

STUDENTS IN GEOLOGY.

A Scientific Tour Through Portions of Utah

PIPE SPRINGS, Arizona,

June 13, 1887.

Editor Deseret News:

On May 24th, four days after the 15th academic year of the Brigham Young Academy closed, a party composed mostly of students under the charge of Professor Talmage, started on a

GEOLOGICAL TRIP

through southern Utah and northern Arizona to the Grand Cañon of the Colorado. It was intended to be the last trip of this kind in connection with this school year, and was undertaken, as the many others have been, for the purpose of verifying the teachings of the lecture room, and collecting specimens for cabinets. Already some students have quite a large collection of typical specimens.

Each man was mounted on a good horse, our splendid camp equipage and geological tools were carried on three pack animals, and we were armed to the teeth as the rabbits, ducks, prairie dogs and mourning doves on the road can testify—not the dead ones—their relatives. On the day above named our party, in high spirits, struck boldly up Spanish Fork Cañon without anything to hinder our progress—though we might mention that we stopped something less than a thousand times for the small matter of turning the packs from the under to the upper side of the animals; now we are good packers, since learning the "diamond hitch" from some cowboys.

Spanish Fork Cañon being long and cut through different kinds of strata, is very interesting to the student of geology. At its mouth we find shale, very rich in organic matter. Some of it will burn quite readily. Red Narrows, three miles above Thistle Station, is a place of great interest, as the river here has cut through mountains composed of layers of red conglomerate rock or "pudding stones," separated by strata of sandstone. These formations were made during the

DEVONIAN AGE,

their material being the sediment deposited by the mighty rivers of that remote period. Since then these deposits have metamorphosed into rock under the influence of heat and great pressure. Red Narrows is made more beautiful by the variety of colors assumed by the different layers of rock—from deep red through brown to white.

Three hundred yards up the hill from Clear Creek station on the D. & R. G. are vast deposits of fossiliferous shale. The rocks are literally full of the shells of mollusks, especially of acéphales, of which the oyster is an example; also the shells of several kinds of gastropods. Some of the rock is a solid mass of shells, and when ground will make a rich fertilizer. Here lies a fortune for some enterprising man. The rock is on both sides of the rail road track, is richer and more easily crushed than that found in South Carolina and sent to all parts of America to fertilize the soil.

A short ride and we are in Pleasant Valley, noted for its good fishing and fine scenery. Mr. Sharp showed us through the U. C. and the D. & R. G. coal mines, of which he is superintendent. He was very kind and made our short stay here pleasant and interesting. These mines turn out an excellent quality of coal, have remarkably thick veins and are very thoroughly ventilated.

The veins are from ten to twenty-eight feet thick, allowing the miners to stand up while at work. This is one of the best features about these mines, for it does not make cripples of those who work here, as do the thin veined mines in the east and especially in England, where many coal miners are known by their being deformed. Every twenty-four feet along the main tunnel, "rooms" run off on both sides, leaving great pillars of coal to support the roof. These pillars are taken out after all the other coal is removed, and sometimes the

ROOF THEN FALLS IN.

Some of the rooms in which the men work are twenty feet high. With a full force of hands each mine can put out 1,000 tons of coal a day. Few accidents occur here, as Mr. Sharp thoroughly understands his business and does everything in a scientific manner. There are several interesting "faults" and "dykes" in these mines. Our visit here finished, we rode up onto the mountains on the east, and camped near a snowbank which supplied us with water, but the mountain was so steep that we could not sleep together so each man rolled up in his blankets and tied himself to a tree for the night.

Next day we rode over snow banks from one to six feet deep, and on reaching the summit a grand sight burst upon us. There to the east and at our feet lay Castle Valley—the land of weathering and erosion, where nature has built her temples and castles whose spires and turrets seem to pierce the eternal vaults of blue. Far eastward and very dim towered up the Rocky mountains, bringing to mind:

"Tis distance lends enchantment to the view,
And robes the mountains in its azure hue.

