KANSAS

AND THE

COUNTRY BEYOND,

ON THE LINE OF THE

UNION PACIFIC RAILWAY,

EASTERN DIVISION,

FROM THE MISSOURI TO THE PACIFIC OCEAN.

PARTLY FROM PERSONAL OBSERVATION, AND PARTLY FROM INFORMATION DRAWN FROM AUTHENTIC SOURCES.

WRITTEN IN A SERIES OF LETTERS TO THE PITTSBURGH GAZETTE.

By JOSIAH COPLEY.

With a Map.

PHILADELPHIA:
J. B. LIPPINCOTT & CO.
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THE MAP.

THIS is probably the most accurate and reliable Railroad Map that has ever been offered to the public. It is a fac-simile of the official map prepared from the most recent surveys and explorations under the authority of the Government at Washington, and was drawn and engraved by W. J. KEELER, Esq., of the Indian Bureau, expressly for this work. The lines of both the great Pacific Railroads are laid down as nearly as possible as they are to be, and with equal fairness and fidelity. It was not deemed to be either honest or politic to insult the intelligence of the country by stretching a favorite line, like a ribbon, across the continent, and attempting to ignore, as far as possible, all other roads that are not subsidiary to it. All that is essential to a full and fair understanding of the great question of routes from the Missouri to the Pacific is given.

KANSAS AND THE COUNTRY BEYOND.

Of the vast territory embraced within our national boundaries, stretching from ocean to ocean, three-fifths lie west of the Mississippi, that great Mediterranean river which bisects it from north to south, dividing it into two vast and strongly distinctive and dissimilar sections. In this estimate I do not include the territory recently purchased from Russia. The one is partially occupied in all its parts; the other is only beginning to be occupied around its borders. The one is now the home of more than nine-tenths of our people; a century hence, it may be, the dwelling-place of a majority of the American people will be in the other. The one is a land of forests and navigable rivers, with mountain systems of moderate altitude, and with topographical features greatly diversified, often beautiful, but rarely grand; the other, for the most part, is made up of vast prairies of surpassing beauty and fertility, and of stupendous mountains, rich in almost all varieties of minerals, yet presenting barriers to human progress more formidable, perhaps, than are to be found anywhere else on the earth's surface. The one is a good country, surpassingly good, as the past progress and prosperity of our people abundantly attest; but no man can travel long over the matchless region which lies beyond the river,—a garden three times the area of France, with mountains beyond sufficient to supply the ever-advancing world with precious metals, and an ocean beyond them, with more people upon its shores and islands than are found on all the other waters of the globe,—without coming to the strong conviction that the trans-Mississippi section is still better.

But this portion of the earth's surface is as unique as it is stupendous. While one part is sublime in altitude and rugged grandeur, the other and nearer part is equally so in its vast extent and its continuous yet ever-varying beauty. Those prairies

look as if an ocean, heaving in grand long swells, had become suddenly indurated and clothed with luxuriant grass and flowers. Day after day a man may travel, and still one word will characterize all he sees — *Beautiful!* Yet there is no monotony, for every mile reveals beauties in new and peculiar forms. Such is all Kansas, and such is all the country south of Kansas, from the mountains to the flat grounds which skirt the Mississippi and the Gulf.

To this general description, however, the greater part of the valley of the Platte is exceptional. Broad, flat, treeless and desolate, without lateral streams, and with scanty vegetation, it does not attract settlers. As the Union Pacific Railway, Eastern Division, is pushed forward, section after section, up the Kansas — now 250 miles beyond the Missouri — settlers in thousands follow it, and even precede it, so that already numerous towns have grown up where, two years ago, Indians and buffaloes were roaming, each surrounded with well-tilled and productive farms. The Union Pacific Railroad of the Platte, however, has only drawn settlements after it about a hundred miles west of the Missouri. Beyond that the country remains almost as desolate as ever.

The centre of Kansas is very nearly the geographical centre of the United States. It may, therefore, with great propriety be called the CENTRAL STATE. This is well, for it is perhaps the most fertile, as it is unquestionably the most beautiful, of the great sisterhood; and through its gushing heart, as I believe, the great artery of the world's commerce is destined to flow. There is hardly a sterile spot, as there is not a miasmatic swamp, nor a rugged mountain, within its broad domain. I had heard much of Kansas before I saw it, but the half had not been told. Last fall I was through it as far as Fort Riley and Junction City; and although it was in November, when everything was sere and dry, I was much impressed with its beauties and its almost boundless capabilities. This year, as one of the excursionists over the Union Pacific Railway, I again visited it in June, when Nature had arrayed herself in her most gorgeous attire. The effect upon my mind was still more impressive, and I resolved to take time to acquaint myself well with everything calculated to interest the minds of such as had thoughts of emigrating, and of all who take

an interest in the greatness, the grandeur, and the boundless resources of our national heritage.

THE TWO GREAT RAILROADS.

It is rather an awkward and embarrassing circumstance that the road which runs up the valley of the Platte, and that which runs up the valley of the Kansas, should both bear nearly the same name. The first is the Union Pacific Rail*road;* the other the Union Pacific Rail*way*, Eastern Division. This sameness of name arose out of the original programme, which was, that the Kansas road should be carried up the Republican Fork of the Kansas river, thence across the Platte river at the 100th meridian, and there unite with the Platte road. But by Act of Congress, of July, 1866, the Kansas Company were authorized to build their road up the Smoky Hill instead of the Republican, and make their junction with the other road at Denver, or that vicinity, at about the 105th meridian. This change retarded the work on the Kansas road considerably; but it greatly shortens the line to Denver, and leads the road through a much better country—one of good soil, abundance of water, and through a section abounding in coal and pine timber.

But what is of still more importance, the road by the Smoky Hill route has a slight southern bearing as far as the western line of Kansas, at which point, or near it, it is in contemplation to change the direction of the main line to the southwest, through the southeastern corner of Colorado, and thence, through New Mexico, Arizona, and Southern California, to San Francisco. The original plan, however, of pushing on to Denver, is to be carried out. The feasibility and the advantages of this southwestern route, *around* the mountains instead of *over* them, are fully discussed in my concluding letters; and I trust the reader, who will favor me with an attentive perusal of the facts and arguments offered, will agree with me in the opinion that this is by far the better route to the Pacific.

RAILROADS A NECESSITY IN THAT COUNTRY.

To subdue and occupy such a country as that beyond the Mississippi, will require greater forces than were employed in the conquest of the section of our country east of that river, where,

although very much aided by navigation on the lakes, and on the Ohio and other rivers, settlement was half a century creeping from the Alleghenies to the Mississippi, as it had been an entire century making its way from the tidewater of the Atlantic to the western slope of the Alleghenies. In the trans-Mississippi region, where Nature assumes vaster and sterner features, and where there are few available rivers to aid in the work, artificial means of transportation are imperatively necessary, and must first be supplied. The old process must be inverted. The locomotive must precede the plough, and the town the farm. Even Kansas, with all its fertility — except for a comparatively short distance along its eastern border — could not be occupied in any other way. Colorado, except a few of the best of its gold mines, is practically valueless until reached by rail. New Mexico, with its rich resources, pastoral, agricultural, and mineral, is yet almost an unknown land to our people, although we have had possession of it for twenty years. Arizona is still more isolated and unknown, rich as it is in mineral treasures. California we reach by sea, and by passing through the territory of a foreign nation. And what is true of the line here indicated is equally true of that of the road which runs up the valley of the Platte, and which opens a way into the territory of the great Central Plateau, and of the remote Northwest.

THE EXCURSION.

At the invitation of JOHN D. PERRY, Esq., President of the Union Pacific Railway Company, Eastern Division, a large party of ladies and gentlemen, including many members of Congress, set out from Philadelphia on the 31st day of May, 1867, to make an excursion to Fort Harker, in Kansas, 225 miles west of the Missouri river, then the terminus of that road. Handsome and commodious saloon and sleeping-cars were provided, which were taken entirely through and back, and everything that well-directed generosity could do to render the excursion pleasant and agreeable, was done. Col. SAMUEL S. MOON, of Philadelphia, who had charge of the expedition, will be long and cordially remembered by the excursionists, for the graceful courtesies extended by him to the members of the party.

As we progressed through State after State, our numbers

augmented, and every accession only added to the social enjoyment.

At St. Louis we remained over the Sabbath, (but indeed we only reached it that morning for a late breakfast,) and on Monday afternoon, with more cars and more excursionists, we set off for Kansas, arriving at Leavenworth for breakfast on Tuesday morning, 305 miles. Here we had a grand reception — a sumptuous dinner, a ride to Fort Leavenworth, where we were warmly welcomed by Generals HANCOCK and HOFFMAN, and their ladies; then a ride over the charming heights which overlook the city, the river, and the beautiful and well-cultivated little valleys which lay beneath. In the evening we ran over to Lawrence, where we met a similar reception, had a spirited meeting and quite a pleasant time. The next day we started up the matchless valley of the Kansas, dined at Topeka, and slept at Junction City. The following day we ran on, dined at Salina, and arrived at Clear Creek, a short distance on this side of Fort Harker, then the end of the finished road. Here the narrative is taken up in the following letters. But my object in this publication is not so much to give an account of the trip as to speak of the country and the great work which we came out to see.

The following is a list of the excursionists who joined the party east of the Mississippi:

Hon. Simon Cameron and wife, Pa.
Hon. Benj. H. Brewster, Att'y Gen., Pa.
Hon. H. A. Risley, Washington.
Miss Risley, Washington.
Hon. A. F. Stevens and wife, N. H.
Hon. J. A. Nicholson and wife, Del.
Hon. A. H. Laflin, wife and daughter, N. Y.
Hon. W. E. Chandler, wife and son, Washington.
Hon. Frank Jordan and wife, Pa.
Hon. C. H. Van Wyck, N. Y.
Hon. B. M. Kitchen, West Virginia.
Hon. C. D. Hubbard, West Virginia.
Hon. J. L. Thomas, Baltimore.
Hon. G. S. Orth, wife and son, Lafayette, Ind.
Hon. G. W. Julian, Indiana.
Hon. W. E. Niblack, Indiana.
J. B. Lippincott and wife, Philadelphia.
W. Hinchman, Philadelphia.
E. M. Paxson, Philadelphia.
John Price Wetherill, Philadelphia.
Samuel S. Moon, Philadelphia.
J. D. Mallery, Philadelphia.
Anthony Taylor, Philadelphia.
J. Norris Robinson, Philadelphia.
Thomas S. Stewart, Philadelphia.
H. C. Thompson, Philadelphia.
J. C. Browne, Philadelphia.
B. J. Taylor, Philadelphia.
Charles H. Rogers, Philadelphia.
Maj. A. R. Calhoun, *Philadelphia Press.*
Francis Wells, *Philadelphia Bulletin.*
A. K. Pedrick, *Philadelphia Inquirer.*
G. B. Van Wyck, N. Y.
John C. Wyman, New York.
J. R. Young, *New York Tribune.*
J. R. Fitch, *New York World.*
N. B. Hogg and wife, Pittsburgh.
Miss Nellie Hall, Pittsburgh.
E. D. Kennedy, Pittsburgh.
Josiah Copley, Pittsburgh.
Wm. McManus, Reading.
Miss McManus, Reading.
H. E. Steele, Coatesville, Pa.
Mrs. Burnside, Pa.
Mrs. Dr. Bobbs, Indianapolis.

Mrs. Usher, son and niece, Indiana.
D. E. Small, York, Pa.
R. R. Robinson, Wilmington, Del.
W. W. Taylor, Baltimore.
J. Birckhead, Baltimore.
C. C. Fulton, *Baltimore American.*
George Abell, Baltimore.
B. F. Newcomer, Baltimore.
H. A. Riddle, Baltimore.
Wm. W. Taylor, Baltimore.
Frederick Schley, Frederick, Md.
C. C. Beaman, Jr., Washington.
Marquis de Chambrun, Washington.
Col. J. E. Schley, West Virginia.
Wm. P. Hubbard, West Virginia.
J. I. Underwood, Indiana.
W. L. Woods, Indiana.
George Rutledge, London, England.
Cyrus Yale, New Orleans.
Gen. G. W. Morgan, Ohio.
H. J. Budd, Kansas.
J. H. Riley, *Alta California.*
H. G. Howard, Detroit.
M. Rennick, Detroit.
Dr. S. S. Ward, *Chicago Jour. of Com*
J. F. Comstock, Connecticut.

The following named excursionists joined the party at St. Louis and points west of the Mississippi:

Mr. John D. Perry, Pres't U. P. R. W., E. D.
Col. C. B. Lamborn, Sec'y U. P. R. W., E. D., and wife, St. Louis.
Mrs. Perry and Miss Perry, St. Louis.
Miss Annie Pulliam, St. Louis.
Miss Grover, St. Louis.
Edward Hays, St. Louis.
Charles H. Peck, St. Louis.
John R. Shepley, St. Louis.
R. J. Lockwood and two sons, St. Louis.
Mr. Lackland, St. Louis.
Mr. Robbins, St. Louis.
J. P. Collier, St. Louis.
Mr. D. Collier, St. Louis.
Mr. C. S. Greeley and daughter, St. Louis.
Hon. J. S. Thomas, St. Louis.
H. F. Zeider, *St. Louis Republican.*
Wm. Fayel, *St. Louis Republican.*
D. M. Grisson, *St. Louis Ev'g Dispatch.*
Mr. Adolphus Meier, St. Louis.
John Meier, St. Louis.
George D. Hall, St. Louis.
Miss Dœnch, St. Louis.
Mrs. Rodgers, St. Louis.
S. W. Andron, St. Louis.
Hon. W. A. Pile, St. Louis.
Col. C. S. Brown, St. Louis.
Hon. J. B. Henderson, St. Louis.
H. V. Myers, St. Louis.
Mr. F. B. Shoemaker, St. Louis.
C. L. Draper, St. Louis.
W. Stenngle, *West. Post*, St. Louis.
Henry C. Lynch, St. Louis.
A. H. Martin, St. Louis.
Lucian Eaton, St. Louis.
A. H. Hibbard, St. Louis.
George Partridge, St. Louis.
Mrs. T. G. Meier, St. Louis.
Hon. C. H. Branscomb, St. Louis.
S. C. Burch, *Missouri Democrat.*
Mrs. McCullough, St. Louis.
Mrs. Brown, St. Louis.
H. A. Stinson, New York.
B. C. Riggs, New York.
S. J. Colgate, New York.
W. H. Brusin, New York.
Mr. Tillford, New York.
Wm. R. Cole, Baltimore.
Col. L. M. Dayton, U. S. A.
Gen. Hoffman, U. S. A.
Gen. Morgan, U. S. A.
Mrs. Gen. Morgan, Fort Leavenworth.
Miss Mills, Fort Leavenworth.
Major Page, U. S. A.
Col. Irwin, U. S. A.
Capt. C. A. Allegood, U. S. A.
Col. Wilson, U. S. A.
Major-Gen. Hancock, U. S. A.
Gen. Haines, U. S. A.
Gen. Hazen, U. S. A.
Col. Brown, U. S. A.
Col. McKissock, Gen. Sup. P. R. R.
M. C. Shoemaker, Ohio.
J. W. Miller, *Cincinnati Commercial.*
Hon. Mr. Newcomb, Missouri.
Hon. Lewis V. Bogy, Washington.
Alfred Hibbard, Tennessee.
Gen. J. L. Donaldson and wife, U. S. A.
Hon. S. J. Crawford, Gov. of Kansas.

LETTERS.

I.

Arrival at Clear Creek, the end of the Finished Road — Meeting of the Excursionists at Clear Creek — Ellsworth — Arrival at Fort Harker — Curious Rocks — Prairie Grass — Country last passed over — Fort Harker — Another Meeting — Leave-taking — Expedition to Pond Creek.

ELLSWORTH, THREE MILES BEYOND }
FORT HARKER, June 7, 1867. }

WE arrived here this morning from Clear Creek, the present end of the road, four miles east of this place, where we stayed last night, supped in a big tent, slept in the cars, and where we had a glorious meeting, over which General Cameron presided, and at which Attorney General Brewster, of Pennsylvania, was the chief orator. His speech was one of classic elegance, and rose fully up to the inspiring associations with which we were surrounded. Mr. Perry, the President of the Company, was then called and made a few felicitous remarks. He was followed by Judge Usher, of Indiana, who spoke eloquently and in perfect accord with the unanimous sentiment of the party, that the great enterprise, the progress of which we had come to witness, was deserving of liberal aid from both government and people.

The following is the published report of this meeting:

Proceedings of a Meeting of Excursionists, held near Fort Harker, Kansas, at the western end of the Track of the Union Pacific Railway, Eastern Division, as far as completed on this Route.

CLEAR CREEK, KANSAS, June 6th, 1867.

Hon. H. A. Risley, Assistant Solicitor United States Treasury, called the meeting to order and nominated Hon. Simon Cameron, United States Senate, for President, which was unanimously agreed to.

The following named officers were then elected:

VICE PRESIDENTS:—Hon. A. F. Stevens, N. Hampshire; Hon. J. A. Nicholson, Delaware; Hon. A. H. Laflin, New York; Hon. C. H. Van Wyck, New York; Hon. B. M. Kitchen, W. Virginia; Hon. C. D. Hubbard, W. Virginia; Hon. J. L. Thomas, Maryland; Hon. G. S. Orth, Indiana; Major General Hancock, U. S. A.; General Haines, U. S. A.; General Hazen, U. S. A.; General Donaldson, U. S. A.; General G. W. Morgan, Ohio; Hon. J. B. Henderson, Missouri; Hon. C. A. Newcomb, Missouri; Hon. W. E. Niblack, Indiana.

SECRETARIES:—Alexander K. Pedrick, of Pennsylvania; C. C. Fulton, of Maryland.

Chas. H. Rogers, President of the Tradesmen's Bank, Philadelphia, moved the appointment of a Committee to draft resolutions expressive of the views of the excursionists. The motion was agreed to.

The following Committee was appointed, viz.:

Chas. H. Rogers, Chairman, Pennsylvania; W. W. Taylor, President Union National Bank, Baltimore; J. B. Lippincott, Pennsylvania; Frederick Schley, Maryland; Col. J. E. Schley, West Virginia; Cyrus Yale, New Orleans; Hon. Frank Jordan, Secretary of State, Pennsylvania.

During the absence of the Committee to prepare resolutions, an address was delivered by the President, Hon. Simon Cameron.

Chas. H. Rogers, Esq., on behalf of the Committee on resolutions, presented the following preamble and resolutions, viz.:

Whereas, An excursion party from the States of New York, Pennsylvania, Delaware, New Hampshire, Maryland, District of Columbia, Ohio, Indiana, Illinois, Missouri, West Virginia, Michigan and Kansas, have this day reached Fort Harker, Kansas, a point on the Union Pacific Railway, Eastern Division, 1,525 miles west of the Atlantic Ocean, on the direct route to California and the shores of the Pacific, and now desire to give expression to their views in regard to the Pacific Railway, Eastern Division, and the courtesies which they have received in the West; and

Whereas, They realize as their own belief, and that of the American people, that our mission extends as a nation not only to the promotion of liberty, fraternity and equality, but to the encouragement of great works of art, which shall be as enduring as our national fame, and which shall bind together by the strong ties of commercial interest the cities on the shores of two widely separated Oceans; and

Whereas, Foremost among these works is a Pacific Railway, a project bold and daring in its inception, and worthy of a people whose enterprise has already studded the mountains and plains of a continent with the evidences of national prosperity. Therefore we, the excursionists, assembled at a point almost in the centre of the American continent, have

Resolved, That, as guests of the Union Pacific Railway Co., Eastern Division, having travelled over fifteen hundred miles in the same cars, with every possible comfort, receiving a generous hospitality, and enjoying a constant succession of agreeable and instructive incidents, we hereby tender our acknowledgments to the President, Directors, officers and agents of the Company, for the rare opportunity, the liberal provisions for our comfort, and all the realizations of this remarkable journey from the seaboard almost to the base of the Rocky Mountains.

Resolved, That we congratulate the President and managers of the Union Pacific Railway, Eastern Division, upon the rapid and substantial progress of their work, a miracle of labor, art and capital, and a splendid monument of their energy and enterprise, and that we congratulate the nation upon the prospect of an early completion of this magnificent avenue of commerce, which promises so much for the rapid settlement of an almost boundless domain — for enlarging the field of labor and production, and which will be at all seasons of such immeasurable value and importance to our country in times of war and of peace.

Resolved, That we commend to the fostering care of the Government and the people of the United States this great undertaking as one that will materially promote the development of the mineral, agricultural and commercial resources of the extreme Western States and Territories, and as a great highway between the oceans, believing that it will add immeasurably to the wealth and prosperity of the nation, to provide the necessary aid for its early completion.

Resolved, That our acknowledgments are also due to the citizens of St. Louis, Leavenworth, Lawrence, Topeka, Salina, Junction City, Tonganoxie, Hermann, and the various cities and towns on our way, and to Gen. Hancock, U. S. A., commanding the department of Missouri, and his associate officers on the line of the Union Pacific Railway, Eastern Division, for civilities and courtesies grace-

fully and generously bestowed, which lent additional charm to our journey and will be long remembered.

Resolved, That our thanks are tendered to the officers of the Pennsylvania Central, Pittsburgh, Columbus & Cincinnati, Columbus & Indianapolis, Terre Haute & Indianapolis, St. Louis, Terra Haute & Alton, and the Pacific and Missouri River Railroads, for facilities and courtesies received on the roads respectively under their supervision, each of them an important link in the lengthened line we have so happily traversed.

Frederick Schley, Esq., of Maryland, moved the adoption of the resolutions, and they were unanimously adopted.

Hon. Benjamin Harris Brewster, Attorney General of Pennsylvania, sustained the resolutions in an address, enforcing the claims of the enterprise upon the Government and citizens of the United States.

John D. Perry, Esq., President of the Union Pacific Railway, Eastern Division, acknowledged the compliment to the Company.

Judge Usher, of Indiana, spoke on behalf of the West.

The meeting then adjourned to re-assemble at a convenient opportunity.

SIMON CAMERON, President.

ALEXANDER K. PEDRICK,
C. C. FULTON, } Secretaries.

After a quiet night's rest in the sleeping-cars, we were summoned to an early breakfast, after which we took ambulances for Ellsworth. This is a bustling and really pleasant place, nearly six months old, and containing fifty or sixty stores and dwellings. It is located on a beautiful piece of land on the bank of Smoky Hill, which is here about the width of the Conemaugh at Blairsville, but deeper. The country around here is beautiful. The river and its numerous tributaries are skirted on either side with belts of timber, all the rest being prairie. Above the bluffs the country is undulating — more so than it is in the more eastern part of Kansas. The soil is altogether different, being a strong sandy loam, in some places thin, in others several feet in thickness. It seems to be quite destitute of lime; while in the portion of Kansas lying east of Salina (fifty miles west of Fort Riley), the only stone is limestone. Here, since we struck the "divide," some twenty-five or thirty miles back, the only varieties of stone I have seen are two very dissimilar kinds of sandstone — one a seamless rock of very pure white sand of fine grain, and so friable that it can be pulverized between the thumb and finger; the other, which immediately overlays it, is also fine grained and pure, but very hard and irregularly laminated.

