are magnetite and hematite, and the different outcrops have been sufficiently tested to satisfy many experimentalists, especially Prof. Newberry, who had samples assayed at Columbia College, that they afford a practically unlimited quantity of fine Bessemer ore. Practical iron-workers concur in saying that they are very remarkable deposits, whether considered with respect to quantity or quality. They are said on good authority to exceed in extent and apparently in quality the famous Iron Mountain and Pilo Knob deposits in Missouri.

There are probably 50,000,000 tons of ore embraced in known claims above and within easy reach below the surface—not all pure ore, but including many ledges or deposits practically inexhaustible and of superior quality, sufficient without intermixture, save with each other, for the production of Bessemer iron and steel. Professor Newberry says of them:

"The deposits of iron ore near Iron City and Iron Springs in Southwestern Utah are probably not excelled in intrinsic value by any in the world. The ore is magnetite and hematite, and occurs in a belt fifteen or twenty miles long and three or four miles long, along which there are frequent outcrops, each of which shows a length and breadth of several hundred feet of compact massive ore of the richest quality. There are certainly no other deposits to compare with them west of the Mississippi for the manufacture of pig and bar iron and steel, and it would be difficult to over estimate the influence they would have on the industries of the Pacific Coast."

A letter published from Mr. Brittain, a prominent ironmaster of Philadelphia, says:

"Some time ago I analyzed a number of samples of iron ore and limestone from southern Utah—it was from these mines—and have information as to the magnitude of the deposits. At first I was somewhat inclined to discredit the statements but afterwards had them confirmed by a well-known English master, who had himself visited the locality. I now hold the impression that these deposits are among the wonders of the world. If such coke as was sent me can be produced there in quantity, Utah's iron resources must exceed those of any other section of the Union."

The analyses spoken of were five, and were made from iron, phosphorus and sulphur only. The average result was of iron, 64 per cent.; of sulphur, 12-100 of 1 per cent.; of phosphorus, practically none. Mr. W. A. Hodges of Salt Lake analyzed two samples—No. 1 of magnetite, No. 2 of hematite, and obtained the following result:

Iron.	Phosphorus.	Sulphur.	Silica.
No. 1, 63.60	12-100	4.8
No. 2, 60.90	08-100	5.7

Mr. Brittain analyzed a specimen of the limestone near Iron City, finding of carbonate of lime, 80.35 per cent.; and of insoluble silicious matter, 10.92 per cent.