The steep terraced and barren hills, the abrupt elevations of land, isolated flat peaks capped with cedar; dry sage brush plains over which dust storms sweep daily—these are annoying even to sneaking coyote—give this country a

WEIRD AND STRANGELY WILD

appearance. The Castle Valley rocks are mostly sedimentary, the layers being as regular and level as when their material was deposited by water ages since. The streams have eroded their way through the country, making deep "washes" wherever they have run any length of time; in fact the whole valley has been chiseled out by water.

Passing through the thriving settlements of Huntington, Castle Dale and Ferron, we get an idea of the deep meaning of the expression, "Making the desert blossom as the rose."

We will not say anything about our experience in hunting and losing trails, following deep ravines, going over precipices and climbing places so steep that a false step would have cost an animal its life.

We rested on the shores of Fish Lake one day and were delighted not only with this lovely mirror of the mountains and the picturesque scenery, but also with the large salmon trout we saw cosily curled up in our frying pans. Oh yes, we had forgotten to say that we eat on this trip, and our food is about as varied as the country through which we pass, with the exception of the ancient "scone" or slap-jack. Here is a list of our meats: Veal, venison, mutton, beef, rabbit, hare, trout, duck, mourning dove, squirrel, prairie dog, porcupine and—well that will do for this time.

There are 30 or 40 Indians at Fish Lake catching about 200 pounds of trout a day, and as it is the season during which the fish go up the streams to spawn,

HUNDREDS OF THOUSANDS

of eggs are destroyed daily. If the game law is not enforced more strictly the crystal waters of this lake will soon be robbed of the immense numbers of fine trout that now inhabit them.

In the southwestern part of Castle Valley we come to volcanic rocks which extend as far south as Arizona. Crossing Grass Valley and going up Koosharem Cañon, through nice scenery, we soon reached the summit of the mountains east of the Sevier, and obtained one of the grandest landscape views imaginable. The mountains on which we stood break very abruptly on the west, and Monroe appeared to be at our feet. The south end of Sevier Valley looked like a beautiful, ornamented chequer board—the rivers appeared like silver ribbons, the reservoirs as mirrors hung by silver cords, while the small plots of land, some brown and others green, made a striking contrast.

Monroe Cañon is a place of much interest, for the varied shapes and positions its rock formations assume, the massive dykes of volcanic rock standing sharply out of the side-hill from 50 to 200 feet high, and the Devil's Gate, a deep, wild chasm through which the river flows, about two miles east of town, are sights as instructive as they are wonderful.

THE HOT SPRINGS

here are well worth a visit and some day will be visited and bathed in by many tourists. Coming out of the ground just east of town, the water has built up large mounds of calcareous matter. The Professor took the temperature of two springs; one was 68 the other 32 degrees, centigrade. Near these springs are large deposits of calcite of which beautiful specimens can be obtained.

Clear Creek Cañon is the next place of interest. It is a narrow defile cut through sandstone by the water; the winds and rains have weathered the rocks into many curious shapes, one looking much like an Egyptian Sphinx. The perpendicular walls in some places are ornamented by Indian figures and hieroglyphics cut in the rocks many years ago. In other places they are full of holes and small caves and caves which are the result of the gradual weathering process now at work chiseling and planing the face of cliffs and boulders into curious and fantastic shapes.

Three miles south of Cove Fort, in Millard county, are the famous sulphur beds, owned and operated by the Dickert Brothers. It is needless to say this is a volcanic region, for sulphur beds are found only in such. The workmen told me that even now the gas issuing from holes or chimneys in the sulphur, and the

RUMBLING NOISES

heard sometimes, would make nervous persons uneasy. The sulphur is found in large quantities and is very easily and safely mined if care is taken not to get it on fire while blasting.

It is prepared for market in two ways: one of which is by melting in furnaces, and running into large moulds. It is afterwards ground and sacked. The other way is by the subliming process. Mr. Dickert is a German and provides neat, little white-washed cottages for his men; he has ornamented the little village, for such it is though nameless, with a duck-pond, fountain, shade trees and a good schoolhouse, all in true European style. The workmen are paid comparatively low wages and they say it is very unhealthy work, besides the sulphur turns men partly blind in a short time.