Having written thus far, we adjourned to Fort Harker.

Yesterday afternoon, a short distance before we reached the present termination of the road, we visited what is called the "Pulpit Rock," or, as it is sometimes termed, the "Mushroom Rock," so called because it resembles a mushroom in having a broad table or cap poised upon a comparatively slender stem. The pedestal or stem is about ten feet high and five or six in diameter. This is composed of that soft and

easily pulverized sandstone spoken of above, while the cap, which is oval in form, but nearly round, and on the under side very much resembling an enormous duck without head or tail, twenty feet long by perhaps seventeen or eighteen wide and about ten thick, is composed of that hard sandstone of which I have spoken. The upper side is somewhat rough and fractured. To see that huge block of stone so nicely balanced upon so narrow and so friable a base is very curious, and, in spite of reason and experience, the thought that it might grind it to powder at any moment will suggest itself. There it stands on the open and desolate prairie, and there it has stood for ages. At a little distance there is a heavy outcropping of the same kind of rocks, some of the forms of which are very curious.

In some localities that soft sand rock is strongly impregnated with iron; but it is generally pure, and would make very good glass. Near Fort Harker, (where I am now writing in a tent placed at my disposal by Major General Hancock), there is what was at one time a high column of this sandstone, but it is now crumbled into blocks and loose sand, presenting, in the distance, the appearance of the ruins of an ancient marble temple or tower. Some of our party, before we reached it, insisted that it was a building in ruins; but I knew that that could not be.

This side of that "divide" of which I have spoken we have been in the buffalo-grass region; and here at Fort Harker, and all over these widely extended regions, it is the predominant grass. It grows in small tufts, very much like timothy, and is nearly of the same shade of green, but is finer and more delicate in the blade. In the manner of its growth and seeding it is more like our blue grass; and although I have seen some of it that had shot to seed, I have seen none six inches high. It is very hardy; for although in this encampment it sustains the trampling of hundreds of men and animals, it seems to be as healthy and flourishing as that on the open prairie.

I have spoken more particularly of this grass than some readers might deem worth while; but when we remember that it covers millions of acres of territory, that it is probably the most nutritious grass that grows, and that it is capable of feeding to extreme fatness in both summer and winter millions of cattle and sheep, we will see that it is not an unimportant topic. Whether it would grow in our State I cannot say; but, on my return, I intend, if I can, to bring a little of the seed with me.

The country to the west of Fort Riley for sixty miles, through which we have passed, is one of extreme beauty and fertility. The valley of "Solomon's Fork," as it is called, which comes in from the

W. N. W., about forty miles west of Fort Riley, is one of the most picturesque and fertile regions we have seen; and although the railroad only reached it this spring, I am informed that a thousand settlers are in it already. Solomon City—near where the railroad crosses the stream—is a brisk and rather pretty business place. It looks like a town that is destined to thrive. Salina, another new town, a few miles further west, is still more thrifty, containing, according to the best information I could get, nearly two thousand people. We dined there yesterday. I mingled for a while with the Denver ox-teamsters, a hardy, robust, and sociable class of men. One little party, who were cooking their dinner, wanted me to go with them. They said if I wished to go to Denver, it was the best way I could go. I asked how long it would take to make the trip? "Only a month and a half." "Are you not afraid of the Indians?" I asked. "No; you fellows out East think and talk more about the Indians than we do," was the answer. I declined the invitation.

The Union Pacific Railway from the Missouri to Fort Harker is a substantial and good road—better than any we found between Steubenville and the Mississippi. Between Salina and this place, where the road runs across a long southern bend in the river, there is some heavy cutting and filling.

Fort Harker is about two miles east of Ellsworth, on a beautiful piece of ground at a moderate elevation above the river. There are but few valuable buildings, nor is it likely there ever will be more; for the railroad will render even a military post at this place unnecessary. General Hancock declared that every forty miles of this road finished enabled the Government to dispense with the services of a regiment of men, at a saving, in this distant region, of more than a million of dollars a year.

At Fort Harker, this afternoon, we had an enthusiastic adjourned meeting of the excursionists, at which Senator John B. Henderson, of Missouri, presided, Gen. Cameron and a small party of friends having returned last evening. Brief but animated addresses were made by Hon. John B. Henderson, of Missouri; Major General Hancock, U. S. A.; Hon. G. S. Orth, M. C. of Indiana; Hon. A. F. Stevens, of New Hampshire; Hon. J. A. Nicholson, of Delaware; A. H. Laflin, of New York; Wm. E. Niblack, of Indiana; Hon. Wm. E. Chandler, Assistant Secretary of the Treasury, Washington; Hon. C. D. Hubbard, West Virginia; Hon. B. M. Kitchen, West Virginia; Hon. Frank Jordan, Sec. Com. Pennsylvania; Hon. Jas. S. Thomas, Mayor of St. Louis; Hon. C. H. Clark, of Kansas; Hon. R. F. Van Horn, of Missouri; Gen. Thos. L. Price, of Missouri; Hon. C. A. Newcomb, of Mis-

souri; Francis Wells, of the Philadelphia *Bulletin*; Judge Kingman, of Kansas; Hon. J. P. Usher, of Indiana; and Hon. C. H. Branscomb, of Missouri.

The sentiments uttered by all these gentlemen were in perfect accord with the resolutions adopted at the first meeting. All seemed to be deeply impressed with the grandeur and utility of the great enterprise which they had come so far to witness, and with not a single dissent they commended it to the fostering care of the National Legislature. The next adjournment was to a large tent, where an excellent dinner awaited us. Soon after dinner, those of the excursionists who are going further west took leave of their friends who are returning to their homes, including all the ladies. Some fifteen gentlemen of the party, with Mr. Perry, the President of this road, set out to-morrow for Pond Creek, accompanied by Major General Hancock, with a small military force, who is going west, in pursuance of his duties as commander of this department of the service. Pond Creek is two hundred miles further up the Smoky Hill, and west of Fort Harker. I return to-morrow to meet the Senatorial party, headed by Senator Wade, (who have just returned from the Platte, and are coming up this road,) and accompany them in their excursion over this road.

LETTER II.— *Tornadoes and Rain — Party to Pond Creek — A Ranch — Solidity of the Earth — Wells — Length of the Smoky Hill.*

SALINA, (KANSAS,) June 10, 1867.

I HAVE been here since Saturday afternoon, detained by the washing out of a small culvert below here. We hope to get off at noon. On Friday night and Saturday we had a succession of as heavy showers as I ever saw. All the streams were swollen to the size of little rivers, and the Smoky Hill is said to be higher than it has been for six or seven years. The level prairie on which the town stands was literally one broad shallow sheet of water on Saturday evening.

I parted from my friends, who are going to Pond Creek — two hundred miles east of Ellsworth — on Saturday morning. The party consisted of some twenty gentlemen, among whom were Major General Hancock, John D. Perry, Esq., President of this road, Mr. Shoemaker, Chief Contractor, Hon. Messrs. Thomas, of Maryland, Hubbard, of West Virginia, Mr. E. D. Kennedy, of Pittsburg, several correspondents of Eastern papers, and others; altogether a very pleasant party. It was at first arranged that I should go, but afterwards that I should

return to Lawrence or Leavenworth to meet the Senatorial party — some forty in all — consisting of Messrs. Wade, Trumbull, Covode, and others, who have just returned from their excursion over the Union Pacific Railway of the Platte. I like the arrangement very well.

On Friday afternoon, after the main body of the excursionists had left us, we had a tremendous hurricane, the severest, Gen. Hancock said, that he had ever seen on the plains. One tent was torn up and prostrated; another was drawn from its fastenings. A frame building was blown down and scattered over the prairie as if it had been dry leaves. We dared not remain in the tents, and it was hard work to bear up against the wind. But there was no danger. The scene was truly sublime, especially in the northwest, where the dark clouds, tinged with sunshine, tossed in the tempest in the wildest confusion, causing a strange optical illusion that drew the attention of all the party — the appearance of a vast lake with well-defined grassy shore on the near side, and huge and rugged mountains on the farther shore. The storm lasted about an hour and a half, and then partially lulled.

Some time in the night, while we were all in our tents, it began again, and was little, if any, less violent, and continued for about two hours. This was accompanied by the broadest and most vivid flashes of sheet-lightning I ever saw, and so incessant that there was hardly an interval of one second of darkness. This, too, passed over, and I fell asleep. But long before daylight I was aroused again by the dashing of rain upon the canvas, as if the windows of heaven had been opened. After a while I put my hand out upon the ground, and found that the water had filled the ditch, and was flowing into the tent. I had no light, but I got up and put my blankets, &c. upon a table, placed other things upon boxes, then mounted the table and listened to the fierce hissing and dashing of the rain upon the tent. At length morning dawned, and when we went out all was quiet and comparatively pleasant. About noon it poured down again, and then again, causing the flood of which I have already spoken.

About nine o'clock I took leave of my friends, and left the Fort in company with R. H. Shoemaker, Esq., Assistant Manager of the road, and Mr. Wallace, in a spring wagon, to go to the cars at Clear Creek, three or four miles distant. On the way we came to what is called a ranch. When I made some inquiries about it, Mr. Wallace kindly proposed to leave me and return for me in an hour. Introducing me to Mr. Fisher, one of the contractors, I was invited in and had a very pleasant time. There were eight ladies, mostly the wives of the contractors, lively, intelligent and accomplished, and a number of gentlemen. We

had a pleasant and interesting conversation, and partook of a bottle of Missouri champagne — very good. Mr. Fisher gave me several specimens of stones and clay; one of the latter I think is valuable, being more purely white than chalk, and so soft that it had to be handled carefully to avoid pulverizing it.

As many readers may wish to know what kind of a habitation a ranch is, I shall attempt a description of this one. First, an excavation is made in the side of a bank or bluff, the back part of which is left nearly as perpendicular as a wall. A stone wall, one hundred and twenty feet long and some ten feet high, with a number of glass windows in it, runs along the front of this excavation, leaving a clear space of sixteen feet by one hundred and twenty. From the top of the wall to the bank, small rough logs are laid thickly, and upon these what I took to be a large mass of prairie grass. The whole is overlaid with a heavy coating of earth, sufficient to keep out the heaviest rain; for notwithstanding the deluge of the night before, this ranch was as dry as if not a drop had fallen. It was a rough but really comfortable habitation, and must be very warm in winter. The bank here was composed of strong particolored clay, of a light stone color, streaked with vermilion. I picked up a small specimen. There are many ranches in that region, some of them rude enough. I saw a few which were mere burrows.

So solid is the earth out here, that wells are dug twenty-five or thirty feet deep, and used without walling. I examined one to-day at the railroad station at this place, which is not yet finished. It is about fifteen feet in diameter, and is now dug to the depth of twenty-five feet. It is round, and the sides, which are perfectly perpendicular, have more the appearance of rough plastered walls than earth. From top to bottom there seems to be no difference in the soil or earth. It is a fine grayish sand, similar to the sand or mud bars of the Missouri. The water of the wells here is pure and pleasant to the taste, and if wells are dug to the proper depth they never fail. The streams are narrow in their channels, and have high banks, fringed with trees of various kinds, principally cottonwood. These remarks, with regard to the compactness of the earth, wells, water and streams, apply to all the State of Kansas as far as I have seen it — about 225 miles. In many sections there are very fine springs.

The Smoky Hill, which has its sources not far this side of Pike's Peak, and has a course of not less than four hundred miles above this place, is still rising, and has overflowed some extensive flats above. The rain must have been tremendous up towards the mountains.

LETTER III.—*Continuance of the Flood — Change in the Soil — Buffalo Grass dying out — Wild Plums and other Fruits.*

SALINA, KANSAS, June 12.

THE river continues to rise, and is beginning to overflow the flats. It is impossible, while this state of things continues, to run trains through. I am consequently detained longer than I expected. But I need not be idle, for I have already seen enough to occupy me for some days in writing out my impressions of this most beautiful of all the regions I have ever seen.

About the meridian of this place the character of Kansas changes—not so much in conformation and general appearance as in geology and the composition of the soil. East of this, that is below this, the only stone is a magnesian limestone. Of this, and of its excellence as a building stone, I shall speak more fully hereafter. Here the sandstone region commences—of the varieties of which I have already spoken. Below this the soil is almost black, and extremely fertile. Here, on this extensive river flat, it is quite dark-colored; but as we mount upon the higher grounds to the west, it is a rich dark brown—in some few places rather thin, but generally several feet in thickness. It is evidently strongly impregnated with iron, and to the eye is better than any upland soil I ever saw in Pennsylvania. In our State it would be first-rate wheat land; but whether wheat can ever be successfully grown on the plains west of this is a question I cannot answer. Colonel Fisher, who lives more than thirty miles west of this, in a place where the brown stone, of which I have before spoken, abounds, told me that it produced root crops admirably, especially sweet potatoes. The land of which he spoke is far from the river and fairly within the buffalo grass region.

Here, near Salina, the buffalo grass begins; but it is evidently yielding to the coarser and stronger grasses of the prairie. Up about Fort Harker it predominates. The idea, that as the buffaloes are driven back the buffalo grass ceases, is one that everywhere prevails in this country. I think it is well founded. My own opinion is, that this is the only grass that can bear the heavy trampling of those vast herds. Hence, small as it is, it keeps possession as long as the buffaloes remain; but when they are driven off, the larger and coarser grasses come in and smother it. We talk in the East of prairie grass as if it were a distinct variety; but there are several varieties. In no place did I see so many and so beautiful flowers as in the neighborhood of Fort Harker. I saw two varieties of cactus—one the common thick-lobed cactus which we often see in gardens in our State; the other is very

curious and pretty, consisting generally of a congeries of globular masses, each made up of many points, all curiously connected by a net-work of delicate but strong external fibres and pricks. They are said to bear pretty flowers, but they are not yet in bloom.

Along the margins of the streams up in that part of the country there are boundless quantities of wild plums of excellent quality. Colonel Fisher told me that he could load wagons with them. Ladies use them largely for preserves, jellies, &c. Wild grapes and gooseberries abound.

So far as I saw, the buffalo grass region, or "the plains," as this portion of our continent has long been called, is a beautiful and cheerful-looking country—gently undulating, and here and there presenting hills or *buttes* that partake of the character of ruggedness. In some places, distant from watercourses, it looks like the ocean, and, like the sea, it has its wrecks; for look over it when and where you will, you see the stark remains of its monarchs, the buffaloes, bleaching in the sun and wind. Waste and desolate as it appears to the weary traveller in its natural condition, it only awaits the hand of enlightened industry and taste to make it beautiful and home-like—more beautiful than Illinois, for it is not so monotonous.

Of the meteorology of this country I of course cannot speak with confidence. It is said by some to be too dry for successful agriculture. Perhaps it is; but surely we saw rain enough. Almost constantly there is a fresh and invigorating breeze, often rising into a stiff gale. This is the clearest atmosphere I ever saw. Men have to be careful how they estimate distances here by the eye, for objects miles off look as if they might be reached on foot in a few minutes. Chills and fevers, I am told, never originate here, and it was a frequent remark among our excursionists—"How healthy the people look!" The sunsets and the nocturnal heavens are far more glorious than they are with us.

The most serious want of this country is timber, which becomes more and more scarce as we go west. So far, wood for fuel, here at Salina, is worth eight dollars per cord; but until more can be grown it cannot but become more and more scarce and expensive. No coal, properly so called, has yet been mined in this part of the State; but it exists in abundance in several localities near the lower end of this road, in the southern part of the State and in Colorado, east and south of Pike's Peak, on the line of this road. In this neighborhood a vein of lignite exists, some six or seven feet thick. I have a small sample of it; but of its value as fuel I am not able to speak confidently. The time will come, however, when there will be no difficulty

about fuel, for trees grow vigorously and rapidly wherever I have seen them planted; and as railroads are multiplied, as they will be, and other deposits of coal discovered—of which there are indications in many places—that difficulty will be overcome.

Lumber for building is procured both here and at Chicago and St. Louis, and sometimes at Cincinnati, and sells at this place at about the following prices:

	Per m.
Pine—clear stuff, planed, No. 1,	$110
" " " " " 2,	$95@105
" Common "	70@85
Pine flooring, worked,	$70, 80, 90
Siding, (weatherboarding)	45@60
Shingles, pine—per m.	10@11
"Dimension stuff," (scantling,) Pine,	70
Cottonwood boards,	45@50
Cottonwood shingles,	4.50@6

From these figures the cost of building up here can be proximately estimated. Rents are high. The "Goddard House," a tolerably large, but flimsy and roughly finished building, almost entirely built of cottonwood, rents for $1500 a year. A smaller but somewhat better finished house, where I am staying, brings, I am told, $1800 a year. Flour is selling at $22 a barrel, and potatoes $2.75. The soil yields enormously as a general thing, and farming is a remunerative business. Cattle, I am informed, only require of from four to six weeks feeding in the winter, and hay, cut *ad libitum* on the prairies, is the cheapest thing in this country.

I have thus endeavored to give you a fair report, leaving the reader to ponder the *pros* and *cons*.

The report now is that the river began to fall this morning. We expect to get off this afternoon.

LETTER IV.—*The Flood—The Question of Routes.*

SALINA, KANSAS, June 12, 1867.—Afternoon.

THE "Smoky" still continues to swell, contrary to the report this morning that it was falling. It has overspread the flats for miles in places. This town now stands on a large island. No trains can get out to-day, so I must be content to abide one day more. The report now is that the Senatorial party will be at Junction City this evening, and will probably be here for dinner to-morrow. If a train should go

out in the morning I shall meet the party at Abeliene, halfway between this and Junction City, and return with them.

The Smoky Hill, in flood, has all the characteristics of a great river—rising day after day after the rain has ceased and the ground become dry—and certainly this morning it has the appearance of a great river. Its heavy volume of water, of the same color as the Missouri, rolls onward, in a smooth but by no means slow current. So far as heard, the railroad has sustained no serious damage. This flood is the greatest that has occurred on this river for nine years. The Solomon, which comes in about twelve miles below, is higher than it was ever known to be.

THE QUESTION OF ROUTES.

At this place the Santa Fe trade at present concentrates. Wagons drawn by oxen, and manned by Mexicans, are almost continually to be found at the railroad station. These Mexicans are singular-looking beings, as swarthy as Indians, and many of them have the Indian features more or less strongly marked. Dull, good-natured, but profoundly ignorant, they move about their work like machines. They are quite cheerful, and the soft and musical tones of their language or *patois* are in strong contrast with the strong and harsh utterances of their Anglo-Saxon brethren of the Denver trade.

I meet out here many intelligent men who are more or less familiar with New Mexico. Although broken up by mountains, it has many very fine valleys, fertile and beautiful, and they all unite in representing it as immensely rich in minerals, especially gold and silver. But they say that it is impossible that either the agricultural, the pastoral, or the mineral wealth of that territory can ever be developed until it is united with the rest of the country by rail. To work its mines requires ponderous machinery, which it is simply impossible to transport by the existing means of conveyance; and even agriculture must be carried on in the most primitive modes until a railway shall bring the improved implements of the day into that isolated and benighted region.

But even more important than all these is the opening of the avenue through which shall flow into that degraded and dark-minded population the lights of true Christian civilization. Both priests and people have fallen so low that nothing but influences from without can be instrumental in raising them up. They are now our fellow-citizens, as well as our fellow-men, and as such they have claims upon us which we may not lightly ignore.

With the lights we now have no one can pretend to estimate how

important a member of this Union New Mexico may yet become, or to calculate the vastness of its various resources. Neither can the value of its trade be calculated—the enormous amount of machinery, of agricultural implements, and in short, everything that a civilized people need.

There is a strong desire on the part of the people on this side of the Mississippi that the Union Pacific Railway Company shall at once extend their route into New Mexico, whether they go to Denver and thence via Salt Lake City to California or not. They contend that the route through New Mexico and Arizona will do infinitely more to develop the resources of our great interior, as well as be a better route to California, than the more direct but more mountainous line by way of Salt Lake, and across the Sierra Nevada, far north of San Francisco—that both the high mountain grades and the tremendous snows of the other route will be avoided. They argue that, although the road to San Francisco may be lengthened some hundreds of miles, this will be more than compensated by the diminution of grade, the avoidance of the snow, and by the fact that *the road will touch the tide-water of the Pacific at at least two important points before San Francisco is reached—the head of the Gulf of California and San Diego*, a good port on the coast of Southern California, more than four hundred miles south of San Francisco. And when to these considerations the superior value of the intermediate country is added, it is insisted that there ought to be no hesitation. Will the reader please refer to a map and trace the routes here indicated, and judge for himself of the soundness of these arguments?

One thing is very certain: Either the Government, aided by a company such as this, of able and energetic capitalists, must push a railway through these vast regions, from the Missouri to the Pacific, or they must lie undeveloped and unimproved from generation to generation. Individual energy and enterprise can never accomplish the work. The locomotive must precede the plow, and the town the farm. No farmer, however bold, but would recoil from the task of going forward, as the farmers of the States east of the Mississippi did, in advance of these mighty forces of civilized life. The old processes must be reversed, as indeed they have been. I wish that all the people who may read these words could see, as I have seen, the strong and healthy stream of civilization following the line of this road up through this most beautiful of valleys, and see and enjoy, as I have seen and enjoyed, as high a civilization, as many of the elegant creature comforts of life, and as pleasant and intelligent people, as are to be found anywhere. The right plan of human progress has been hit upon at last.

There is not a work now in progress which so strongly commends itself to the support of the American Congress and people as this which so many of us went out to see. Without a shadow of dissent, and with all the earnestness and eloquence of which the distinguished excursionists were capable, they commended it to the country and its legislative representatives.

LETTER V.—*Prairie Dogs—Rambling Observations—Enterprise of Chicago—Connection of Chicago with this State and Road.*

SALINA, KANSAS, June 13, 1867.

PRAIRIE DOGS.

EVERYBODY has heard of the curious little animals known by this name; but the term is altogether inapplicable, for the creature has not a single feature or characteristic of the canine race about it, except that it barks. Its bark, however, is that of the squirrel, not that of the dog. It, like the squirrel and marmot, belongs to the *genus rodentia*, and lives altogether upon vegetable food. Its color is a yellowish brown; its form and head resemble those of the gray squirrel; in size it is somewhat larger. Its ears look as if cropped off; its tail is short, and its paws are like those of the squirrel, but admirably adapted to burrowing in the ground. The expression of its countenance, if I may so talk, is that of the squirrel, and its manifestations of confidence, bordering on affection, when petted, are exactly like those of the squirrel. In eating, it grasps its food between its paws and nibbles it daintily, just as the squirrel does; and if corn is given, of which it is fond, it bites out the soft germinating part, and throws the flinty part away.

As our party came up the road, about halfway between Fort Riley and this place, while running over a broad prairie, we came to a place called Abeliene, a hamlet of three or four houses and a country store. The place is perhaps better known as Dogtown. Here the train stopped, and our attention was directed to about a hundred little mounds, in the top of each of which was a neat little hole running down, at an angle of about forty-five degrees, deep into the ground. On the top of each mound was one prairie-dog standing up on his haunches, as erect as a grenadier, apparently on the lookout to see what was coming. We all got out and approached the cluster of mounds, which were all comprehended within a space of less than half an acre. On our approach, all the "dogs" at once dived down into their burrows with the speed of arrows, and disappeared. Presently

one fellow, bolder than his comrades, came up to the mouth of his subterranean domicil and began to bark angrily at us, much as a very small dog would do, which afforded a good deal of amusement. Presently another appeared, who received his visitors with all the politeness of which he was capable, and was rewarded for his confidence with sundry bits of crackers, cakes and candy, with which he appeared to be well pleased. In their eagerness to see it, many of the party, especially the ladies, pressed closer and closer around. This soon became too much for his courage, and he darted back into his burrow. Hereupon Mr. Wells, of the Philadelphia *Bulletin*, took it upon him to be master of ceremonies, made a mock-heroic speech, assuring "the audience" that it was essential, in a performance of this kind, that the circle be fifty feet in diameter, and that he would continue to "swing around the circle" until it had expanded to that amount. This he did, talking as he went, and the thing was soon accomplished. Then our little friend ventured out again, and exhibited his courage and agility by dashing off from his place of refuge a yard or two to pick up bits of cake. It was a pretty and unique spectacle to see a circle of perhaps a hundred and fifty ladies and gentlemen standing in a ring, gazing well pleased at the gambols of the funny little animal. We stayed here about half an hour, and all the time our angry one kept barking at us.

These "dogs" were about half domesticated, and were fed by the families who live beside them, and it is probable that the young are sold for pets. A member of our party asked one of the ladies resident where they came from. "Oh," said she, "they were brought *from the West.*" In another place we saw a similar village or colony, apparently more numerous, in a perfectly wild state. They are exceedingly gregarious, and, it is said, harmless. There is a notion widely prevalent out here, that in every dog-hole are to be found a rattlesnake and an owl; but no one has ever been found who ever saw the last two inhabitants in the burrow. The probability is that the reptile and the bird are apt to be about in search of the young "dogs" as prey. Whether their habitations communicate one with another under ground, I could not find any one able to tell; but probably they do. I was told by a young man that he poured one hundred and thirty buckets of water into a hole before he forced a "dog" to come up. It then came and he caught it.

RAMBLING OBSERVATIONS.

There are birds here, but they are not very numerous. I have seen some of beautiful plumage. When the country is settled, and trees

become more numerous, they will multiply. There is a small species of blackbird here, which is very useful in destroying insects, especially grasshoppers, which are occasionally a great pest. This year there are few, if any, up here, but down near the Missouri they are pretty numerous. They have, however, not done any serious harm.

Rattlesnakes are somewhat numerous on "the plains" west of this; but I have not seen any. I have been about as far west as the celebrated spot where our excursion friends of last fall killed the buffalo; but as the wave of civilized life, led on by the Union Pacific Railway, has rolled on about eighty miles since then, I did not expect to see any. I, however, helped to eat a fresh one at Clear Creek, a little this side of Fort Harker. The Indians and the buffaloes are rapidly melting away before the resistless march of a stronger race. Before this mighty onward movement all that cannot be assimilated must be destroyed. The buffalo cannot be domesticated, nor the Indian civilized, so they are apparently alike devoted to extermination. Both are surrounded; the cordon of civilization is pressing closer and closer around them, and the issue, so far as we can see, is as inevitable as fate. In another letter I shall speak more fully on this painful subject; only remarking now, that, from all I hear, it will be more tolerable in the day of judgment for the Indian, with all his savagery, than for some white men whom our country has clothed with authority, and into whose hands it has placed the destiny of these apparently doomed wretches.

No part of the earth's surface has ever passed so suddenly from the condition of a vast, trackless, desolate abode of wild beasts and roving savages to one of complete and beautiful Christian civilization as this; and probably no other could have been so quickly transformed. As it was in the primitive earth, God's own hand has planted a garden here, and all that is required of man is that he shall go in and occupy, and dress it, and keep it. Here he is not called upon to wage a life-long battle with heavy forests and perplexing brambles, for the land is already a rich meadow, decked with flowers and ready for the plough and the seed; while the railway, sent here by the agency of well-directed, yea, Heaven-directed enterprise, with its concomitants, fills out all the material conditions required. Now let the Bible, with its blessed influences, and living teachers of both schools and churches, together with the press, be sent forward, and the old exploded myth of an "American desert" will vanish even from the memory of men; for under the operation of the forces now in action, this long talked of "desert" will soon blossom as the rose. Indeed, it is literally a flowery desert now.

THE ENTERPRISE OF CHICAGO.

It is a notable fact that all the active business men here hail from Chicago, or somewhere on that social and commercial line. Many of the stores are branches of commercial houses in that city. The forwarding and commission merchants, who handle the Denver and Santa Fe trades, are Chicago men; and the wagons, reapers, mowers, threshers, shovels, spades, hoes, cooking-stoves, and everything pertaining to a farmer's outfit — and there are more of these things here than I ever saw in any town of its size — bear the same impress, and are furnished by Chicago, or by New York or New England, through Chicago. This I like to see, for it proves what I asserted strongly in my correspondence last fall, that the Union Pacific Railway of the Kansas is the better avenue for the trade between the farthest East and the farthest West. It proves, moreover, that already Chicago, which has not yet a perfect connection by rail with this road, is intrenching itself strongly and firmly in this matchless garden of the continent. It is through this avenue, and this only, that that city and the great commercial cities of which it is the outpost, can reach the centre of Colorado, and the still more remote territories of New Mexico and Arizona, and I am persuaded that it is destined to be their best route to California.

At present that trade is carried over the Chicago, Burlington and Quincy Railroad (the best road in Illinois) to Quincy; thence across the Mississippi to the Hannibal and St. Joseph road, which begins on the opposite bank of the river, and runs to St. Joseph, on the Missouri. Thence it goes by rail to Weston, six miles above Leavenworth. From Weston to Leavenworth it is carried by steamers. At Leavenworth it meets one of the termini of the Union Pacific Road. In a short time a branch road will be completed from Cameron (about fifty miles east of St. Joseph) to the east branch of the Missouri, opposite Leavenworth; and a bridge across the river to that city is the last remaining link required to complete the long and direct chain between Chicago and the Union Pacific Railway of the Kansas. A branch road from Cameron to Kansas City is also in progress of construction, and another bridge is to be built across the Missouri at that point, which is the main terminus of the Union Pacific. Thus two distinct lines will unite the cities of the lakes, and through them all the railroad lines in and north of Pennsylvania, with this great continental thoroughfare. They are now building a bridge over the Mississippi at Quincy. So, when all that is now in rapid progress shall be completed, cars may be run from any of the cities of the Atlantic coast to

the Pacific without breaking bulk. Before five years more shall have rolled round, that which lately seemed but an enthusiast's dream will be sober verity, an accomplished fact

I have said that I was pleased to see the energy of Chicago in grasping this prize. It is eminently commendable; and if the cities along the other great line of the country's commerce — beginning at Philadelphia and ending at St. Louis — allow themselves to be outstripped, it is their own fault. This, however, I do not like to see. Allow me to state frankly the result of my observation during the past few days of constrained sojourn in this lively little border town, which is for the present the commercial terminus of this road. I have rambled through the closely packed warehouses of the railroad and of the forwarding-houses, and one empty glass box, bearing the stencil-mark of a Pittsburgh house, was the only evidence I met that there was anything manufactured in our State. Ohio was represented by some agricultural machinery. Even St. Louis had very little to remind one that it is a great city, and that to its enterprise the country is mainly indebted for this magnificent thoroughfare into a vast and prolific region, which, but for it, would afford no market to anybody.

The magnitude of the trade on this road astonishes even those who are building it. Its revenue during the month of May was over $172,000, or at the rate of over $2,000,000 a year. A double track will be needed through the valley of the Kansas long before the far distant goal can be reached.

P. S.— In justice to our own State, I must not omit to mention the fact that all the rails on this road, together with the locomotives and cars, are of Pennsylvania manufacture. I only spoke above of the commodities which enter into the general trade of the road.

LETTER VI.— *Water falling — A new Hotel — Return of three of the Pond Creek Party — Observations upon the Country above.*

SALINA, KANSAS, June 14, 1867.

I AM still here; but as it is a very good place to see and hear what is going on, to witness the vigorous workings of border life, I cannot say that I regret my involuntary detention. I am comfortably fixed at a respectable restaurant. We have a good table, clean and tidy chambers, and pleasant and intelligent company. I tried the Goddard House about thirty-six hours, but that was enough. In a few weeks

a new hotel, on strictly temperance principles, will be opened near the railroad station at this place, by Mrs. ANNE BICKERDYKE and Mrs. GREENE. I made the acquaintance of both these ladies at the house of Col. Phillips. Mrs. Bickerdyke's name occupies a high place as an active and laborious Christian, and also among the "Women of the War." Her labors among the soldiers, in camp and hospital, were long-continued and very efficient. I have read her biography, and found it extremely interesting. Mrs. Greene is also an excellent lady. Their house will be an acquisition to this town.

The "Smoky" continued to rise until Thursday morning, when it began slowly to recede. Between this and Junction City some two or three culverts and a little tressel-work were damaged, and as the river has been up so long, it was impossible to make any repairs, and hence the long delay. But for the water, a few hours would have sufficed to have put the road in running order. I think the Company will now raise the road-bed in a few places between Junction City and this town. Above this it is all right, and below Junction City the trains have run regularly. The flood in the Solomon and Saline was, I am told, unprecedented. The Smoky Hill has not been so high since 1858.

To show how fast they do things here, I may mention that the Methodist Society have reared a neat little meeting-house from the foundation since I have been here, that is, this week, and expect to hold a quarterly meeting in it on Sunday next.

The weather is quite warm. Day before yesterday the thermometer rose to 80 degrees. Yesterday it could not have been less than 90 degrees, and to-day it is equally high; but the fine, fresh, invigorating breeze prevents it from being oppressive.

Yesterday two of our friends of the excursion, Hon. J. L. Thomas, M. C. of Maryland, and E. D. Kennedy, Esq., of Pittsburgh, came down here—having left the party going to Pond Creek—and are now water-bound like myself. They went as far as Big Creek, fifty miles beyond Ellsworth. They represent it as a still better country than that around Fort Harker and Ellsworth. The first day or two the party were drenched with rain, but had very fine weather afterwards. They had killed four buffaloes, one of which, a big bull, stood quite a siege from the whole line before he succumbed. They left the rest of the party, led and commanded by General Hancock, well and in good spirits. We shall return down the Kansas together.

This morning I had an interesting conversation with a man of considerable intelligence and an accurate observer, who has spent some time in the neighborhood of Big Creek, where the railroad line crosses that stream and follows its valley for about twenty-five miles. This

is nearly one hundred miles west of this place, and about one hundred and fifty miles west of Fort Riley. He represents it as a fine country. The streams are well fringed with ash, elm and black walnut. There is but little cottonwood. The ash are large and straight. One man is making preparations to put in a crop of fall wheat, and has expectation of a good yield. The soil being deep, no apprehension is felt of a lack of moisture. My own impression is, after a careful examination of the deep brown soil of those "plains," fairly within the buffalo grass region, that with deep ploughing it is admirably adapted to the cultivation of winter wheat. Spring wheat, I think, would not succeed. The prairie is hard to break up. The ground is remarkably solid, and is scarcely affected at all by frost; and what renders the first ploughing more difficult is a plant which grows abundantly, called the "Devil's shoe-string," the long, lateral roots of which are so tough that they can neither be cut nor broken with the plough. The only way is to run under the tuft and heave it all over. After that it causes no further trouble.

Since I saw that gentleman I have conversed with Mr. E. Honek, who has resided over a year on Spring Creek, a small stream nine miles west of Salina, on the "divide," between this and Fort Harker, and on this brown soil of which I have spoken. He, too, is making preparations to put in a crop of winter wheat, and is confident of success. He has been in this country for twelve years, and appears to be a man of good sense and close observation. He has not yet tried fruit-growing; but he told me of a peach orchard which he had seen some miles southeast of this, on an elevated part of the plains, which was very healthy and flourishing. Here, and in every part of Kansas east of this, all the fruit-trees I have seen are very luxuriant. At the Pottawatomie Mission, below Fort Riley, I saw as beautiful peach-trees as ever I saw anywhere, heavily laden with young fruit.

I have no wish to induce men to buy up these buffalo-grass regions for farming purposes until all their characteristics and conditions shall be more fully known. But from all I have seen and heard, I am persuaded that this remote portion of our national domain, comprehending hundreds of thousands of square miles, which we have heretofore heard of only as "the plains," and as "the buffalo region," will be found to be valuable land, well adapted to be the habitation of civilized people, and far more salubrious than any territory we have yet occupied. I believe that population will rapidly follow this railroad and its branches, and that Government lands, hitherto utterly valueless, will be eagerly occupied as homesteads, or bought up. I say population will *follow* this railroad. It cannot precede it; for even the

dwelling of the settler must be carried forward. The log-cabin can never be an institution here, and the ranch is no place for women and children. Let the Government, then, by generous subsidies, push on this great work, and every dollar expended will be returned fourfold in national wealth and national revenue within the present generation. Even were there no San Francisco, no California, no Pacific Ocean to reach at the other end, the building of this road would be a wise and beneficent measure, and an enduring crown of glory to the men who shall accomplish it, whether in their capacity of statesmen or of capitalists, and to the generation in which it shall be consummated.

LETTER VII.—*Arrival at Lawrence — Flood in the Smoky Hill and Kansas.*

LAWRENCE, KANSAS, June 20, 1867.

I ARRIVED at this beautiful and historic little city yesterday afternoon, as I am slowly heading eastward. Of this place I shall speak at another time.

FLOOD IN THE SMOKY HILL AND KANSAS.

On the afternoon of Friday, the 7th, just after the main body of our party, including all the ladies, had left some twenty of us at Fort Harker, over 220 miles west of the Missouri, we had a very violent hurricane. About midnight we had another. General Hancock told me that in twenty-five years' experience on the plains he had never witnessed so heavy a gale as that of the afternoon. But of this boisterous night I think I have already spoken.

I left Fort Harker about eight o'clock on Saturday morning, and reached Salina in the afternoon in the contractor's car attached to a construction train—very pleasant, but slow. I dined in the car with R. H. Shoemaker, Esq., and other gentlemen, to whom I am indebted for many courtesies. But the heavy rain of Friday night, and the almost unparalleled torrents of Saturday, flooded the country and turned every channel of surface water into an improvised river. I never saw such rain as that.

I could go no further than Salina that evening. A train attempted to go down on Sunday morning, but was partially wrecked at a broken culvert a few miles below town, and the few passengers had to get back the best way they could. I did not attempt it, hoping that the regular train would be able to go out on Monday morning. But in this I was disappointed. It was not the swellings of the Smoky Hill that prevented the train from running on Monday, but the unexampled

rise of the lateral streams below Salina—the Saline, the Solomon and others. Afterwards the overflowings of the "Smoky" prevented the damage done by the smaller streams from being repaired. No bridges were carried away. That over the Saline was saved by running a train, laden with one hundred and fifty tons of railroad iron, upon it.

On Sunday the Smoky Hill began to swell rapidly, and continued to rise steadily until Thursday, although on Sunday the weather had changed, and become as dry and fine as I ever saw it. For several days the flats in many places were covered from bluff to bluff. The town of Salina was not overflowed, but it stood on a large island. Now for the results.

I have said that no bridges were carried away. The culverts were but slightly damaged. Above Salina the track of the road was overflowed but a short distance, for it soon rises to higher ground. Between Salina and Junction City, a distance of fifty miles, over which we passed on Saturday last, (having been shut in at Salina from the Saturday previous,) some six or eight miles of the track was or had been submerged. In two places we ran through shallow lakes each about a mile across, and in length the entire width of the valley from bluff to bluff—perhaps two or three miles. It was romantic, although by no means safe, travelling. A construction train preceded us, carefully examining and repairing as it went. I never saw men work so hard, so faithfully and so cheerfully as did these. The main trouble was that the waves, raised by the wind on these broad expanses of overflowed water, washed the embankments and undermined the roadbed; and in many places the track had to be propped up, although yet submerged, with ties and blocks. Finally, when within four or five miles of Junction City, the front passenger-car—the one I was in—ran off the track; but as we were going very slowly there was no harm done and no shock. The water was then about a foot over the track. We all managed to crowd into the baggage-car, and the majority contrived to get something to sit upon.

While in the baggage-car, and all being pleased, grateful and in the best possible humor, the Hon. John L. Thomas, of Baltimore, one of our excursionists, proposed that the hearty thanks of the passengers be tendered to E. C. Smead, Esq., the Resident Engineer of the road, and to the men under his command, for the courage, skill and indomitable perseverance with which they had grappled with and overcome the difficulties that beset our way. And in language less demonstrative, but not less sincere, many uttered their acknowledgments to Him who keeps us in all our ways. About nine o'clock we arrived safely at Junction City.

Below Junction City—at which place the Republican, uniting with the Smoky Hill, together form the Kansas, or the Kaw, as it is more frequently called here, and below which the channel is much wider—the flood did no harm to the road. In the fifty miles between Junction City and Salina, about eight miles of the road-bed will have to be more or less elevated. Some say the flood of 1858 was equal to this; others say it was not.

The Senatorial party reached Junction City on Thursday; but the same cause which kept me from getting down prevented them from getting up; so, of course, I did not succeed in joining them. They returned on Friday, greatly pleased with the country, the railway and the people. Messrs. Wade, Covode and others spoke at Lawrence, Manhattan and Junction City. The free air of Kansas would be wholesome to such lungs as theirs. But as I have not thought it necessary to be careful to gather up the incidents of their trip, such things not being the subject of my letters, I shall not attempt to tell what they did or said. The only disappointment I have felt since I left was my inability to join them at Leavenworth as intended.

This flood will be advantageous to this railroad, as it will afford known high-water marks to guide the engineers in their future operations, which they have not heretofore had. The alterations needed in the portion of the road already laid, can be made at a comparatively trifling cost. Although it was not so pleasant to myself to be water-bound at Salina, as it would have been to have joined the Senatorial party, I cannot say that I regret it, for it gave me an opportunity of seeing for myself how the road stood this trying ordeal. Moreover, it held me for a week at that stirring town, at what is yet the extreme border of settlement—a far better point of observation of the great onward march than any of the lower towns would have been.

While at Salina I was joined by three of my friends of the excursion, who had started from Fort Harker with the party to Pond Creek, two hundred miles further up the Smoky Hill. Hon. J. M. Thomas, of Baltimore, E. D. Kennedy, Esq., of Pittsburgh, and Mr. Renwick, of Detroit. They went as far as Big Creek, about sixty miles; but as the progress of the party was impeded by the swollen streams, they felt constrained to return by stage. They bore a part in the chase and slaughter of four buffaloes, their narration of which exploits were rich indeed. Big Creek had been enormously swollen, and so sudden was the rise that five soldiers and two citizens were surrounded by the waters and drowned at Fort Hays. Gen. Hancock, on his arrival, ordered the location to be changed to higher ground.

I have thought it worth while to be thus particular in speaking of this extraordinary flood, because of its bearing upon the Union Pacific Railway, and to correct any exaggerated reports which, perchance, may be set afloat.

P. S.— Already five construction trains are at work on those parts of the road found to be too low, and in a few days all will be better than ever, and the regular trade resumed.

LETTER VIII.— *Trees in Kansas.*

LAWRENCE, June 21, 1867.

TREES IN KANSAS.

IN the greater part of this State, except along the margins of the watercourses, there is very little timber; but along the streams it grows with great luxuriance. The main part is cottonwood, a variety of poplar, and perhaps one of the poorest varieties. The tree often grows to a large size, and is much used for the manufacture of rough lumber, such as joists, rafters, scantling, fencing-boards, and often it is used for partitions, and even siding and floors in the rougher and cheaper kinds of houses. It is almost impossible to plane it. In fact, nothing but the axe and saw can work it up. The trunks of the trees are generally cut into saw-logs, and the branches into cord-wood. It is rarely split, for the woody fibre is interlaced almost as much as gum, and is nearly as tough as the fibre of hemp. It is not often that a piece long enough for a common saw-log can be obtained without more or less crooks in it. There are many saw-mills, all of which use the circular saw exclusively. Sometimes two saws are used, so that when large logs are operated upon, the upper one cuts what the lower one cannot reach. Cottonwood is wholly unfit for posts, railroad ties, or any use which brings it in contact with the soil, as it quickly rots in such situations; but if kept dry, it is for many purposes a strong, useful wood. Cottonwood boards make pretty good fences, but their tendency to warp often causes them to break the nails.

The cottonwood is of very rapid growth. It is often planted for purposes of shade and ornament. The denseness and deep shining green of its foliage make it one of the most beautiful trees, when standing out in open places, I ever saw. Early in June it ripens its seed, which are quite small, and each seed is winged with a small tuft of downy fibre like cotton, which bears it for miles on the wind. Hence the name of *cotton*wood.

Next to the cottonwood, the black walnut is the important timber

of this country, and is probably next to it in abundance. It is used for everything from furniture to fence-rails. It grows large and quite as straight as in the Eastern States. It is found most plentiful in the neighborhood of the larger streams.

The oak, in its several varieties, is found here; but although I have seen a few fine specimens, it has not done well as a natural production. But the trouble has been that in the only places where it could flourish — the high open ground — no trees could get in for the prairie fires. As a cultivated tree, the oak will do well here.

I have seen some hickory down near the Missouri, and some ash. Away out on the plains, far beyond Fort Harker, the ash grows large and straight, and is a valuable tree. There are no chestnuts.

Wild fruit-trees are very abundant, especially plums, haws, paw-paws, gooseberries, and wild grapes. Beyond Salina, far out in the buffalo grass region, the plums are said to be very fine. I saw some of these native plums in the garden of Judge Smith, of this city, which were very beautiful both as trees and fruit. The plums hang in clusters like large, open bunches of grapes. He said they are very good when ripe.

I have never seen apple-trees and peach-trees flourish as they do here, and this year the fruit crop is abundant in proportion to the number of trees. There are not as many fruit-trees as there ought to be. I am told that in the early settlement of the State it was given out as a settled fact that fruit would not succeed in Kansas. Probably the thing was said more to justify improvidence and neglect than anything else; but it seems that the croakers had it their own way for a time, and the introduction of fine fruit was retarded. Now, however, the tide appears to have turned the other way, as numerous flourishing young orchards attest.

Grapes do admirably here. I met a Mr. Burns at Manhattan, twenty miles east of Fort Riley, who is well known in Pittsburgh. He has located himself a few miles distant from that beautiful town, and devoted his time, his labor and talent exclusively to the culture of the vine. He has many varieties, all of which do well. As he is a literary man, his publications on that subject are valuable, and his labors will doubtless result ere long in clothing many of these beautiful slopes in vineyards. I measured a grape-leaf in Judge Smith's garden. It was twelve and a half inches wide, and twelve from head to point.

The locust grows here with great vigor, but the borer is severe upon them. I think crude petroleum, applied to the bole and larger

branches, would cure this evil. If that pest could be overcome, millions of these valuable trees might be reared at a trifling expense of land and labor. Indeed, the land would be better for their presence. Growing as they do here, they are very beautiful.

But of all the cultivated trees I have seen in this State, the soft maple is the most luxuriant and the most beautiful. They are planted by thousands in both town and country.

Osage orange hedges abound, and are in the highest degree successful. Judge Bailey, of the Supreme Court, who is himself a farmer, told me yesterday that they can be made at an expense of less than fifty cents a perch. In about four years they are sufficiently grown to be a protection against animals. In the meantime, a fence of some other kind is required. Animals do not, or, rather, cannot eat the orange. Its strong, sharp thorns protect it.

I have never seen in Kansas a tree that had been uprooted by the wind. I mentioned this to one of the oldest citizens, and he said that, although he had never thought of it before, he was unable to call to mind a single instance in which he had seen a tree that had been blown "out of root." The reason of this is quite obvious. The soil is so deep that trees of all kinds strike their roots so far down that it is impossible for any amount of force that the tree could bear to heave up the huge mass of soil which they embrace. But neither have I in a single instance seen a tree which had been *broken* by the wind. This may be accounted for from the fact that the trees of this country having to withstand a strong breeze almost every day, grow more sturdy than they do with us; and hence even a gale or a hurricane cannot break them. Young fruit-trees require to be securely staked till they are well rooted. After that they appear to stand up as well, and are as symmetrical, as I ever saw trees anywhere. Peach-trees form their heads more beautifully in Kansas than in any part of the eastern States that I have visited, and this year the crop is very abundant. Most of the early settlers were negligent in this matter, so that at this time the market is not one quarter supplied, and men could do well to go largely into the business yet.

Mr. Burns, who probably knows more about the matter than any other now in Kansas, assured me confidently that in no part of the United States except Southern California did the vine grow so well and bear its fruit so abundantly and surely as in Kansas. And he gave a reason for it. The abundant rains of April, May, and part of June give them a fine start; then the warm, dry, and pure atmosphere of the subsequent months secures the ripening of the grapes both richly and soundly. When the rich flats of the valley of the Kansas

shall be a succession of farms, the fields enclosed with stone walls or hedges as the proprietors please, and its bluffs of every imaginable form of grace and beauty shall be clad in vines, as they will be, it will probably be the most enchanting valley on this planet.

For more than two hundred miles the Union Pacific Railway passes through the midst of this paradisiacal scene, which hardly for a moment is hid from view in all its amplitude and grandeur. Why, it will be worth a journey from Pennsylvania just to see it.

The cedar grows well here. In the valleys beyond Fort Harker it is indigenous and in places abundant. The black walnut abounds from the mouth of the Kansas as far as I can hear anything about. Every farmer knows what kind of soil that indicates.

From my own observation, and from conversations with others, I am satisfied that the only thing that prevented these vast prairies from being wooded are the annual fires that sweep through the dry grass. Where they have been stopped even for a year or two, young trees spring up spontaneously. This I have seen in many places; and hence I believe that in twenty years there will be far more wood here than there is now. But it is not as scarce now as many people suppose. The other day I went to visit a woollen factory in this city — of which I shall have something to say in another place. The proprietor with whom I rode pointed out a range of several hundred cords of good wood, which he told me he laid in last winter at four dollars a cord. One fact like this is worth more than a page of abstract terms expressive of abundance or scarcity.

In some places I observed that sumach was springing up and overspreading the ground with great rapidity. To the mere farmer this is a pest; but the richness of this shrub in the tannin principle may render it a source of wealth.

So much for the trees and fruits and the shrubs of this extraordinary State. I shall, I know, be pardoned for dwelling so long upon them; for to the practical man who may have thoughts of emigrating, nothing can be more interesting.

LETTER IX. — *Mineral Resources of Kansas — Magnesian Limestone, its abundance and its excellence as a Building Material — Other Varieties of Stone — Marble. — General Remarks.*

ST. LOUIS, June 25, 1867.

I ARRIVED in this city on Saturday morning from Kansas, and here I intend to remain for a few days. In some respects this is a better

standpoint from which to view the great trans-Mississippi region than any other. It is its natural metropolis; but I saw enough while far up the Kansas and the Smoky Hill to satisfy me that St. Louis will have a hard and wholesome struggle for the trade of the mighty and matchless empire which is springing up behind her. Here, almost literally, a nation is born in a day, and the region through which I have just been travelling is very nearly as accessible to Chicago as to St. Louis, and to New York as to Pennsylvania.

I propose now to speak of the

MINERAL RESOURCES OF KANSAS.

Until I visited the State, my impression was that, although Kansas was very beautiful and very fertile, its mineral resources did not amount to much. I was not even aware, until I came out last fall, that it has more abundant, cheaper, and better building stone than any other State in the Union can boast; and the best of it is, that these stone do not at all mar the soil or break the face of the country. In my letters last fall I spoke briefly of these regular and far extended quarries of magnesian limestone; but as I have given the subject more close attention on this more leisurely excursion, I beg leave to return to the subject.

In the neighborhood of Lawrence, forty miles above the mouth of the Kansas, this stone exists in abundance, but the quality, as a building material, is inferior. The strata are thin and the color is not pretty. At Topeka, twenty miles further up, the quality is greatly better, and many very handsome dwellings are to be seen in and around that city constructed of it. It underlies all the upper surface of the country, and crops out of the faces of the bluffs with such regularity that it might be mistaken at a distance for tolerably well laid artificial walls of range work.

As we ascend the river it becomes better and better. At Manhattan, a pretty and flourishing town at the mouth of the Big Blue river, it is surpassingly beautiful, of a very light, delicate and lively stone color, and is so abundant, and so easily quarried and worked, that it is cheaper as a building material than either brick or frame. It is harder than at Fort Riley and Junction City, so that, although it works easily under the hammer and chisel, they do not attempt to saw it like timber, as they do at the latter places. I, however, prefer the color of the Manhattan stone to any I ever saw. At Manhattan it is something like the color of diluted milk; at Junction City it is more like cream. But I suppose it is a matter of taste.

From some distance below Fort Riley to a still greater distance

above Junction City—how many miles I cannot say—an enormous and solid stratum of this rock extends, in some places over six feet thick, and so soft that they cut it with axes in the quarry, and saw it into any forms they please with toothed saws, just as timber is sawed. Yet when exposed to the atmosphere for a while, it becomes almost as hard as marble and quite as indestructible. As to this last and most important fact I might have hesitated to take the words of the people there, who are very enthusiastic on the subject, and who think that they have an inexhaustible mine of wealth in that rock, had I not seen the angles of the stratum, as its face protruded from the face of the bluff, as sharp as ever, although they had withstood the beatings of the elements for centuries

A company, with a capital of $40,000, has just been organized at Junction City to saw up this stone, and otherwise work it into any and every form which the market may call for. The President of the Company told me that they proposed to saw it into slabs for flooring, one and a half inches thick, and into tiles for roofing, three quarters thick, and that they would turn it into any form which a lathe could give to wood or metal. I believe this enterprise will be a success. I saw some very large blocks of this stone at Topeka, on the ground where they are just beginning to erect the State Capitol. It will probably be one of the most beautiful structures in the country, but by no means the most expensive. This stone is practically inexhaustible, and will furnish a large item of transportation to the U. P. Railway.

While at Junction City two tall, slender chimney-tops were pointed out to me. They were built of thin blocks or slabs, set on edge—four making a round—cut out, as I was told, with a common hand-saw. They fitted so nicely that the joints were scarcely perceptible at the distance I stood, and the whole had the appearance of slender marble shafts. Mr. Martin, editor of "*The Junction City Daily Union*," (an energetic and enterprising Pennsylvanian, a good man, and one whose life is likely to be a success,) had a block of this stone in his office on which he showed me, by practical test, how a hand-saw operated. It cut into it rapidly and smoothly, although the block had become somewhat hardened by exposure to the atmosphere. Most of the buildings in Junction City are of this stone, which gives to that new place a very substantial and handsome appearance. For size and finish some of the stores would appear well in any city.

Some miles above Junction City—how far exactly I cannot say—the stone of the valley changes from lime to sand, and there is also a perceptible change in the soil, although it continues to be equally rich. At Salina, fifty miles above Junction City, they have abundance of

excellent building-stone—a fine-grained, compact sandstone. Limestone also exists in abundance on the higher grounds. About twenty miles beyond Salina, where we stopped for an hour or two on our way down, I saw on the opposite side of a small creek, about half a mile south of the road, a bold rocky bluff. I walked across the intervening prairie, which was like a flower-garden, as near to the bluff as I could get for the stream. I found it to be a solid mass of rock—I think it was sand—of straight and beautiful cleavage, thirty or forty feet thick. It was building-stone of excellent quality. Beyond that is the brown sandstone of which I spoke in a former letter, and which abounds about Fort Harker and Ellsworth. Professor Mudge, of the Kansas State Agricultural College, and State Geologist for 1864, speaking of this beautiful stone, told me that it belonged to the same geological era as the red sandstone of Connecticut, so largely used for architectural purposes in New York, and is, like that stone, often found marked with the tracks of large birds of a former period.

Limestone is found in many places far beyond Fort Harker, and is probably abundant in all parts of the State. The lime made of that of which I have spoken more particularly is white and of excellent quality.

Marble, white, black and variegated, exists in many places and in boundless quantity in the southern parts of the State. The white is said to be pure, of an excellent quality and susceptible of fine polish. I saw no specimens; but at Lawrence a polished specimen, of black marble, taken from a quarry near Fort Scott, near the southeastern corner of the State, was shown me, which for lustre and fineness of grain I have never seen excelled. It is somewhat harder than any other American marble I have seen except the Potomac variety, which is rather a conglomerate than a marble. For mantles, timepieces, &c., this Fort Scott marble would be admirable. There will soon be a connection by rail between Fort Scott and its circumjacent region and the Union Pacific.

But why, it may be asked, have I dwelt so long upon the single subject of the stone of this country that there is no room in this letter for the coal, the salt, the gypsum and the metals? I have done so, because stone is now and must ever be the principal building-material in Kansas. The cities of Leavenworth and Lawrence are mainly built of brick; but beyond these, where stone becomes more excellent in quality, and the clay less suitable for brick-making, but few brick buildings are seen. Even at Topeka the few brick houses to be seen attest that the business of brick-making is a failure. At Salina a few brick have been made; but when thoroughly burned they more

resemble stone in color than ordinary brick. But as wood is scarce and stone plenty, and good, and easily quarried, the latter must ever be the cheaper material. Frame houses are costly, because much of the lumber must be brought from St. Louis or Chicago. But the Great Dispenser of blessings and benefits, if He has withheld some things deemed essential to human comfort and well-being, has supplied with a lavish hand other things even better. And when Kansas shall be fully occupied, no people in this Union will have more beautiful or more comfortable dwellings.

Of the other mineral resources of this State — which, in the language of Professor Mudge's Report, contains 78,418 square miles, is ten times the area of Massachusetts, one-sixth larger than Missouri, and about one-third larger than England — the extent and importance of which astonished me, I shall speak more fully in my next letter.

LETTER X. — *Mineral Resources of Kansas, continued — Coal — Salt — Gypsum — Alum — Iron.*

ST. LOUIS, June 26, 1867.

COAL.

As no coal is yet mined in Kansas, except in a few places in the southern counties, I cannot pretend to speak on this topic from my own observation. I shall therefore draw largely from the report of Prof. B. F. Mudge, State Geologist, printed in 1866. I had a long and interesting conversation with that gentleman at the State Agricultural College, near Manhattan, twenty miles this side of Fort Riley. His views, as expressed in his report, have been but slightly modified by his subsequent observations. Under the head of "Coal Measures," he says:

"The lowest geological formation known in Kansas is represented by the upper portion of the Coal Measures. It is a continuation of the coal field which covers the northeastern part of Missouri and the southern part of Iowa, and also extends into the Indian territory south of this State. Like the deposits of those States, the dip of the strata here is to the northwest, passing at a low angle of inclination under the Permian, Triassic and other later stratifications. The Coal Measures cover a larger area of the State than any other formation, being nearly one-third of the whole. The fossils of this epoch are formed all over the eastern part of Kansas, and exist as far as Fort Riley.

"The line which separates the Coal Measures from the Permian runs rather irregularly in a northeasterly and southwesterly direction. Considering Fort Riley as on the line of average extent westerly, we

shall have (in the width of the State) the territory of the coal lands, 308 miles in length by 107 in average breadth, which gives an area of 22,256 square miles. . . . . .

"The Coal Measures here have undergone little change, and lie nearly in their natural position. They dip on the average, as before stated, slightly to the northwest. In some parts of the State this inclination cannot be seen, and in some instances there is an anticlinal ridge or dip in the opposite direction. . . . . .

"It will be seen that this small disturbance of the strata is very favorable to the opening of coal shafts. No 'faults' will be found in the beds, and the probability of reaching the coal at reliable depths at any given point will be nearly certain. It also gives us a larger area of the coal field, as a higher inclination would soon carry the heads too deep for mining.

"This portion of the State also shows a great uniformity of the strata. About one-fourth of the whole deposit is limestone. South of the Kansas river the strata show an increase of thickness, particularly in the shales, accompanied with a slight increase of dip. This increase of thickness is very marked in Miami county, as developed by the oil and salt borings.

"It is well understood that the extreme upper portion of the coal measures does not contain coal of the first quality, or seams of much thickness. Those peculiarly favorable conditions of climate, &c., which were so important for the accumulation of vast amounts of vegetable matter, had begun to change, so that the coal was small in quantity and poor in quality. A fine illustration of this passing away of the peculiarities of the vegetation of the coal period is to be seen in the banks of the Neosho, about three miles from Council Grove. It consists of a stratum of shale, two feet in thickness, full of the remains of the vegetation of the period, but accompanied by a singular commingling of the materials with the mineral substances, and the vegetation shows less of the transformation from its original state than that of the true coal beds."

Professor Mudge then gives in detail a report of the borings for coal at Leavenworth, which proved successful. The parties are now engaged in sinking a shaft preparatory to practical and extensive mining. From it I gather that 142 feet of the strata passed through were above the level of the Missouri river, and 230 feet below, when a vein of bituminous shale and coal 9½ feet thick was reached. At 116 feet below the level of the river, a vein of slate and coal was perforated; but as the second vein is known to be greatly superior, little attention was paid to it. This second vein is known to be the same that is largely worked on the line of the Hannibal and St. Joseph Railroad, some fifty or sixty miles east of Saint Joseph, in Northern Missouri, and which I examined with some attention when I was there last fall. The vein there is about six feet thick, and is, I think, between one and two hundred feet below the surface. The coal

looked very well, and much of it was brought up in large cubular blocks, like our Pittsburgh coal. Professor Mudge says this vein varies in thickness from five feet to six feet nine inches.

At Lawrence I visited, in company with Judge Bailey, of the Supreme Court, — to whom I am indebted not only for kind attentions, but for much valuable information, — an establishment on the bank of the Kansas, at the lower end of that city, where they are busily engaged in boring for coal by steam-power — using apparatus and going down at a rate that could hardly be beaten in our oil regions — averaging ten feet per day. When we were there, they had got down between three and four hundred feet. They are confident of success, but may have to go a thousand feet.

I did not hear of any other borings being in progress. In some places in the southern counties coal crops out of the surface, and in the Indian Territory south of Kansas, the above-mentioned heavy vein crops out, and coal is as plenty as it is in Western Pennsylvania.

[Since this was written, a vein of coal of good quality, three feet in thickness, has been discovered in the face of the bluff on the south side of the Smoky Hill, a few miles west of Fort Harker, by Mr. Shoemaker, one of the chief contractors on the Union Pacific Road.]

SALT.

It will perhaps be new to most of the readers of the *Gazette* to be informed that salt enough can be made in Kansas to supply the entire country west of the Mississippi. Professor Mudge dwells at great length upon the subject. He speaks of many springs and salt marshes, one of the former of which is near Leavenworth. I make a short quotation: —

"The great supply of salt which is to meet the demand for Kansas and the neighboring States lies at various points in a tract of country about thirty-five miles wide and eighty long, crossing the Republican, Solomon and Saline valleys. [This is north and west of Salina, where I was water-bound for a week.] The signs of the deposit are seen in numerous springs, but more frequently in extensive salt marshes. A description of one of these marshes will be good for large numbers of them, as they are very similar in their formation and appearance. Take that in township 4, range 2, west of the sixth principal meridian in the Republican valley, about seventy-five miles northwest of Fort Riley. It is sometimes called the Tuthill marsh. The valley here is wide, gradually rising to the high prairies so common in that part of the State. The marsh covers nearly one thousand acres more or less impregnated with saline matter. About one-third is entirely void of vegetation, which the brine will not allow to grow. It is perfectly level; and at the time of our first visit was as white as a wintry snow-field with a crust of crystallized salt. The marsh is of recent alluvial

formation, composed of sand and loam, from twenty to thirty feet in thickness, brought down by the wash from the high prairies, which rise gradually on three sides. In this alluvium, at various depths, are found the bones of buffalo, deer, and antelope, who have probably made this a resort for salt for long ages past, as they are seen to do at the present time. Underlying this is the Triassic rock, which in Europe furnishes so much salt that it is termed the Saliferous system.

"The incrustation of salt" (the Professor continues) "is frequently three eighths of an inch in thickness. This is scraped up and used in its natural state for salting cattle, &c.; but, for domestic purposes, it is melted by being mixed with about twenty gallons of water to a bushel of salt, when the mechanical impurities, sand, &c., readily settle. The salt is again returned to a solid state by evaporation. The marsh, after scraping, produces a second crop of salt in from five to seven days of dry weather; and after repeated scrapings during the past three years, yields as full a supply as at first. . . . . The marsh receives the drainage of the valley slope about two miles in width and about five miles from the north, and consequently the brine, as it comes from the source below, must be constantly weakened by so large a body of surface water."

While at Salina, Col. Phillips told me much about these salt springs and marshes, and particularly of a very singular spring which rose on the very summit of a conical mound standing on the open plain some forty or fifty feet high. He kindly invited me to return and take a tour with him through that beautiful prairie region, interspersed with salt springs, buttes crowned with iron ore, and gypsum beds sufficient to supply the world. We would need a wagon, a tent, and ten or twelve days' provisions.

Salt will have to be manufactured by solar evaporation in Kansas. The climate is admirably adapted to it; and, indeed, it is not only the most economical method, but the article, when made, is better in quality.

Gypsum abounds in Kansas. One vein of from four to ten feet in thickness crosses both the Big Blue and Little Blue, a few miles above their junction. South of the Smoky Hill at Salina an enormous deposit has been discovered and traced for miles. It it also found in numerous places in the vicinity of the Solomon and Saline rivers. Colonel Phillips marked it on a map in eight or ten places. The quality is quite equal to the Nova Scotia, and some thin veins of pearly whiteness run through the heavy deposits south of the Smoky Hill.

Alum exists and might be manufactured to any extent in Saline county, on the Smoky Hill. It is known to extend through a range of fifteen or twenty miles.

Iron ore is found in considerable abundance in many places west of

Salina; but as fuel is scarce where it is deposited, it is not likely to be of much importance as a source of wealth.

Some specimens of tin ore have been found, but the mine where they were taken has not been discovered. There is no gold nor silver, for there are no igneous rocks.

As briefly as I could I have given some facts regarding the mineral wealth of Kansas — enough to show that it is better supplied than has been generally supposed. I shall add no general remarks.

LETTER XI.—*Leavenworth — Old Fort Leavenworth — Rivalry with Kansas City — Lawrence — Its Location, Beauty, and History — Swift Retribution — Brief Mention of an old Friend.*

ST. LOUIS, July 1, 1867.

I DO not know that I can embrace within the compass of one letter all that I may wish to say under this head. I have already spoken incidentally of some of the smaller towns I have seen, especially Junction City and Salina, and the last, the newest, and the most western — Ellsworth. Rome, on Big Creek, sixty miles beyond Fort Harker, is not a town yet; but in less than a year more it may be a wonderful place. *Rome!* How I hate this putting of new wine into old bottles! Had they called the new city *Big Creek* it would have been less ridiculous, whatever might have been said of its euphony or appropriateness.

LEAVENWORTH.

This thriving, beautiful, opulent, and commercial city, in which they claim to have a population of 27,000, is situated on what may be called a valley prairie, but well lifted up above the floods of the Missouri, and environed on the north and west — but not closely — by gracefully swelling heights, from the summits of which there are extensive and grand prospects in all directions. Twice have I been driven along these heights, and never shall I forget the charming panoramas that were spread out before me.

Old Fort Leavenworth — established long before the days of the Border Ruffians, while Iowa, and Kansas, and Nebraska were still part of the great Northwest Territory, is located about two miles north of the city, on the top of a high and abrupt bluff, the base of which is washed by the Missouri, and west of which beautiful rolling farms and prairies spread out in amplitude and grandeur — is a charming spot. Nature and art have combined to render it one of the pleasantest retreats, whether for the citizen or the weary soldier, that

I ever saw. Not a feature or a trace of grim-visaged war meets the eye of the stranger. Even its long-continued use as a great distributing post for the numerous forts and stations scattered over the far-reaching "plains" is about ceasing, and ere long it will probably be sold, including the rich and magnificent reservation attached to it. It is very valuable property, and Congress should be well advised of that value before it passes into private hands. Visions of a large fortune are probably looming up before the minds of some sharp operators even now in connection with Fort Leavenworth.

Some of the business streets of Leavenworth have much of the aspect of our old and substantial commercial cities. Statistics of its business would be both interesting and surprising; but it was not my object to collect such things. I was through almost every part of the city, and one thing impressed me strongly — the almost total absence of apparent poverty and squalidity. Most of the buildings are brick, and have a neat, fresh, and comfortable aspect. Outside there are many elegant suburban residences which would do credit to any city. And the trees! — nothing can surpass them for thrift and beauty.

But Leavenworth is somewhat in jeopardy commercially; for unless they bring a branch road from the Hannibal and St. Joseph Railroad at Cameron to the east bank of the Missouri, opposite this city, and throw a bridge across the river, so as to connect their branch of the Union Pacific road, which runs to Lawrence, with the great systems of railroads east of the Mississippi, Kansas City — which has a bridge and a branch road to Cameron already made sure — will bear away the palm. But let both have bridges, and both have branch roads to Cameron, and I see no reason why Leavenworth may not maintain the ascendancy. To bridge the Missouri at Leavenworth, however, will be a much more difficult work than at Kansas City; but the people of the former place say it can be done, and *that they will do it.* In my opinion they must do it, or be content to be thrown off the line.

LAWRENCE.

On my return from Fort Harker I stopped a little more than two days in this historic, almost classical little city, around whose annals, although brief in duration as the life of childhood, cluster so many memories of stern devotion to principle, of heroic daring, of patient endurance, of carnage and devastation, of horrid cruelties and fiendish murders, at the calm recital of which, even yet, while standing on the spot, the ears tingle and the heart grows sick. Twice given to the flames by ruthless enemies, and its streets drenched in the blood of its citizens, it has risen in superior beauty, and now stands before

the eyes of the admiring stranger, the bright centre of matchless surroundings, the very image and embodiment of security, peace, and prosperity.

The main part of the city lies on the south side of the Kansas, or the Kaw, as it is more frequently called. The ground rises with a gentle ascent from the river. The streets running in one direction are named after the several States; those in the other are numbered. The population is variously given at from seven to eight thousand, and is rapidly increasing. Lawrence is a place of considerable commerce, especially with the fine district lying south of it, which is settling up with great rapidity, and through which they are building a railroad. (Of all these I shall speak more particularly in another letter.) Manufacturing of various kinds is prosecuted largely, especially of household furniture, agricultural implements, and woollen goods. I visited the woollen factory in company with Major Smith, son of the Hon. George W. Smith, formerly of Butler, Pa., and was astonished at the excellent variety of goods I saw. I shall show you, when I return, a few small samples which I know you will pronounce equal to anything of the kind made in the United States.

But it is impossible to convey to the mind of one who has never been west of the Missouri an idea of the marvellous beauty of a city set in such natural surroundings. From College Hill you take in a range of miles in extent of which the eye could never weary — such a singular blending of variety without blemish, of intense life, and yet of profound repose.

The history of Lawrence is written, and will never be forgotten. But I cannot forbear to touch upon two or three incidents connected with the Quantrell raid which affected me deeply. John Speer, Esq., editor of the Lawrence *Daily Tribune*, whose father was my neighbor in Armstrong county, and whom I knew well in his boyhood, lost two sons — lads of sixteen and eighteen. One perished in the flames of a store in which he slept; the other escaped from his father's office, and was shot through the body in the street. He fell near a small frame building. An officer ordered the building to be fired. Young Speer begged one of the raiders to draw him away from the building, so that he should not be roasted. He promised to do so, and crossed the street to get a comrade to help him. Two came. One of them, after looking at him attentively for a moment, drew his revolver and shot him through the head. A third son, aged fourteen, saved his life by giving a feigned name. The active part the father had taken in the cause of freedom during the border troubles, rendered him and all

who bore his name objects of special vengeance. Mr. Speer's residence being out of town, he himself escaped.

A gentleman whose name was on the list of the doomed, a bookseller, was called to the door, shot dead, and fell inside of the hall. His wife, a young lady, was called out, and the house fired. She begged hard to be permitted to remove the body of her husband from the burning building, but this was rudely denied. One of the miscreants observed that she had something in her hand. It was her husband's ambrotype, which she had snatched up as she came out. He took it from her, looked at it, and then threw it into the flames.

Nearly two hundred dead bodies strewed the streets, and an almost universal conflagration had laid the town in ruins. No resistance was or could be made. A small military force had been there a few days before, but their commander, in spite of the remonstrances and entreaties of the citizens, sent them away, assuring them that there was no danger. Poor man! he remained himself; but his house was surrounded, and, in a vain attempt to save himself, climbed down into his own well, which was under his roof. His house was fired and he was smothered.

A strange fatality seemed to attend this lamentable affair on all hands. A messenger was coming full speed to apprise the people of the approach of the invaders. His horse stumbled and fell, and he was killed. But for this he would have arrived in time to have had the men of the town organized, and it could have been successfully defended and saved.

I now come to what I believe to be unwritten history. I have it from a gentleman of St. Louis, of great intelligence and probity. Having done their work, the raiders, who were mounted men, rapidly retreated towards the Missouri border. It appears that they divided into two or three parties or squads. A swift messenger bore the tidings of what they had done at Lawrence to the brave and determined leader of a company or band of loyal Missourians. Believing that one of these squads must necessarily cross the Osage river at a certain ford, he posted his men — some under the dark shadow of the opposite bank, and some in a corn-field on a road close by — and awaited their approach. About one o'clock in the morning they heard them coming. The men under the bank lay still until the raiders were nearly across the river; then one simultaneous volley emptied twenty saddles, and dead and wounded were alike swept down the strong current of the Osage. Twelve only cleared the ford, to meet a similar fate at the hands of the men in the corn-field. Not one escaped.

"What was done with the wounded among the twelve?" asked

my informant of the captain of this band, after he had related the incident.

"O, well, I don't know; *they all got into the river somehow.*"

"Oh! if that river could speak, what tales it could tell!" was the passionate exclamation of that truly loyal but terrible man, before he narrated that affair. Such men were made terrible by the stormy scenes in which they lived and moved — scenes begun by border ruffians battling for slavery, and continued by rebels.

I cannot close this notice of Lawrence without some mention of a well-remembered friend of my early life, Judge Smith, formerly of Butler, Pa., and who is well known to many of the readers of the *Gazette*. He was in Kansas during all the border troubles, in which he bore an active and conspicuous part, but rather as a counsellor and guiding mind than as a warrior. Few men labored harder, suffered more, or did more to bring that memorable struggle to a successful and triumphant termination than he. I was glad to meet him and his excellent wife — a Kittanning lady — and I highly enjoyed the hospitality of their beautiful home, where, in quietude and peace, and loved and honored by those by whom they are surrounded, they can rehearse to their stranger friends the struggles, the battles, and the triumphs of bygone days.

LETTER XII. — *Towns in Kansas — Atchison — Kansas City — Wyandotte — Topeka — Waumega — Lecompton — Manhattan.*

St. Louis, July 3, 1867.

I HAVE said that I should only speak of such cities and towns in Kansas as I have visited. I did not visit Atchison, a lively and progressive city of several thousand inhabitants, situated on the west bank of the Missouri, some fifteen miles below St. Joseph, and a like distance above Leavenworth. A railroad running directly west for one hundred miles through a very fine country, starts here and is already finished and in operation for a distance of fifty or sixty miles. A law of Congress grants the company a subsidy in lands and bonds for a distance of one hundred miles; and doubtless the grant will be extended as soon as the road shall be completed that distance. Whether it will be continued on until it reaches the Union Pacific Railway of the Kansas, or that of the Platte, or both, is a question not yet determined. Should it be continued in a southern direction to the first-named road, it will probably reach it at or near Manhattan, 120 miles west of Kansas City. Atchison is connected by rail with St. Joseph.

KANSAS CITY.

Is in Missouri, just across the line dividing that State from Kansas. It is situated on a bluff on the *south* bank of the Missouri, about a mile below the mouth of the Kansas river. At the mouth of the Kansas the Missouri makes a great bend, changing its course from nearly south to almost due east. It is a magnificent site for a city, whether regarded in the light of its immediate location or of its commercial possibilities as a great railroad centre. It is now the western terminus of the Missouri Pacific road, and the eastern terminus of the main line of the Union Pacific, Eastern Division. Soon it will have a branch road to Cameron, on the Hannibal and St. Joseph road. Ere long a branch of the North Missouri Railroad—which begins at St. Louis, crosses the Missouri at St. Charles, and thence runs up through the northern part of the State—will be made to Kansas City. Both these important branch roads are to cross the Missouri at Kansas City on the same bridge.

In addition to all these, Kansas City is to be one of the termini of the great railroad which is soon to be made from several points in Kansas to Galveston on the Gulf of Mexico, which is but little over six hundred miles distant, through one of the most beautiful and fertile regions on the continent. The central stem of this road will reach the Union Pacific at Lawrence; the eastern at Kansas City, and probably the western will terminate at Junction City, at the mouth of the Republican river, three miles beyond Fort Riley. The people of the ambitious little city last named talk as if their branch was a sure thing. That to Lawrence *is* sure, for they are pushing it on vigorously, and expect to have twenty-four miles of it completed and in operation by January next. As for the branch to Kansas City there seems to be no doubt. All these roads run through very rich agricultural lands, and all traverse good coal-fields before they come together at or near the southern border of the State.

Such are the prospective advantages of Kansas City. To what it may grow remains to be seen. Should its future be directed by men of large, liberal and enlightened views, I cannot see how it can fail to become one of the chief cities of this vast and magnificent region. But should its destiny fall into the hands of narrow-minded, greedy and unscrupulous adventurers, and should a rowdy element collect there and give it a bad moral tone, then Leavenworth—which has very nearly equal geographical advantages, and superior local advantages—will maintain its position as the chief city of this important centre. The struggle for the ascendancy between these two cities will

be an interesting one, and will probably conduce to the prosperity and well-being of both.

WYANDOTTE.

This town is situated at the mouth of the Kansas, and is bounded by the Missouri on the east and the Kansas on the south. The location is neither ample nor pretty, and the aspect of the place exhibits neither taste nor thrift on the part of the people. Kansas City is in full view from this place, looking down the Missouri and across the Kansas, just where its waters mingle with those of the greater river.

TOPEKA.

This is the capital of the State. The situation is pretty; and although the city is somewhat straggling, and the streets in bad condition, there are many handsome residences and several good hotels. I was there but a short time, and can only speak of it in general terms. I visited the ground where they are laying the foundations of the capitol. It is to be built of the fine soft magnesian limestone found around Junction City, of which I spoke in a former letter, and will doubtless be a very handsome edifice. To be the seat of the government of a State, however, is in my opinion a very questionable advantage to a city. Topeka is on the south side of the Kansas river, thirty miles west of Lawrence.

WAUMEGA.

This is a prettily situated new town on the railroad, some forty-five miles west of Topeka. I did not stop, but I observed a fine large hotel, and a fair appearance of business. The surrounding country is very good; and as it is settled up, Waumega will grow.

LECOMPTON.

This town of bad political fame is, or was, on the south bank of the Kansas, nearly midway between Lawrence and Topeka. Its record seems to have driven people away from it, and but little of it remains. I was not there.

MANHATTAN.

Leaving Junction City on Monday morning the 17th, I ran down on the train twenty miles, and stopped off at this beautiful little town at the mouth of the Big Blue, intending to remain one day; but I was so much pleased, and found so many objects of interest, that I remained two days.

I had letters which introduced me at once to the social life of the place and to the most generous hospitality, and I had an opportunity

to look more closely into the character of the people generally than of any other town I visited in Kansas. The population is only about one thousand, but there is ample room on their magnificent town site for a hundred thousand.

Manhattan was originally founded by a little colony from Cincinnati, who migrated from that city in a small steamer which they purchased for the purpose. They steamed down the Ohio, up the Mississippi, up the Missouri, and then up the Kansas to the mouth of the Big Blue. That was their destination, and their boat never returned. It was kept for a dwelling-place until provision for the families could be made on shore. But before they left the boat, and before a single dwelling had been erected, the spot for a school-house had been selected, and measures taken for its immediate erection, so that they might have at once a school for their children and a place of worship for all. This was some twelve years ago, and long before the railroad which has brought fresh life and prosperity to their town was even thought of.

Take it all in all, I think Manhattan and its surroundings the most beautiful part of Kansas that I have seen, which is the same as saying that it is the most beautiful portion of this earth's surface upon which my eyes ever rested. The Rev. Alexander Sterrett, of the Presbyterian Church, who, by a mandate which it was not in me to resist, made me his guest, took me in his buggy to the summit of Blue Mont, a conical eminence some two hundred feet high, about a mile from town. Such a combination of the grand and the beautiful — the soft green of the gracefully undulating prairies, the dark rich foliage of the trees which skirted and marked the winding course of three streams, the Kansas, the Blue and the Wild Cat, for miles north and west and east, the beautiful farms with which the broad landscape was dotted all over, with their comfortable-looking and really pretty stone houses, and the bright and quiet-looking town in the valley beneath, with the College on the rising ground in the rear — is rare indeed. Senator Wade, who, with others of the Senatorial party of excursionists, visited this spot, was greatly delighted, and uttered the rather strong remark, that the view from the high mountain where, long ago, the Evil One spread his panorama of temptation before the eyes of the Redeemer, could have been nothing to that.

I have spoken of the intelligence of this community and of their virtues. By their fruits we may know them. The Congregational, Episcopalian, Presbyterian, and Methodist denominations are all represented, and each have a neat house of worship; but the most cordial relations exist among them all. The people are too intelligent to permit differences of this kind to divide them. Of this fact I can

speak from my own observation. I was assured that no better graded free school was to be found in Boston than here, and certainly they have a very ample and well-finished school edifice. But a single place exists in the town where intoxicating drinks are vended, and even that is likely to be closed. Some time ago a man set up a billiard table, but it would not pay, and he went off with it. In fact, idleness, vice, and rowdyism are almost unknown.

There are many good stores in the place, and the principal street has something of a city aspect. Buildings are going up rapidly, nearly all of that beautiful stone of which I spoke in a former letter; and altogether the place appears to be busy and thriving.

There is a fine water-power at Manhattan. Some three miles above, by the road, but more than three times that distance by the course of the stream, there is a considerable fall in the Big Blue — which is a large, clear, and standing river — at the head of which a substantial stone dam has been erected. A race of three miles across the level neck of the peninsula, and down past the base of Blue Mont, will bring the water to the town, and give a fall, as I was informed, of about twenty-four feet — enough to propel a very large amount of machinery. The Kansas itself, I am told, can also be made available for a like purpose. I see no reason why this may not become an important manufacturing town.

LETTER XIII.— *Towns in Kansas — Junction City — Solomon City — Salina — The Neosho Valley — The Seasons in Kansas — A Word to such as may think of Emigrating.*

St. Louis, July 8, 1867.

Of the remaining towns in Kansas which I have seen — Junction City, Solomon City, Salina, and Ellsworth — I have already spoken pretty freely, and need say but little more. They are all ambitious little places, and are all the creatures of this road. Each is the centre of a large and fertile district, with which it will grow.

JUNCTION CITY,

situated as it is at the lower end of the fine valley of the Republican river, and only eighteen or twenty miles from the head of Neosho valley — probably the finest wheat-growing portion of Kansas — with which the people of that town hope ere long to be connected by railroad — has aspirations far beyond those of a mere county seat or the centre of a good agricultural surrounding.

I was much pleased with the spirit of enterprise everywhere mani-

fested in this new and bustling place; yet there was much about it that did not strike me favorably. To have a superabundance of saloons, restaurants and billiard-tables, and not a single finished church edifice or a commodious school-room, is not the way to begin a city. There is a spirited daily paper published here by a Mr. Martin, a Pennsylvanian, a gentleman who is probably doing more for Junction City than any other man in it. Of the peculiar building-stone found here in exhaustless abundance, I have already spoken at length.

SOLOMON CITY.

This new *city* is situated at the confluence of the Solomon river and the Smoky Hill, nearly forty miles west of Junction City. I did not stop at it, and of its prospects I am unable to speak. If it can draw to it the trade of the fine valley of the Solomon, it will be a prosperous place.

SALINA.

This is the place where I was flood-bound for a week, and of which I have already spoken pretty fully. Being the centre and county seat of a large and very fertile county, and near to the salt springs, the gypsum beds, and other deposits of valuable minerals, its steady prosperity is sure.

There are some minor places, and some newly laid-out towns, which it is not necessary in this place to mention. These (spoken of in this and the two preceding letters) are all the towns of any importance in which I have been.

THE NEOSHO VALLEY.

This is the name of what is claimed to be the most fertile valley in Kansas, and, next to that of the Kansas, the most extensive. The Neosho river is a tributary of the Arkansas. It rises on the southern slope of a ridge or swell of no great elevation, a few miles south of the Smoky Hill, about the meridian of Fort Riley, and pursues a southeastern course until it reaches the neighborhood of the flourishing town of Humboldt, one hundred miles south of Lawrence. Thence its course is due south into the Indian territory and to the Arkansas. Its length in the State of Kansas is not much less than two hundred miles. The valley is wide.

This valley is supposed to be the best wheat land in the United States. Forty bushels to the acre is not unusual. A farmer at Carlisle, in Allen county, raised forty bushels per acre on a field of forty acres. Allen county lies south of Lawrence. Mr. Ice, of Chase county, which lies south of Fort Riley, raised in 1866 eight hundred and twenty bushels of wheat on sixteen acres, being fifty-four and

one-fourth bushels to the acre. Judge Bailey, of the Supreme Court of Kansas, who gave me these facts, attributes the extreme productiveness of that valley to the washings of the immense deposits of gypsum existing on the head-waters of that stream.

Judge Bailey, in speaking of stock, told me that heifers in the southern counties of Kansas almost invariably produce calves at the age of two years, and frequently at a less age. He mentioned one case of his own personal knowledge, where the age of the mother was less than a year and a half. This precocity must greatly facilitate the rearing of cattle in that country.

The town of Humboldt, in Allen county, has a population of over fifteen hundred. It has four church edifices and good schools. It was burned by the rebels in 1862. Emperio is another flourishing town in the Neosho valley, south of Topeka. There are many others.

To show how that country is settling up, it is only necessary to state the fact, which I find in a statement before me, made by official authority, that during the first fifteen days of June, 1867, there were located in the land office at Humboldt 49,320 acres of land.

In these letters I have said more about Kansas than I at first intended, and I have done so because the more I saw of it, and considered it, and the more I mingled with its truly intelligent and generous people, the more I was pleased with it. Perhaps equal to Illinois in fertility, it is far more beautiful and salubrious. In no part that I have seen is the idea of monotony even suggested. But it has its drawbacks. Wood is scarce, and its short winters — confined to January, February and part of March — are often sharp and severe, with high winds. Water is abundant and good, whether in streams, or springs, or wells. I drank none in that State that was not sweet and wholesome. There is rain enough. From Leavenworth to Fort Harker I talked with the people about this, and the unvarying testimony was, that there had been no lack of rain since 1860, which was a very dry year. And, contrary as it may seem to the common impression, the drought of that year was less severe at Salina and Fort Harker than in the more eastern portions of the State.

The seasons in Kansas are peculiar. The winters are dry. In the latter part of March the rainy season begins, and continues into June. After that there is but little rain until the following spring. The rain falls in heavy showers. I witnessed some such as I never saw in the Eastern States. A *rainy day* is a thing unknown in Kansas, or what we call a "drizzle." After a shower the ground dries up directly. The latter part of summer is almost uniformly clear and dry, and the rays of the sun pour down through the clear atmosphere with great

intensity; but the heat is mitigated by an almost constant breeze. The fall months, to the last of December, are dry and pleasant. I was at Fort Riley last November, and found the weather bright, and quite warm and clear, and the roads dusty.

Any man who may think of going to Kansas as a farmer, must bear in mind that he needs a good deal more than a tract of land to begin with. He cannot here improvise a dwelling in a day or two, as the first settlers of the "back-woods" did, and many things which could there be obtained easily and at his door, are not to be had here. He had better take at least a part of his house with him, and as much money as will enable him to fence and break up at least one good field. Arrange to have fruit-trees sent on as soon as the ground can be prepared for their reception. Never mind agricultural implements, for they can be obtained there cheaper and better than they can be brought from the east. Plant trees quickly and plenty of them, for fruit, for shade from the sun and shelter from the winds, and for beauty. I only saw one farm in the Kansas valley that I thought had trees enough, and it was very beautiful.

It is wonderful how vigorously, beautifully and rapidly trees grow in that country. They really look as if they themselves rejoiced in their fulness of life, and in the poetic language of the prophet, they would "clap their hands." I think I am more of a cold utilitarian than an enthusiast; but truly those Kansas trees awakened emotions that bordered on enthusiasm.

I know of no situation where a man, who should go out without proper provision and forecast, and set himself down upon one of those broad prairies, would feel so utterly destitute, helpless and forlorn. But let him ascertain what he has to do, and prepare himself to do it, and there is probably no place on this earth where, in so short a time, he can have a valuable and productive farm and a most desirable home.

LETTER XIV.—*Education in Kansas — The Free School System — State Normal School — Peculiar Mode of Teaching — State Agricultural College — University of Kansas — Equality and Commingling of the Sexes in the higher Schools.*

ALLEGHENY CITY, July 16, 1867.

FREE SCHOOL SYSTEM.

AMONGST a people so intelligent and progressive as those of Kansas, I was prepared to find that the cause of popular education was re-

ceiving, both from the State and the people, that care and attention which it so justly merits. To show how it is progressing, as well as to show to what proportions the Free School system has already grown, I compile the following table from the Sixth Annual Report of the Superintendent of Public Institutions. By it, at a glance, the reader may note the progress made in a single year: —

	1865.	1866.	Increase.
Number of Districts	721	871	150
Number of Teachers . . .	899	1,086	89
Number of Scholars enrolled . .	26,341	31,258	4,917
Teachers' Salaries	$86,898	115,924	$29,026
Value of School-Houses . . .	122,822	318,897	196,075
Assessed in Districts for School Purposes,	106,589	192,620	86,031

In addition to these there are 83 Select Schools, with 113 teachers and 3,228 scholars; three Academies and Institutes, nine Colleges and Universities, numbering 39 Professors and Teachers, and 958 students. Two of these are Commercial Colleges. All of these are private or denominational institutions which have received no aid from either the State or the National Government.

Still additional to these are three higher State institutions, viz., The State Normal School at Emporia, in Lyon county, about sixty miles southwest of Lawrence, with three Professors; the State Agricultural College, with five Professors, situate on a beautiful eminence overlooking Manhattan; and the State University at Lawrence, which went into operation in September 1866. Of these three last-mentioned institutions I am able to speak somewhat more particularly.

STATE NORMAL SCHOOL.

The primary object of this school is the education of teachers. It had been in operation about two years when the report of 1866, now before me, was made. It is one of the most cherished and highly valued institutions in the State. "Not merely to learn the lessons of the day, but to learn *how to teach it to others*, is the object definitely aimed at," say the visitors in their report. Of the system or plan of teaching in that school the report gives so clear and graphic an account that I know not how I can interest the reader more than by copying an entire paragraph: —

"One of the most noticeable points was the rigid persistence with which the topical system of recitation was enforced. The old stereotyped system of "questions and answers" was utterly discarded. Topics, oftener than otherwise consisting of a single word, were assigned to the pupils, and each, without the slightest reference to text-

books or memoranda, was required to rise and develop it in his own language, and in proper consecutive order, with constant and copious blackboard illustrations. Thus the topic assigned to a pupil might be "The Andes." He was required to sketch upon the board a complete map of that system of mountains, with all their important ramifications — the valleys, plateaux, and lakes they enclose, and the rivers flowing from them; to describe the height of all the different chains and principal peaks; to give the local names, latitude and longitude, altitude, climate and special characteristics of all the different points of the map. When all this has been done, the topography of the region in question is fixed in bold and indelible relief upon the mind of the pupil. In like manner the pupils in Physical Geography were required to illustrate and describe the ocean currents, the winds, volcanic and tidal action. Those in history, to draw maps of important historic regions and battle-fields. Those in Geology, to draw sections of strata and sketches of fossils. In Grammar, Crosby's novel method of written analysis was used. Witnessing one recitation in arithmetic would certainly excite in the most inveterate old fogy a supreme disgust at the aimless and worthless "ciphering" of our District Schools. In reading, the difference was, if possible, still more striking. In the elementary class the phonetic analysis of sounds was taught, accompanied by remarkably neat and tasteful phonetic printing of entire lessons upon the board. The result of this is, that normal graduates will understand the pronunciation of English words! The utmost deliberation, distinctness and volume of utterance was demanded. In the more advanced class the *graces* of elocution were taught, with a somewhat extended study of distinguished authors. In vocal music, all the pupils were required to thoroughly master the rules of musical notation by a drill as rigid as any other study, and the class singing was strong, harmonious, and spirited. A noteworthy feature was found in the general teaching exercises. Under Prof. Kellogg's direction the entire school performed astonishingly with rapid combinations of numbers; and Prof. Norton discussed and elucidated the important political and scientific news of the day."

A new, handsome, and commodious edifice has just been erected for this school, and a boarding-house of stone, large enough to accommodate fifty boarders.

KANSAS STATE AGRICULTURAL COLLEGE.

This is the only institution of learning I visited while in the State. As before stated, it is near Manhattan, and from its windows, and more especially from its lofty cupola, the view all around for miles is exceedingly beautiful and varied. The institution is in a flourishing condition. I witnessed the recitation of several classes; and if there were fewer novelties in the mode than are described above, the instruction was none the less thorough. I was both surprised and pleased at the readiness with which the students appeared to grasp the subject-matter of the lessons in hand.

In this College, Agriculture is taught as a science and by practical operations. A lot of eighty acres of excellent land has been enclosed with a handsome stone fence, and a beginning made both in agriculture and horticulture. In time this will be very beautiful as well as useful. It is not, however, what is called a manual labor institution. An agriculturist is to be engaged, under whose supervision the operations of this department will be carried on. To the President, Rev. J. Denison, D.D., and Professor B. F. Mudge, from whose report as State Geologist I drew largely in speaking of the mineral resources of Kansas, I am under many obligations for hospitality and kind attentions while at their beautiful place.

President Denison, in his report, makes a few general remarks upon the progress of Kansas, which I take the liberty to copy as exactly pertinent to my object in making these brief notices:

"We already have a number of students from the counties west of this point. The pulsations through the great artery of travel to the Rocky Mountains and Santa Fé are already felt in the rapid increase of settlers in these counties. The cars of the Union Pacific Railway, E. D., will run to Salina, seventy miles west of this, by next spring, and soon to the western limit of the State. The benefits of this thoroughfare of travel to the State are almost incalculable; its cost to the State is very little. So much the more, then, can the State afford to apply a portion of its increasing means to the development of its institutions of learning. To the myriads of settlers that are coming on this thoroughfare, and those pouring into its northern and southern borders, the State cannot afford to refuse the means of education, or be slow or parsimonious in providing the means for them."

This college is less than twenty miles this side of Fort Riley. By act of Congress it has an endowment of ninety thousand acres of land.

UNIVERSITY OF KANSAS.

This is a new institution, the first session having opened September 12, 1866. It has an endowment of forty-six thousand acres. The College edifice, which stands on a commanding eminence overlooking the city of Lawrence, is a handsome stone building. I regretted that I did not reach Lawrence on my return trip until the day after the commencement exercises had closed; but the citizens spoke in glowing terms of the manner in which the Faculty had discharged their duties and led their students forward in sound learning. This institution places both sexes, so far as education is concerned, on an equality. On this point President Rice, in his report, remarks: "This, without doubt, is both just and expedient. It is no small honor that the Mediterranean State should be the first to recognize the rights of woman in her educational system."

The same is true, I believe, of the Normal School, as I know it is of the Agricultural College at Manhattan. There I saw young men and young women reciting together in the same classes, and certainly there appeared to be quite as much vigor of apprehension and understanding on the part of the latter as of the former. Towards each other their deportment was that of well-trained brothers and sisters in the home circle. Kansas is sufficiently civilized to mingle the sexes in the higher schools without danger of folly or impropriety.

LETTER XV.—*Return of the Pond Creek Party—The line to Denver—Pine, Timber, and Coal—The Mountain Snows must be avoided—The Route and Distance to New Mexico—Superiority of the more Southern Route—Surveying Party.*

ST. LOUIS, June 29, 1867.

THE gentlemen who went on to Pond Creek from Fort Harker have returned safe and well. John D. Perry, Esq., the President of the Company, accompanied them. They all speak in glowing terms of the interest of the trip and of the beauty of the country through which they passed. The savages did not molest them. Gen. Hancock, with a small military force, as I said before, accompanied them up. The return trip was made in stage-coaches.

Pond Creek is within eight or ten miles of the western boundary of the State of Kansas; yet for the entire distance from Fort Harker to that place the prairies are clothed with luxuriant grass, and the soil is rich and deep. Timber is scarce, but there seems to be no lack of water. The soil is better than that I have already described between Salina and Fort Harker, a deep brown sandy loam, well adapted to the culture of both corn and wheat. All these gentlemen concur in representing the country beyond Fort Harker as still better than that over which we passed on this side of that point. They speak of the prairies of the Buffalo grass region as exceedingly beautiful and picturesque, and that the country is sure to settle up as fast as the railroad progresses.

At Fort Wallace the excursionists organized a meeting for the purpose of giving expression to the effect which all that they had seen and experienced had upon their minds. The resolutions adopted strongly and earnestly commend this great enterprise to the favorable consideration of Congress and the country, and urged its immediate prosecution.

Pond Creek (Fort Wallace) is an important point on this line; for there or in that vicinity it is that the line to New Mexico leaves the

line to Denver. The distance from Pond Creek to Denver is 187 miles; to Santa Fé, by the stage road, it is 402 miles. Both lines pass over good ground for railroad purposes, and through regions well adapted to the rearing of stock. I am told that the plains of Colorado are not adapted to agriculture, except where irrigation is feasible; but as it is not very long since we were told that this whole region, through a considerable portion of which our party travelled with great delight, was an uninhabitable desert, this story about the indispensableness of irrigation may be of the same kind. For more than four hundred miles west of the Missouri river, as we can testify, no irrigation is needed. On the route to Denver, the line of the road will pass through extensive tracts of excellent pine timber, and over inexhaustible mines of coal.

THE MOUNTAIN SNOWS.

Everything on this side of Denver is very good. There is neither desert nor difficulty of any kind, but what lies beyond Denver causes prudent men to pause and consider. *It seems now to be a settled point that the Union Pacific Railway, Eastern Division, will be carried through New Mexico and Arizona to its ultimate and original destination*, and not through the stupendous system or labyrinth of mountains, which begins at Denver, and ends only on the banks of the Sacramento. Into the natural gorges of these mountains, and into the deep artificial cuts required for a railroad, the light, dry snows of that region will drift in such quantities as to defy all human skill and power to keep them clear. Even as late as the first of the present month, as I have been informed, some of the passes through the mountains, between the heads of the Platte and the valley of Utah, were still covered with from ten to twenty feet of snow — not snow which had fallen upon them, but which had been driven in by the winds, and over which men and teams were passing as upon solid ground. But locomotives and trains cannot run upon the top of snow-drifts, and where they are so enormous, it is certain that they cannot run through them. It is equally certain that those long, deep, narrow natural gorges or artificial cuts cannot be kept clear by any muscular or mechanical force that can be employed for that purpose, for if cleared to-day, they may be filled again to-morrow. To travel through such a region in the winter season — and the winter in those mountains is nearly half the year — would be attended with such frightful peril thet few would have the hardihood to brave it; for imagine a passenger train caught in a snow-drift, far from any human habitation, and buried, perchance, in a few hours, under a snow-bank in which even the train itself would soon cease to be a distinguishable object.

Some propose to put the road under roof in all such places; but this is easier talked about than done. Moreover, the advocates of that expedient appear to forget that *fire* is an adversary still more formidable and uncontrollable than snow. It may suit the temper of some high-spirited and energetic gentlemen to expunge the word *impossible* from their vocabulary, and, having a mighty government at their back, to imagine themselves to be omnipotent; but prudent men, such as those who manage the Eastern Division, hesitate to rush blindly into difficulties with which neither they nor any other men are able to grapple.

They have, however, that which their energetic rivals of the Platte line have not—an admirable alternative. They can drop to a more southern latitude, where there are no snows to obstruct them, and no stupendous heights to scale. This southern deflection of the line begins at or near Pond Creek.

THE ROUTE TO NEW MEXICO.

The following information of the country between Pond Creek and Santa Fé I have from W. S. Stone, Esq., agent of the Santa Fé Stage Company:

	Miles.
From Pond Creek to Fort Lyon on the Arkansas river, about 500 miles west of the State of Arkansas—a good buffalo grass region, rolling prairies, estimated,	65
Thence up the valley of the Purgatoire to Trinidad, the base of the mountains—an excellent agricultural valley; the uplands rolling prairies, fertile, and covered with buffalo grass,	126
Thence to summit of Raton Pass,	15
Thence to Red river,	14
Thence to Santa Fé, through numerous valleys and several Mexican towns, some of considerable size,	182
	402

This is the stage road. It is very probable that the railroad line will run a few miles east and south of Santa Fé to Albuquerque, via Fort Union, on the Rio Grande, at the eastern base of the Raton Mountain, and thus avoid some mountains, and keep in a better country. Fort Union is the largest distributing post for military stores in the West. The country all the way from Pond Creek to Albuquerque is probably the finest grazing region in the United States; but it is a region utterly valueless until opened and made accessible by railroad communication. But when it shall be so developed, it will become a

source of immense national wealth and prosperity. Throughout the greater part of that immense pastoral region, cattle require no stored food in the winter season, for the grass of the prairies, whether green or dry, is always good and nutritious.

The recent discovery of rich gold placers in New Mexico adds greatly to the importance of this road. In fact, it seems that from the point where the mountains are first reached, on the western border of the vast buffalo-grass plains, to the shores of the Pacific, the line of this road will run through one continuous field of the precious metals, besides much timber and coal.

Leaving Albuquerque, the line through the heart of Arizona—that richest of our territories in gold and silver, but the most difficult to reach—presents no serious difficulties. Long valleys, running in the right direction, bear it onwards towards the border of California, whence, turning the southern extremity of the great Sierra Nevada range, it passes up through Southern California, midway between the mountains and the ocean, to San Francisco, touching the fine port of San Diego by a branch, and the head of the Gulf of California, and the port of Guaymas, if need be, by others.

This route may be somewhat longer than that through Utah and Nevada, but its gradients will be so much less that it will more than compensate for this lengthening of the line. For all purposes for which a railroad is desired to be shorter, to wit, greater speed and economy of transportation, it is believed that this is really the shorter line. But whether it is longer in miles than the other is not yet known; for the length of line necessary to wind through the labyrinthine mountains of Utah is yet an unknown quantity. Be that as it may, it is certain that its grades will be lighter, that it can never be obstructed by snow, and that the country it will open up and develop, whether agricultural, or pastoral, or mineral, is tenfold more valuable.

A party of gentlemen of scientific ability, about eighty in number, headed by General W. W. Wright, chief engineer, and comprising, among others, Dr. John Leconte, of the Smithsonian Institute, as geologist, Dr. Perry, who was engaged in the survey of the line between the United States and Mexico, with eminent topographers and photographers, are now engaged in a careful examination, survey, and development of this route. The party is out under the auspices and employ of this company. Other surveying parties of equal ability are now engaged in locating the road between Pond Creek and Denver.

LETTER XVI.— *General Subject of Routes discussed — Description of the Valley of the Platte — The Region between the Heads of the Platte and the Sierra Nevada — The great Utility of both Roads — The Route beyond Kansas — Fertility of the Country on the Arkansas and Purgatoire Rivers — Immense Deposits of Coal — Pine Timber — New Mexico, its Minerals, and other Resources.*

ALLEGHENY CITY, July 12, 1867.

GENERAL SUBJECT OF ROUTES DISCUSSED.

IN a former letter I stated the fact that the Union Pacific Railway Company, Eastern Division, had resolved to carry the main line of their road to the Pacific, not directly across the Rocky Mountains, through Utah and Nevada, and over the Alpine heights of the Sierra Nevada range, but by a more southwestern route through the southeastern part of Colorado, east of the Rocky Mountains; thence through New Mexico and Arizona, to the southeastern border of California, and thence, through the great valley of Southern California, to San Francisco.

This important change of route will be attended by many and great advantages, the chief of which, probably, is, that the tremendous snowdrifts of the route directly through the mountains will be avoided. Another is, that the more southern route is level compared with the other. On the line of the Central Pacific Railroad, running from Sacramento to Salt Lake, the Sierra Nevada Mountain summit is seven thousand feet above the level of the sea, which is one thousand feet greater elevation than any other railroad summit in the world; and the Rocky Mountains cannot be surmounted by any pass between the Rio Grande and the heads of the Missouri at much, if any, less altitude. On the other hand, on the line through New Mexico, Arizona and Southern California, there are no formidable mountain barriers; and where the elevation is considerable, as in the pass of the Sierra Madre, west of the Rio Grande, there is no snow. The Sierra Nevada, on that more southern route, has sunk down almost to a plain, and up through the magnificent valley of Southern California, celebrated for its extraordinary productiveness, there is no difficulty, neither is there any difficulty between the Sierra Madre range and the Colorado river, which space embraces the entire breadth, from east to west, of the territory of Arizona.

The country through which this more southern route runs is all valuable — very much is rich in soil, and still more, especially in Arizona, is rich in minerals of almost every kind. It is a region of vast

and varied productions, but one which never can be properly developed until a great line of railway shall connect it with the States on and east of the Mississippi, and with the cities of the Pacific coast. But when so connected and made easily and quickly accessible, will give an impulse to our national prosperity beyond anything known in our past experience.

I have no inclination to depreciate the grand and unexampled enterprise of our California brethren in pushing a railroad from Sacramento across the Sierra Nevada range, into the rich mining State of Nevada. Their energy demonstrates that, although in choice of routes they may find it necessary to traverse the dreary and serpentine valley of the Humboldt to reach the region of Salt Lake, the great work will still go on, conferring immense material benefits, and generously rewarding them for their outlay. Nor am I at all inclined to underrate the other great work of making a road from Omaha, up the valley of the Platte, and over the Rocky Mountain range, to the great valley of Utah; for this, too, will be a road the value of which it would be difficult to estimate; as over it Southern Dacotah, Idaho and Utah, at least, can be reached. But as to the value of the country over which these two divisions of one great line will pass, as compared with that of the "Eastern Division" through Kansas, Colorado, New Mexico and Arizona, there is an incalculable difference.

Alexander K. McClure, Esq., editor of the Chambersburg *Repository*, who went up the U. P. Railroad of the Platte in May last, thus describes the valley of that river:

"There are but few settlers on the line of the road; and after we enter what is called the Platte Plains, about Fort Kearney, there seems to be little that can ever invite the husbandman. The valley or vast plain is bounded on every side by vast bluffs, ranging from twenty to thirty miles apart, and the bluffs seem to be terribly sterile and repulsive. The Platte river rolls lazily along south of the railroad, hugging the southern bluffs at times, and again striking out near the centre of the valley; but it tires the eye to look at it and its surroundings. It is a murky, shallow, treacherous stream, with shifting sand for its bed, and naked banks skirting it most of the way. I have looked for miles along its banks without seeing so much as a shrub, much less a tree; but at times, where it nears the bluffs, it puts out along its banks a stunted, miserable growth of cottonwood. . . . . The valley is a miserable waste, and I fear ever must be. . . . . I have not found a single stream in it but the Platte river — the whole plain thus far, north of the river, not furnishing a single tributary. . . . . There is not a habitation on the route for nearly two hundred miles, but such as are necessary to accommodate the railroad and travel."

An intelligent gentleman of close and accurate powers of observation, who, in the summer of 1859, travelled leisurely across the continent to California, furnished the author with an extended and minutely graphic description of the country over which he travelled — to wit, the valley of the Platte, the mountains north of Denver, the basin of Utah north of Salt Lake, the valley of the Humboldt, and thence to the Sierra Nevada — very nearly the route of the Union Pacific Railway of the Platte, and that of the Central Pacific Railroad from Sacramento to Salt Lake. Upon reaching the eastern base of the Sierra Nevada range, under the head of "General Remarks upon the region traversed," he said:

"The country passed over from Fort Laramie to this place is good for nothing, unless I except Bear River Valley; and that is said to be too cold for agricultural purposes. Certainly it is good for nothing else. With the exception of that about Bear River, the land is generally poor and rocky. The low bottoms on the head of the Humboldt are rich; but there we had ice before the middle of August; and from that down it is too dry, even if it would otherwise do. Then there is no timber, except a little on the main range of the Rocky Mountains, till we come to Bear River, and none from that, except a few scrubby cedars, until we come to the Sierra Nevada mountains. The Indians live on it, but how no one knows. And then nine-tenths of this extensive region are mountains. I do not believe that it will ever be anything but what it now is."

It is manifest that a road through such a region must be mainly dependent upon its through business for its revenue. Yet the enterprise is a good one; for by no other can the Black Hill country, Southern Dacotah, the great Salt Lake valley, and the head of Lewis river, which runs through the best part of Idaho, be reached. But whether it is destined ever to be a safe and reliable route to California remains to be seen. How its managers are to cope with the tremendous difficulties, topographical and climatic, towards which they are driving with unprecedented speed, and with a boldness which, in the eyes of ordinary men, borders on recklessness, is a question not yet solved.

Since the managers of the Union Pacific Railway of the Kansas, with a forecast eminently wise and prudent, have resolved to seek the shores of the Pacific by a more southern line, strictly speaking, there is no longer any rivalry or competition between these two great national enterprises. Each will develop the region through which it passes, be its natural value what it may; and both may reach the bay of San Francisco, one approaching it from the northeast, through Northern California, the other from the southeast, through Southern

California. The one will render Utah and Nevada accessible, and probably be the means of rooting out the social abominations existing in the former territory; the other will bring the beautiful plains and valleys, and the innumerable mines of gold, silver and copper of the more southern range of States and territories within easy reach of the great body of the American people. And whatever may be the amount and value of the through trade of the latter, whether more or less, its way business cannot fail to be enormous. Although but little more than halfway through Kansas, it is already profitable, as I have heretofore shown, both to the Government and the Company; and I now intend to show that there is not likely to be a section of a hundred miles on the entire route but will contribute handsomely in some shape to its revenue and support. I now propose to speak more particularly of

THE ROUTE BEYOND KANSAS.

Pond Creek, the point to which a number of the gentlemen of our party extended their excursion, is two hundred miles west of Fort Harker, up the valley of the Smoky Hill, and four hundred and twenty-five miles west of the Missouri river at Kansas City. It is one hundred and eighty-seven miles southeast of Denver, and four hundred and two miles northeast of Santa Fé. It is to this point that the Government subsidy of bonds to this road, granted by Act of Congress, extends. It is within some six or eight miles of the eastern line of Colorado, and a little nearer to the southern line of Kansas than the place of beginning.

Of the country through which the road passes in the State of Kansas, I have already spoken so fully that I need not advert to it here. At Pond Creek, or somewhere in that vicinity, the southwestern line leaves the line to Denver — now being located (*and which is by no means abandoned*) — and passes over a rolling buffalo-grass prairie "divide" to Fort Lyon, on the Arkansas, a distance of about sixty-five miles. An extensive district of very good agricultural land lies around Fort Lyon. Leaving Fort Lyon, the line follows the valley of the Purgatoire* river, in a southwest direction, over one hundred and twenty miles — still through a buffalo-grass region — to the eastern base of the Raton mountain, which is covered with a heavy growth of valuable timber, and abounds in coal of superior quality, some of the veins being from eleven to thirteen feet in thickness.†

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* This name is generally, but incorrectly, written *Purgatory* on our maps. Out on the plains some of our fellows have corrupted it into "*Picket-wire.*"

† Since my return home I received a letter from a gentleman in St. Louis, stating that Mr. Sanderson, proprietor of the Santa Fé stages, had brought to that city some

[While compiling these letters for publication in this form, I saw a letter from a gentleman of great energy and intelligence, with whom I am well acquainted, and who is exploring that country. He writes:

"This part of Colorado is said to be the richest and best in the whole territory; and with its splendid climate, tempered in the summer by the mountain breezes, and so mild in winter, that such snow as falls does not lie more than two or three days, its pure, dry atmosphere — these valleys being a mile above tide — together with the views of the Spanish Peak, Greenhorn Mountain, and the main range of the Rocky Mountains, which are constantly visible, I honestly believe that, when made accessible by the railroad, it will be the great sanitarian of the United States."

In another place he says: "The country I passed through yesterday, at the foot of the Raton Mountains, and in the valleys of numerous creeks which empty into the Purgatoire, is very rich and beautiful, and contains numerous ranches. It resembles the best part of East Tennessee, is exceedingly healthy, and well protected from the extreme rigors of winter, so that animals do not require to be sheltered."

Again he says: — "The pine timber a few miles west of Trinidad, on the Purgatoire, and extending up that mountain country, is represented as exceedingly large and abundant. Mr. Bransford thinks that Eastern Kansas will rely for its supply of lumber upon this country as soon as the railroad is built." He fully confirms all I have stated as to the abundance of coal in that country.]

Skirting the eastern base of this mountain for over one hundred miles — the mountain being on the right and the vast and fertile plains of northwestern Texas on the left — passing Fort Union, the great distributing depot for government supplies for all the Southwest — the line turns more to the west, and reaches the Rio Grande at the town of Albuquerque, seventy-five miles southwest of Santa Fé.

NEW MEXICO.

Near the head of Purgatoire River the line enters the territory of New Mexico, after having run about two hundred miles diagonally across the southeast corner of Colorado — the most fertile portion of that territory, and in which, as already stated, there are extensive deposits of coal and forests of pine timber. New Mexico has an area

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specimens of excellent bituminous coal, which he took from veins of from eleven to thirteen feet in thickness, which crop out of the slope of the Raton mountain, 170 miles southwest of Pond Creek, on the natural route of the Union Pacific Railway of the Kansas. It is hardly possible to estimate the value of such a coal mine in such a locality.

of 121,201 square miles, nearly two-thirds of which lie east of the Rio Grande, which bisects the territory the entire distance from North to South. The northwestern quarter of New Mexico is among the most rugged and mountainous regions on the continent, but rich in minerals. The entire eastern portion is comparatively level, being the most western portion of the great fertile plains which slope towards the Mississippi and the Gulf, and are drained by the more southern tributaries of the Arkansas, the Red River and some of the larger streams of western Texas. The southern half, from Albuquerque to the southern boundary, is a country of diversified aspect, made up of hills and valleys. The valleys are exceedingly fertile and peculiarly adapted to the culture of the vine. Mr. Hall, in his valuable work, "Guide to the Great West," remarks:

"The valleys and slopes in the eastern section consist generally of very productive land, the soil in this part being adapted to the culture of sugar." Again he says: "Cotton of good quality is grown in the southern part of the Territory; and the wine of the region, from Scorro, or even from Albuquerque, to the Texas line at Franklin, or the Mexican line at El Paso, is celebrated for its fine quality. Peaches are excellent and abundant in the southern part of the Territory."

There is probably no portion of North America so well adapted to the rearing of sheep as New Mexico. Already millions are found there; and were there a communication by rail, their numbers could be indefinitely increased. While out beyond Fort Riley I saw many Mexican wagons, with large bodies, loaded with wool, not in sacks, but in bulk. These wagons were unloaded into warehouses at the railroad stations, just as hay is thrown loose into a barn and tramped down. I examined some of this wool and found it to be of very good quality. As it requires at least two months for one of these wagon trains—each wagon drawn by four yoke of oxen and attended by two men—to make the trip from Santa Fé to Junction City, the expense of carrying this wool cannot be less than one hundred and fifty dollars per ton. With heavier return loads, and more ascending grade, it takes three months for the Santa Fé trains to make the return trips.

But, after all, the great value of New Mexico is in its mineral treasures, gold, silver and copper. Discoveries of rich mines of gold have recently been reported, but the information is yet too vague to warrant more than a general mention of the fact. Bituminous coal exists in great abundance on the eastern slopes; and near the Old Placer gold mine, about twenty-seven miles southeast of Santa Fé, and but a few miles from the contemplated route of this road, ANTHRACITE COAL has been found. Of this Mr. Hall says:

"The coal bed at the Placer Diggings is very accessible and easily worked, measuring from four feet eight inches to four feet ten inches in thickness, and is generally very free from earthy or other impurities. It seems to be a true Anthracite, not semi-bituminous, but as destitute of bitumen as the Pennsylvania variety."

Crossing the Rio Grande at Albuquerque, the line of the road pursues a western course over the Sierra Madre, (or, as some maps have it, the Sierra de los Mimbres,) and enters Arizona about midway between the northern and southern boundaries of the Territory. But of that important Territory—containing, probably, more mines of gold, silver and copper than any other portion of our national domain of equal extent—I propose to speak in my next letter.

LETTER XVII.—*Arizona — California.*

ALLEGHENY CITY, July 31, 1867.

ARIZONA.

THIS large Territory, the area of which is 120,912 square miles, is bounded on the north by Utah, on the east by New Mexico, on the west by California, and on the south by Sonora, one of the most valuable of the States of Mexico. Its northern line is on the same parallel as the southern line of Kansas, 37 degrees; its southwestern corner, on the Colorado river at Fort Yuma, about forty miles above tide, is in latitude 32 degrees 30 minutes.

From the Rio Grande at Albuquerque, where it is intended that this road shall cross that river, to the eastern boundary of Arizona in latitude 35 degrees, the distance is about 120 miles. From the river to the summit of the Sierra Madre range is about ninety miles, up which the ascent is said to be gentle. On the western side the country descends, first to the table-lands of Central Arizona, and thence to Colorado and the Gulf of California, a distance of four to five hundred miles.

Entering Arizona a little north of the middle of the eastern boundary, the route runs directly through the midst of the Territory, passing by the town of Prescott, the capital, thence in the same general direction, down the valley of Williams river to its mouth in latitude thirty-four degrees thirty minutes. To this point the Colorado affords good steamboat navigation at nearly all seasons from the head of the Gulf of California.

Between the point where the route enters the Territory to the town of Prescott, a distance of about 150 miles, the country has a considerable elevation, is well watered, and has a healthy and delicious

climate. This is the region spoken of by Hon. Richard McCormick, Secretary of the Territory, in the following extracts from a valuable paper which he prepared for Hall's "Guide to the Great West:"

"Yavapai county embraces a part of Arizona as yet unknown to map-makers, and in which the Territorial officers arrived hard upon the heels of the first white inhabitants. Until 1863, saving for a short distance above the Gila, it was, even to the daring trapper and the adventurous gold-seeker, a *terra incognita*, although one of the richest mineral, agricultural, grazing, and timber divisions of the Territory, and abundantly supplied with game. Yavapai county is nearly as large as the State of New York. The Verde and Salina rivers, tributaries of the Gila, which run (southwardly) through its centre, abound in evidences of a former civilization. Here are the most extensive and impressive ruins to be found in the Territory — relics of cities, aqueducts, *acquias*, and canals, of mining and farming operations, and of other employments indicating an industrious and enterprising people. Mr. Bartlett refers to these ruins as traditionally reported to him, to show the extent of the agricultural population formerly supported here, as well as to furnish an argument to sustain the opinion that this is one of the most desirable positions for an agricultural settlement of any between the Rio Grande and the Colorado. . . . . .

"In timber lands Yavapai county exceeds all others in the Territory. Beginning some miles south of Prescott, and running north of the San Francisco Mountain, is a forest of yellow pine interspersed with oak, sufficient to supply all the timber for building material, for mining, and for fuel that can be required for a large population.

"Prescott, the capital, is in the heart of a mining district second, in my judgment, to none upon the Pacific coast. The surface ores of thirty mines of gold and silver and copper, which I had assayed in San Francisco, were pronounced equal to any surface ores ever tested by the metallurgists, who are among the most skilful and experienced in the city; and so far as ore has been had from a depth, it fully sustains its reputation. The veins are large and boldly defined, and the ores are of varied classes, usually such as to be readily and inexpensively worked, while the facilities for working them are of a superior order. At the ledges is an abundant supply of wood and water; near at hand are grazing and farming lands, and roads may be opened in any direction without great cost. The altitude is so great that the temperature is never oppressively warm; the nights, even in midsummer, are refreshingly cool and bracing."

Such is the district through the midst of which the Union Pacific Railway will run for two-thirds of its way across the Territory of

Arizona—the very kind of country to furnish the largest amount of local trade in proportion to its area and population, as well as to add most rapidly to the general wealth of the nation. Would we pay off our national debt and return to a metallic currency, there is nothing that we can do to bring about those ends so effective as to open a highway into this now remote and almost inaccessible national treasury.

From Prescott to the western boundary of the territory, which is the Colorado river, the line of the road will probably follow the valley of the Williams river, one of the principal tributaries of the Colorado, which has its source a few miles west of that town. Of this river Mr. McCormick says:

"Ascending the Colorado, the first point of interest is Williams' Fork. It is the largest tributary of the Colorado, and has its rise in the interior country almost as far east as Prescott. It is not navigable, but usually has a good body of water. Some of the richest copper mines in the territory are on its banks, and have already been extensively and profitably worked."

Several silver mines are marked on the national maps in the valley of this river. At its mouth is the town of Aubry, said to be in a fine location for a city. This is likely to be the principal city of Arizona. It is a very important point on the line of this road, for here the first navigable water on the Pacific side is reached; and from this point a large trade, both down and up the river, and indeed with the entire Pacific coast, may be established in advance of the road reaching its ultimate destination—San Francisco. The most western steamboat navigation on the Atlantic side of the continent, on this line, is at Kansas City; the most eastern on the Pacific side is at Aubry. But, even after the road shall be completed, Aubry will continue to be an important commercial centre, and pour upon this road from that great river a large amount of business; for the entire country above is surpassingly rich in mines of gold and silver, especially the latter, and the river is navigable for hundreds of miles during part of the year.

It is, I am informed, the opinion of some of our army officers that at Fort Mohave, about half a degree north of Aubry, is a better place for a railroad to cross that river into California. I, however, adhere to the line here indicated until careful surveys west of the river shall determine the question between these two points.

I have thus traced the route of the Union Pacific Railway through the Territory of Arizona, on a line which the company believe to be the most practicable, and the one which will enable them to render accessible the best and richest portion of the great region lying be-

tween the Mississippi and the Pacific coast. While in some measure they run round the tremendous mountain system of the interior of the continent, they bear as close to it as they can. They run but little below the 35th parallel, which is only two degrees south of the southern line of Kansas.

CALIFORNIA.

At Aubry, as before remarked, the line of the road enters the State of California. Thence its course is westward until it turns the southern extremity of the Sierra Nevada range, and thence northwest all the way up the great valley of Southern California, to the Bay of San Francisco, a distance of between four and five hundred miles.

This is known to be one of the finest valleys on the continent. The Sierra Nevada bounds it on the northeast, the Coast Range on the southwest — the mountains, the valley, and the coast all running in parallel lines. The average width of this valley is not much less than one hundred miles; and although it has not yet been twenty years in the possession of people who did anything to develop its resources, and although it is cut off from the ocean by the Coast Range of mountains, and is destitute of any navigable rivers, except for a short distance southeast of the Bay of San Francisco, it is already renowned throughout the world for its extraordinary productiveness — its wheat, its grapes, and many other things. Its only commercial avenues are wagon-roads; yet within a year bread made from wheat which grew in that valley has been on our tables here in Pittsburgh.

Of Southern California as a grape-producing country, Mr. Hittel remarks:

"California vineyards produce ordinarily twice as much as the vineyards of any other grape district, if general report be true. The grape crop never fails as it does in every other country. Vineyards in every other country require more labor, for here the vine is not trained to a stake, but stands alone."

Mr. Hall remarks: "The grape region extends from the southern boundary a distance of 595 miles north, with an average breadth from east to west of about 100 miles." This area extends a considerable distance up the Sacramento river, which flows southward through the same valley, and breaks through the coast range almost directly east of San Francisco.

The large county of Los Angelos, which is the second county that our road reaches after entering the State, is the principal vine-growing district in California. In 1864 it had 3,570,000 vines. A California paper of 1865 mentions a vine growing at Oroville, on the western

slope of the Sierra Nevada, which was planted in 1859, which has grown straight and almost of a uniform size, and measured thirteen inches in circumference for ten feet from the ground. Its yield of fruit that year was estimated at eight hundred pounds.

The quicksilver mines of California extend from Mendocina county, north of San Francisco, along the Coast Range, all the way to the Colorado river, and on the northeastern slope; consequently this road will run near to them for a distance of over four hundred miles. This is an interest the extent and importance of which it is yet impossible to estimate, as these mines have been but imperfectly developed thus far.

Such is the region through which the line of this road will run from Aubry, on the Colorado, to San Francisco. When this great valley shall be occupied — as it soon would be were this road made through it — no part of the route, not even Kansas, would furnish more local business both in freight and passengers.

LETTER XVIII. — *Length of the respective Routes. — Latitude and Longitude of the principal Points.*

ALLEGHENY CITY, August 3, 1867.

LENGTH OF THE RESPECTIVE ROUTES.

THE length of any route for a railroad from the Missouri to San Francisco is not yet known. The best that has been done has been to make proximate estimates. To keep down the gradients of a road through an extensive mountain region to what is required on a railroad, necessarily extends the length greatly beyond that of ordinary wagon roads through the same region. Across plains, such as those which stretch between the Missouri and the mountains, on both the Kansas and the Platte routes, the difference is not much between the wagon road and the railroad.

The enterprising gentlemen who are pushing forward the Union Pacific Railroad of the Platte with a rapidity without example, propose to run directly across the mountain region which begins a little beyond where they now are at work, and ends only on the banks of the Sacramento, while those who, with no less spirit and energy, are urging forward the Union Pacific Railway of the Kansas, propose — and I think very wisely — to bear a little southward, and thus avoid all the formidable mountain ranges. It is certain that by so doing they will greatly reduce their gradients. They will avoid the tremendous snow-drifts of the route through the mountains, and find a far

better and more productive country through which to run. Of that I have already spoken.

But will they lengthen their route from the Missouri to San Francisco by running round this labyrinth of mountains by a single grand detour, rather than by winding round them in detail, as they would have been compelled to do, had they adopted the other alternative? No man can answer that question yet. But if they have made it longer, they have also made it leveler, safer, and certainly more profitable. I know that the impression generally prevails, that this southern route through New Mexico and Arizona will be longer than if it had been run through Utah and Nevada. But, after all, that impression may be erroneous. With much care I have prepared the following table of the latitude and longitude of points on the two routes—that of the Kansas road, and that of the Platte. The points on the Union Pacific Railway of the Kansas are printed in Roman characters; those of the Union Pacific Railroad of the Platte in *Italics*.

Latitude and Longitude of the Principal Points on Both Routes.

	Latitude.	Longitude.	North of San Franc.	South of San Franc.
Kansas City,	39°	94° 35′	1° 15′	——
Omaha,	41° 20′	95° 55′	3° 35′	——
Pond Creek,	38° 50′	101° 50′	1° 5′	——
Platte Station, North Platte,	41° 15′	101°	3° 30′	——
Albuquerque (Rio Grande),	35° 5′	106° 30′	——	2° 40′
Bridger's Pass (Summit of Rocky Mountains),	41° 35′	107°	3° 50′	——
Prescott (Centre of Arizona),	34° 35′	112° 5′	——	3° 10′
Northern End of Salt Lake,	41° 45′	113°	4°	——
Aubry (Colorado River),	34° 20′	114° 10′	——	3° 25′
Northern Bend of Humboldt River,	41° 5′	117° 40′	3° 20′	——
San Francisco,	37° 45′	122° 30′	——	——

It will be observed from this that the Platte road really bears more to the north of the parallel of San Francisco than the Kansas road does to the south of it. And it will also be observed that the point at which the Platte route attains the summit of the Rocky Mountains is twenty-five geographical miles further north of San Francisco than Aubry, the extreme southern deflection of the Kansas route, is south of it. Again, it will be observed that the north bend of the Humboldt river is more than three degrees nearer to the meridian of San Francisco than Aubry, while it is almost as far north as Aubry is south. A careful study of this table will shake the opinion that the southern line must necessarily be longer than the northern, even should the latter not be more tortuous. I do not assert that it is not longer,

because I do not know; but I have laid before the reader *data* from which, with the aid of a good map, he can make calculations for himself.

The Platte road will be completed if it is in human power to do it, for the legislation is complete and the appropriations are made; but even should the difficulties be such that it can never be a *Pacific* road, yet as an avenue to the vast interior region into which it runs — Nebraska, Southern Dakota, Southern Idaho, and Utah — it will be of incalculable value — worth far more than it has cost. Over the other road, however, no such contingencies are pending. There are neither impracticable mountain passes nor uncontrollable snow-drifts. There are no formidable obstacles, either topographical or climatic; and the entire country through which it passes is good. It will open up a country which, when its manifold resources shall be developed — as they soon will be when made accessible — will add to the national wealth immeasurably beyond what it will cost. In fact it will cost the Government nothing, for it will be self-sustaining. It is that already, and its revenues will unquestionably increase in a ratio greater than its onward progress.

LETTER XIX. — *Eastern Connections — Table of Distances.*

ALLEGHENY CITY, August 5, 1867.

As already stated, the main line of the Union Pacific Railway, E. D., begins at Kansas City, which brings it in line and connection with the old Pacific Railroad of Missouri, which begins at St. Louis and terminates at Kansas City, the western boundary of the State of Missouri. So it might with truth be said that the Union Pacific Railway of the Kansas begins at St. Louis. By a branch road from Lawrence to Leavenworth, a little more than thirty miles long, belonging to the same company, the Kansas road has a second terminus on the Missouri, over which the enterprising people of Leavenworth hope to turn the trade of all the roads east of the Mississippi which do not converge upon St. Louis.

But with the rivalry between Leavenworth and Kansas City we have nothing to do. For the present we shall take Kansas City as our initial point.

We have already seen how St. Louis is connected with Kansas City by the old Missouri Pacific, 283 miles in length. In a few months Chicago will have almost as direct a connection with it, by way of the Chicago, Burlington, and Quincy road to Quincy, 265 miles; thence to Cameron, on the Hannibal and St. Joseph road, 170 miles;

thence by the Cameron and Kansas City branch, on which they are now vigorously at work, 55 miles. Total from Chicago to Kansas City, 490 miles.

From Kansas City to the Mississippi river at St. Louis,	283 miles
From Kansas City to the Mississippi river at Quincy,	225 miles
Difference in favor of Quincy, ...	58 miles

At Quincy a bridge across the Mississippi is in progress, which will enable cars to run through from Chicago, or from New York and Boston for that matter, to the farthest extremity of the Union Pacific of the Kansas, for the gauge throughout the entire distance, whether through Pennsylvania or New York, except the New York and Erie and the Great Western, is the same. In a short time a bridge across the Missouri at Kansas City will be built.* So far, therefore, the City of Chicago has the advantage over St. Louis for the trade of the magnificent region through which the Kansas road runs, and that advantage it will retain until a bridge shall be constructed over the Mississippi at St Louis.

Distances from Kansas City to New York through Pennsylvania.

Via St. Louis, Indianapolis, Columbus, Steubenville, Pittsburgh, and Allentown.

	Miles.
Kansas City to St. Louis, ...	283
St. Louis to Indianapolis, ...	262
Indianapolis to Columbus, ...	188
Columbus to Pittsburgh, ...	193
Pittsburgh to New York, via Allentown, ...	431
	1357

Via Cameron, Quincy, Chicago, Pittsburgh, and Allentown.

Kansas City to Cameron, ...	55
Cameron to Quincy, ...	170
Quincy to Chicago, ...	265
Chicago to Pittsburgh, ...	468
Pittsburgh to New York, as above, ...	431
	1389

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* A correspondent of the Philadelphia *Press*, writing from Kansas City, August 21, 1867, states that the corner-stone of the Cameron Railroad bridge across the Missouri at that city was laid that afternoon amid great enthusiasm, and in the presence of 5000 people. He says: "Assurance is given by Mr. Chanuette, the chief engineer, that the structure will be completed in one year. The bridge will be of iron, 1400 feet long, with a draw in the channel of 362 feet. There will be six stone piers, with spans of 250 feet, and a carriage-way as well as a railroad track. This bridge, with the one now building across the Mississippi at Quincy, will give us a through connection, without breaking bulk, with New York and Boston."

Via Cameron, (Hannibal and St. Joseph R. R. to Quincy,) Toledo, Wabash, and Western R. R., Fort Wayne and Pittsburgh R. R., and Penna. R. R., via Allentown to New York.

	Miles.
Kansas City to Cameron,	55
Cameron to Quincy,	170
Quincy to Springfield, Illinois,	114
Springfield to Fort Wayne,	268
Fort Wayne to Pittsburgh,	320
Pittsburgh to New York, as before,	431
	1358

From Kansas City to Philadelphia the foregoing distances are respectively 76 miles less, to wit, 1282, 1313, and 1283.

DISTANCES FROM KANSAS CITY TO NEW YORK, THROUGH THE STATE OF NEW YORK.

Kansas City to Chicago, via Quincy as above,	490
Chicago to Buffalo, via Southern Michigan, &c.,	538
Buffalo to Albany (N. Y. Central),	298
Albany to New York (Hudson River R. R.),	144
	1470

Via Dunkirk and the New York and Erie Railroad.

Kansas City to Chicago,	490
Chicago to Dunkirk (S. Mich. Lake Shore, &c.),	498
Dunkirk to New York,	460
	1448

It will be seen from this at a glance that the Union Pacific Railway of the Kansas accommodates quite as well the trade and travel of the basin of the Great Lakes as of the valley of the Ohio, — that no location on the farther bank of the Missouri could have been more fortunately chosen as the starting-point for a great road across the continent than the mouth of the Kansas river. All the great lines east of the Mississippi can reach it with equal facility and at very nearly equal distances. By two of them — one crossing the Mississippi at St. Louis, the other at Quincy — the difference in distance between Kansas City and New York is but one mile; and the difference between the routes through St. Louis and Chicago, from one of those far distant points to the other, is only thirty-two miles.

LETTER XX. — *Branch Roads — To Galveston from three Points in Kansas — To Denver — Down the Rio Grande into Mexico — To Guaymas — To San Diego — Effect upon Mexico — General Remarks.*

ALLEGHENY CITY, August 6, 1867.

A CAREFUL examination of a good map of North America will convince any one who will make it that so sure as the Union Pacific

Railway of the Kansas — or, as it might be more briefly and definitely designated, *The Kansas Pacific Railway* — shall be completed to its ultimate destination, numerous important branch roads will almost simultaneously be made through many parts of the extensive and magnificent region which stretches all along the southern and south-eastern side of the main line. Three of these branches will reach tide water,—one at Galveston, Texas, on the Gulf of Mexico; one at Guaymas, in Sonora, on the Gulf of California; and one at San Diego, on the main coast of the Pacific ocean, nearly five hundred miles south-east of San Francisco.

I appeal to the map again to show how admirably this main line is calculated to put all of the Eastern, Middle, and Northwestern States of the Union, east of the Missouri, into social and commercial connection with all that rich and productive portion of this continent, along the northern border of which it runs. The trade of a million of square miles can be drawn into it without going much beyond our own borders. But when to this is added the fact that it will reach the Pacific ocean at three several, far separated and important points — Guaymas, San Diego, and San Francisco — it requires no further argument to prove that it will be the greatest thoroughfare in the world.

This is a road that will develop the country through which it and its branches will pass and create its own business. We excursionists saw how it was doing that already in Kansas; and a few days ago, while in Philadelphia, I saw how the officers of the Company there were hurrying forward hundreds of cars and a corresponding number of locomotives, to keep pace with the rapidly increasing trade.

I propose now to notice briefly some of these branches, either actually commenced or in contemplation.

The first is that whereof the main line commences at Lawrence and runs almost directly south through Kansas, through the Indian Territory and through Texas, until it meets the Central Texas road, which runs almost due north from Galveston. The entire distance from Lawrence to Galveston is about six hundred miles, and the route is through a country of unsurpassed fertility and beauty from one end to the other. When I was at Lawrence in June, they were vigorously at work on this road, and expected to have twenty-four miles of it finished and in operation by January, 1868. The people of Kansas City are to have a branch of this road from their town, which will probably unite with the Lawrence branch in the valley of the Neosho, near the southern border of the State. This branch, which also runs through a splendid country, will almost certainly be completed at an early day. Another branch of this road is projected from Junction City southward to the

head of the Neosho valley — which is only about 18 miles distant — and thence down that richest of the Kansas valleys until it meets the main line from Lawrence near the southern border of the State. This, too, will unquestionably be made sooner or later.*

From Pond Creek a branch of the main line will be made to Denver, 187 miles in a northeasterly direction, partly through a buffalo-grass region, and one which presents no difficulties. This branch will run near to the northeast base of Pike's Peak, and for a considerable distance through a region of good coal and pine timber, both of which will be of great value to all that country.

Between Pond Creek and Albuquerque branch roads into the magnificent agricultural and pastoral regions which stretch far away east and south of the main route, will doubtless be made. But of these I cannot speak definitely.

From Albuquerque a branch road down the Rio Grande to El Paso will quickly follow the construction of the main line, as it would traverse a very rich and productive country on our side of the national line, and open a direct avenue into the Mexican State of Chihuahua. It is a fine country, rich in both soil and minerals; and, if wrested from the hands of the fierce Apaches, who now hold possession of a large portion of it, would soon fill up with a far better population than have ever yet occupied it.

From some point in Arizona a branch road from the main line to Guaymas, through the rich mineral State of Sonora, will unquestionably be made at an early day. A connection with the Pacific ocean at that point would be only second in importance to that made at San Francisco. It is unnecessary to enlarge upon it.

A shorter branch road would put this road in connection with Libertad, another port near the head of the Gulf of California, and a still shorter one with the head of the gulf at the mouth of the Colorado river.

The last important branch is that which will run from some point on the main line west of Aubry to San Diego, on the main Pacific coast, but a short distance north of the southern extremity of California. It has an excellent harbor, and with such a connection with the Eastern States of the Union, there is hardly a doubt but that it would soon become an important commercial city. Being so much nearer to the great communities in and east of the Mississippi valley, it would

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* A letter from Kansas City, of August 21, says: "Arrangements relative to work on the Kansas City and Fort Scott road have been brought to a final settlement, insuring the early completion of that road." This is the same enterprise of which I have just spoken.

have many advantages over its more northern rival. San Diego is a little more than five degrees east of San Francisco.

If ever Mexico is to be redeemed from anarchy and misrule, it must be effected through some such agency as this. The conviction is fastening itself upon the public mind that, at an early day, we shall be compelled to exercise a controlling influence in that country; and were our people made to comprehend how quickly and easily that could be done through the instrumentality of this road, by its extension into Mexican territory as proposed, it would give great satisfaction, especially when they reflect that no violence will be required,—nothing which can either humble Mexico or excite the jealousy of other nations,—that the object of their desires can be accomplished in the pursuit of legitimate and mutually beneficial commerce, free from interruption by foreign powers, and exempt from all rivalry except that which would arise among our citizens. For our manufactures, we should be paid in wool, hides, animals and minerals, and after a little time, when labor becomes more settled and secure, we should receive the more valuable products of a tropical growth, and have the satisfaction of impressing upon these people our principles of justice, our system of government, and an enlightened Christian civilization.

Avoiding the malarious belt which stretches along the entire eastern seaboard of Mexico, we can reach the great interior basin and the western coast by a route eminently healthy and salubrious. In this way we may expect the bulk of the commerce of that great basin to be carried on through the United States, and over the system of roads of which this will be the forerunner and main trunk. Many trains, conveying passengers and merchandise, not more than five or six days from St. Louis or Chicago, will daily cross the line of Mexico *en route* for all parts of the interior and the western coast, and south to the regions of the tropics, where cotton, sugar, coffee, and all the tropical fruits are, or may be, with our energy, produced in abundance. Those regions may be reached as easily as San Francisco, and a trade may, and certainly will, be established equally valuable, to be enjoyed by this road without a successful competitor. It would be a great error, if, in the projection of our continental railroad system, we should neglect to construct the main line in the direction so plainly marked out by nature by which this trade may be commanded.

I have thus, with the best lights I could obtain, traced the entire line of this magnificent national road, this world's highway, from the Missouri to the Bay of San Francisco. My aim has been to deal with

facts which have a practical bearing upon the questions of the feasibility and the success of the enterprise, and which will enable the Citizen, the Patriot, the Statesman, and the Christian, to calculate the results which are likely to follow its completion. It has been my desire to give to the political economist data by which to settle the question of profit and loss — the probable revenues of such a road through such a country, and having such *termini*. We know that the ardent Patriot will say, "Make it; for it will be the glory of our country." The Philanthropist will say, "Make it; for it will confer blessings and benefits upon the whole human race." The Christian will say, "Make it; for it is essential to the progress of Christian civilization westward, the only direction in which it has ever successfully travelled; — make it; for it will be a highway for our God." But the Practical Man says, "Make it, *if it will pay;*" and we know very well that all the generous impulses must stand in abeyance until this last practical calculation shall be satisfactorily settled.

LETTER XXI. — *Will it Pay?*

This, after all, is the practical question — the only one, indeed, which the rigid economist or the capitalist cares to ask. To say that, because the enterprise is one of unexampled vastness, magnificence and grandeur, therefore it will be profitable, would be to offer logic which no cool calculator would think of accepting. To say that, because it links two vast oceans together, and with them two hemispheres, therefore it must surely pay, would be to offer an argument equally loose, inconclusive and unsatisfactory. Were we to *prove* that two-thirds of all the tonnage that Western Europe and Eastern Asia exchange would pass over this road, we should still be far from demonstrating that the enterprise would be pecuniarily profitable. Great as would be the revenue arising from this enormous foreign traffic, it would fall far short of what would be necessary to meet the operating expenses and the interest on the cost of a road of such length. Like all other roads, the Union Pacific must be mainly dependent upon its local trade and travel for its revenue. Its foreign business will be very large; but, to be financially successful, its local and home business must be still larger.

I have traced the course of this road from the Missouri to the Bay of San Francisco, and set forth in terms of calm and sober verity, as I believe, the character and resources of the country through which it will run, and respectfully challenge any man who still doubts, to point

out a single section of one hundred miles that is not likely to contribute its share of a revenue sufficient to make this a paying road. One portion will have a large surplus of the products of the soil; another portion, the people of which draw their wealth, not from the soil, but from the mines, will need this surplus. Ores will be sent to fuel and fuel to ores. Thus there will be a large and perpetual exchange between the agricultural and the mineral portions of the route — between the fertile prairies of the East, the coal mines and forests of the first mountain slope, and the gold and silver and copper mines of New Mexico, Arizona and California. There is probably no single line of railroad on the globe the products along the border of which are at once so various and so dissimilar. This peculiarity of the line of road under consideration will lead to an exchange of commodities to an enormous amount, between communities hundreds of miles asunder. The farmer of Kansas will probably find his best market in Arizona.

But we are not left to conjecture and vague generalities as the basis of our estimates. During the month of May, 1867, this road was commercially open to Salina, a distance of 187 miles from Kansas City. The gross earnings for that month were $172,106.28, which amount, divided by 187, gives a business at the rate of eleven thousand dollars per mile per annum. During the same period the net profits were $72,000, or at the rate of $4,567 per mile per annum. The amount of business done for the Government during that month — at rates greatly below what had hitherto been paid for freights by wagon — was a little over fifty-one thousand dollars, one half of which passed to the credit of the Company on its Government bonds, enough to pay the interest on all the bonds of the Company, and leave a surplus sufficient to extinguish the principal ten years before the bonds mature. The remainder of the month's business, amounting to more than $120,000, was principally local trade and travel — so rapidly is the rich valley of the Kansas, through which it passes, filling up with an active and prosperous population.* If such results can be shown in the infancy of the enterprise, surely we may safely calculate upon still richer results as the work progresses, and as the great wave of population which is following it shall swell to larger and larger proportions.

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* The return for the month of June, owing to the flood, fell off some 25 or 30 per cent.; but that for July was larger than that for May, the western commercial terminus being the same. Now the end of the commercial line has been extended to Wilson's Creek, nearly 250 miles beyond Kansas City.

LETTER XXII. — *The March of Empire.*

When Bishop Berkeley penned the oft-quoted line —

"Westward the Star of Empire takes its way,"—

the idea expressed by the phrase was hardly understood. "What is empire?" asks a recent writer, and then he goes on to remark: "We have suffered our understandings to be warped by past and existing abuses on this point, until the word suggests to the mind the overgrown dominions of the Cæsars, or the huge and beastly realm of the Czar. But God himself gave us the true idea of empire when he said, 'Be fruitful, and multiply, and replenish the earth, AND SUBDUE IT.' This is what Bishop Berkeley means by the 'Star of Empire;' and this is what the people of our country are now doing. This is Empire in its true sense — the dominion of Man over Nature, not of man over man."

For ages warriors have striven to hew out empire with the sword, and kings have labored and crushed their people to the dust, in building huge piles, in the vain hope of rendering those empires immortal. Human toil beyond calculation has been expended in erecting things which, when erected, were of less value than the ground upon which they stood, and oceans of blood have been spilt in subduing regions which a little well-directed and beneficent enterprise would have subdued a thousand-fold better. This day the pyramids of Egypt stand in their hugeness, immobility and silence, the emblems of a false, dead, unprofitable and non-progressive civilization; while the railroad, with its rushing train, following the sun in his western course, marks and represents a civilization of the opposite type.

Actuated by old and false ideas, the Emperor of France tried to push empire westward by sending his armies into Mexico; and we have just witnessed the tragical end of that attempt to rule the world of the present day by the enforcement of obsolete ideas. Now let JOHN D. PERRY, of St. Louis, a modest American citizen, send his army of peaceful laborers and track-layers across the border of that unhappy country, and order, peace, and true empire will result at once.

The railroad is the great agent and pioneer of civilization. Let any one go away beyond the Missouri, as we did, and behold a mighty tide of civilization — comfortable and well-furnished dwellings occupied by intelligent, refined and happy people, all the useful industries of life, with schools, colleges, churches, and every institution of an advanced social condition — following closely behind the track-layers, and, in some instances, going ahead of them, causing the music of busy life to be heard on those beautiful prairies, where only yesterday silence and solitude reigned, save only as they were broken by

the cry of the savage or the wolf, or the impetuous rush of herds of buffaloes, and he will have some conception of what is now meant by the March of Empire.

We have traced the line of this great continental thoroughfare from the Missouri to the shores of the Pacific,— or, to use the grand language of the Bible, which, in this connection, has a distinctness and significance which are absolutely startling — "*from the river to the ends of the earth.*" We have reached that ocean on the one shore of which the most ancient of earth's populations are found, while the most recent are found on the other,— that point on the earth's surface where days end and new days begin. We have seen its effects as far as it has gone; and, from the strong attractions of the remainder of the way, we may confidently expect that its progress entirely across the continent will be followed by similar results — that a strong tide of population will instantly follow it, carrying with it all the forces and blessings of a high civilization.

But its effects will not be confined to Kansas, Colorado, New Mexico, Arizona and California. A new and better life will flow through this channel into Mexico; and, without violence to either the persons or the institutions of that distracted country, it will be subdued, and added, if not politically, at least socially and commercially, to our own empire. Nothing can prevent it; for the Northern States of that country, especially Chihuahua and Sonora, with their rich pastures, their fertile valleys, and their numerous mines of the precious metals, lie near to the line, and will be connected by branches wherever they can be made available. A branch road will probably reach Guaymas before the main line can possibly be carried to San Francisco. This will give us the first and nearest Pacific port. But of this I have already spoken.

My desire, however, in this closing letter, is rather to speak of this road as a channel of Christian civilization than as an avenue of commerce. The course of this civilization, ever since the veil of the Jewish temple was rent in twain, and Jew and Gentile mingled together under one common banner in the service of one Lord and Master, has been WESTWARD. It is westward still, and westward, like the sun in his course, it is destined to continue, until it shall have completed the circuit of the globe. When contemplated from this point of view, the enterprise of which we speak assumes an importance and grandeur beyond what the mind is able fully to grasp. The thought that we are opening a channel through which new light, new life, a better civilization, and the Gospel of Peace, shall flow to hundreds of millions of human beings, ought to inspire every heart and nerve every arm in aid of the great work.

The remark was made by one of our excursionists, that eight hundred millions of our race were interested in this enterprise; and a little calm discussion satisfied those who heard it that the assertion was not extravagant. Its effect will be quietly but surely to revolutionize China and Japan; Russia, at the remotest and most torpid extremity of her vast domain, will receive a new and better life; it will restore Mexico to order and civilization; it will greatly affect all Western Europe; and certainly our own people are deeply interested in it. In fact, the entire northern hemisphere, from the equator to the frozen zone, will feel the effect of this new avenue of commerce, this new highway over which Empire is to march.

"Subdue it," said the Almighty, when he placed man upon the earth. Subdue what? The earth, certainly; but instead of doing so to any effective extent, men turned their hands against their fellows, and put forth their mightiest energies to subdue each other. The feeble powers of isolated individuals were engaged in the one work; the combined energies of tribes and nations and empires were enlisted in the other; and the miserable record of the latter makes up the staple of nearly all ancient and much of modern history. Now, thank GOD, we have found a more excellent way. Now our nation sends forth armies, not to butcher their fellow-men, but to subdue the earth — to remove obstructions which lie in the way of the universal brotherhood of man — to clear away the barriers that obstruct our progress — to prepare highways over which the Prince of Peace may go in his own appointed way to bless the nations. And there is something impressive in the fact that this greatest of all national efforts is put forth just as the most formidable barriers to human progress to be found on the globe — the Rocky Mountains and the systems of mountains beyond — were reached by the advancing tide of humanity westward.

The feeble hands of private and individual men could subdue the forests of our Atlantic border, and they did it; but when they came to what lay beyond the Missouri, and the ever-reverberating command was heard, "Subdue it," a whole nation stood ready to yield obedience to the mandate and execute the work.

SHERMAN'S "March to the Sea," although he necessarily marked his track with devastation and blood, was glorious; and men and women will speak of it and sing of it for a long time to come; but the time is coming when PERRY'S March to another Sea, strewing his pathway with blessings and benefits, will claim and receive tributes of eloquence and song loftier and more enduring. The victories of War — sometimes a sad necessity — are always exhausting, always shrouded in sadness and tears; while those of Peace, however expensive, are always profitable, making rich those who achieve them, and adding no sorrow.

RATON MOUNTAIN COAL MINES. — General WM. J. PALMER, one of the ablest and most energetic officers of the Union Pacific Railway Company, E. D., is now (Sept., 1867) on a tour of reconnoissance and observation in the country between the valley of the Smoky Hill and the Rio Grande. He finds that as regards routes there is no difficulty, as the road can be run either through or around the Raton mountain. In a letter from Fort Union, in New Mexico, he speaks of the vast deposits of coal found on that range and in the region adjacent, and of the agricultural and pastoral character of that country. We have only room for a brief extract. He says:

"Dr. Le Conte has just arrived from his examination of the coal-field, and his report is very satisfactory. There is abundance of good coal — very good coal — on both sides of the Raton mountain, which can be readily reached from the railroad line. On this side of the mountain the coal extends to within thirty miles of this place, and probably farther. Here, then, is the great natural depot of fuel, not only for this Pacific Railway, but for the country contiguous to it for at least as far east as Fort Harker, and as far west as — well, that depends upon further explorations.

"The country in and contiguous to the Raton mountain is the finest grazing country I have ever seen. I don't think it can be excelled; and on this side the ground is very fertile, and with very little labor fine crops of wheat, corn, oats and other grains are grown."

General Palmer, in a letter of a still later date, speaks of the *anthracite* coal mines of New Mexico, which, as I have already stated, (page 69,) are located but a comparatively short distance from this line of road. He was about to visit them.

There seems to be some degree of correspondence beween the coal formations of New Mexico and those of Pennsylvania. On the slopes of the mountains, their foot-hills and declining plains, bituminous coal in great abundance is found, as in Western Pennsylvania; while more in the heart of the mountain system, as in Central Pennsylvania, the anthracite variety is found. It is very probable that the bituminous variety is little, if any, less in quantity in New Mexico than in Western Pennsylvania; but as to the quantity of the anthracite, the explorations and researches have not been sufficiently extended to warrant any comparative estimate.

But from the fact that coal abounds in the line between Pond Creek and Denver, and on and around the Raton Mountain, we may safely conclude that it is confined to no narrow locality; but is found, as in Western Pennsylvania, in many distinct and widely separated localities, in deposits of from five to fifty miles in extent, and in veins of from a few inches to ten and even fifteen feet in thickness. These coal beds, as in Western Pennsylvania, lie in nearly horizontal strata.

But for any practical utility to the country, these rich mines might as well be in the moon as where they are, until a railway shall be constructed through that country by which their products can be carried both east and west — to the rich agricultural region in one direction, and to the rich mineral regions in the other. Without a railroad, they are simply worthless; but with one, they will be a source of incalculable national wealth, and will contribute largely to the success of this great railroad enterprise.

ANALYSIS OF RATON MOUNTAIN COAL.

PHILADELPHIA, August 5, 1867.

To the Union Pacific Railway Co., E. D.:

The sample of coal from Raton Mountain yields on analysis as follows:

Moisture, at 212° Fahrenheit,	4.74
Sulphur, ...	.16
Volatile matter, . . .	37.20
Fixed carbon, ...	53.90
Ash, ...	4.00
	100.00

The above analysis shows a yield at the rate of 437.6 lbs. of illuminating gas per ton of 2000 lbs., which is equivalent to 7439.2 cubic feet. You will see from the above that your coal compares very favorably with any of those regarded as the best for steam-generating purposes, and with the majority of those used for the manufacture of illuminating gas.

WILLIAMS & MOSS,
Analytical and Consulting Chemists.

COAL ON THE PACIFIC SLOPE. — Mr. W. M. Gabb, in a report made to J. Ross Brown, Esq., remarks: "The great coal-bearing formations of the world, those from which the coals of Pennsylvania and the Mississippi Valley are obtained, are not represented on the Pacific Slope of the North American continent." He, however, mentions several mines of coal of inferior quality on that slope, one on Mount Diablo, in Southern California, a part of the Coast Range, of which he says: "There is here at least one bed of coal of considerable size, but very poor quality and variable thickness. Furthermore, it is so broken and twisted by the disturbing forces to which the rocks of the vicinity have been subjected, that, even were the coal good in quality, the vein could not be relied on."

MINERAL WEALTH OF SOUTHERN CALIFORNIA. — On this subject I beg leave to refer the reader to the Report of J. Ross Brown, Esq., upon the Mineral Resources of the States and Territories west of the Rocky Mountains, recently published by authority of Congress, especially copper, (page 138 *et seq.*,) and quicksilver, (page 170 *et seq.*)

COPPER MINES IN ARIZONA. — J. Ross Brown, Esq., in his Report to the Secretary of the Treasury, upon the Mineral Resources of the States and Territories west of the Rocky Mountains, recently published, says:

"There are undoubted proofs of the existence of exceedingly valuable copper mines in this Territory at various points convenient to the navigable waters of the Colorado and its tributaries. Mr. Pompelly, a scientific geologist and mineralogist, who subsequently was appointed mineralogist to the Japanese Government, made an extended examination of the mineral resources of Arizona, and in the published report of his observations he refers particularly to the extraordinary richness and extent of the copper resources of the Territory. Other parties, who have travelled extensively through it since Mr. Pompelly, fully corroborate all that gentleman reported on this subject. Important mines have been discovered, and districts organized at many points in the Territory, among which are the Irataba district, about twenty-five miles southwest from Fort Mohave; the Freeman district, about sixty miles south of Williams' Fork; the Chimewawa district, on the west bank of the Colorado, nearly opposite La Paz; the Salaza district, about thirty-five miles northeast of La Paz, and the Castle Dome district, about thirty miles north of the Gila. The formations in which the copper is found in this Territory are altogether different from those in which it is found in Oregon and California. The ores themselves are also quite distinct, and far more valuable than those found in those States."

Mr. Brown, speaking of the copper district in the valley of the Williams river, says: "The Mineral Hill Company have run a tunnel on their mine for the length of 350 feet, out of which, while cutting, they took nearly 1000 tons of ore of an average of 30 per cent., the whole work from the surface being in a body of ore. The ore in none of the mines in the district is found in a regular lode, as in the mines in California, but the whole country appears to be formed of iron and copper." The copper exists in the form of heavy masses of ore embedded in large quantities of powdery oxide of iron. Sometimes, when these heavy masses are removed, this dry powder comes rushing down to the amount of hundreds of tons. Some of the copper ore found in this locality is quite rich in gold.

When the rich and exhaustless coal mines of the Raton Mountain shall be connected with these Arizona mines by the Union Pacific Railway, then, and not before, will the boundless wealth of that Territory be made available.

EXHIBIT of the Earnings and Expenses of the Union Pacific Railway, E. D., for the month of July, 1867.

To amount of Earnings, viz.:

Government Freight,	$47,667 24	
" Troops,	13,874 60	
" Mails,	3,003 62	
Total Government,		$64,545 46
Merchandise and Passenger traffic,		125,025 13
Total Earnings,		189,570 59
By Working Expenses,		104,430 77
Net Proceeds,		85,139 82

The gross earnings for the month of August were $236,000.

For Government transportation,	$80,000
Freight and Passengers,	156,000


MAP
OF THE
ROUTES OF THE UNION
PACIFIC RAILROADS
WITH THEIR EASTERN CONNECTIO
Compiled from authorized Explorations, Public Surveys, & other reliable data
from the Departments of the Government.
by
W. J. KEELER, CIVIL ENGINEE
NOVEMBER, 1867.
Explanations.
Gold
Silver
Coal
Copper
Quicksilver
Land Offices
R.R.s Complete
R.R.s Projected
DAKOTA
IOWA
NEBRASKA
NEVADA
UTAH
COLORADO
KANSAS
MISSOURI
ILLINOIS
INDIANA
OHIO
KENTUCKY
TENNESSEE
ARKANSAS
MISSISSIPPI
ALABAMA
ARIZONA
NEW MEXICO
CENTRAL PACIFIC R.R.
UNION PACIFIC
GREAT SALT LAKE CITY
DENVER
SANTA FE
SAN FRANCISCO
SACRAMENTO
SAN DIEGO
ST. LOUIS
CHICAGO
MEMPHIS
NASHVILLE
LITTLE ROCK
VICKSBURG
Colorado River
Rio Grande
Arkansas River