In talking with some of the men here the evolution of things was brought forcibly to us. We do not believe man evolved from a monkey, but on our road a mule was changed to a bay mare, then to a roan horse, then to a bay horse and a donkey, then to a mule and another monkey. How? By using these words: "How will you trade?" Any traders in our party? Well, we will not say. The

man at the sulphur beds reminded us of another kind of evolution. When asked where he lived, this man replied in a gruff voice, "Over at Jo." "What place?" "Joe Town!" "Where, please?" "Why, Joseph City on the Sevier!" "Thank you!"

Though a small place, Beaver is as enterprising as it is beautiful, and we must remark here that Parowan is a pleasant place at this season. The rows of large shade trees are a blessing if they are in the road. About four miles west of here lies Little Salt Lake, which in July contains no water and from its bed then a man can gather a ton of salt in a day.

In high water time it is 12 miles long by 1½ wide.

We spent some time in Parowan Cañon—a most interesting place for curious formations. The red and white sandstone has been weathered into many odd and striking shapes. One resting on a high table of red rock is called "Noah's Ark," another near it is called "The Teapot," others are called "Indian Tents," and all of these are appropriate names. Six miles up the cañon is a large deposit of alumn. Crossing the mountains here we are on the shores of Panguitch Lake, one of the most delightful places in Utah; its climate, scenery and fishing are enjoyed every year by hundreds of people, in July and August.

THE LAKE

is two miles long by one and a half wide. It is bordered by rich meadow land from which the rolling hills gradually recede, covered with bunch grass and stately, long leaf pines, making a scene more lovely than that presented by an English gentleman's park.

Our road to Glendale and Orderville, about 40 miles, lay through a beautifully wooded and well watered country on the headwaters of the Sevier, one of the large branches of which—Mammoth Creek—flows out from the foot of a mountain of lava, about 3,000 feet high.

The geological formations about Orderville are of an uncommonly interesting kind. Down the cañon are several almost perfect castles weathered out of beautiful red sandstone and surrounded by the giant pines of the forest.

Fossil shells of many kinds are abundant and in sandstone; some hills are almost composed of fossils, some of which can be obtained in a perfect condition.

The country from Orderville to the place from which we write, though a burning, sandy desert, is very interesting. Here we see quite long sand lizards, the cactus and the oose, a plant having bayonet leaves; the hard, tough fibres of which are used by Indians for strings and making baskets. Its stalk is used for food and its root for soap. But the most interesting thing is a large ravine three miles long by half a mile wide filled with sand deposits composed of a very fine, dirty white sand, in some places 50 feet deep and resembling snow drifts. The constant winds keep the top of the sand in motion and a grander sight of the kind we do not believe can be found this side of, or even on the great Sahara in Africa. We have traveled over 500 miles and the Grand Cañon is almost in sight, but as the bread is burning and the sand is blowing into the cupboard, you will excuse us for the present. S. H. ALLEN.

PAROWAN STAKE CONFERENCE.

The quarterly conference of this Stake convened in Parowan meeting-house, June 18 and 19th, 1887. There were present on the stand: Of the Quorum of Apostles, Lorenzo Snow; of the stake presidency, President Morgan Richards, Jr.; also members of the High Council and representative brethren from all the wards in the stake except Kanarra, which was not reported during the conference. The attendance during the forepart of the conference was not as large as usual, but increased very much as it advanced. The Saints had a very enjoyable time and the word of the Lord was freely ministered to the people by the various speakers and especially by Apostle Lorenzo Snow, who treated upon a number of subjects, and enjoyed great freedom of speech. He congratulated the Saints on the improvement they had made since he last visited them, some ten years ago.

The general and local authorities were presented and sustained, also the list of home missionaries, and other conference business was presented and the usual priesthood meeting was held. Union, peace, and the Spirit of God were with us.

President M. Richards, Jr., felt truly thankful for the good conference we had had, and for the visit of Apostle Snow, and for the good counsel he had given us. He felt to endorse the instructions given during the conference. He then adjourned conference for three months to convene in Cedar City.

WM. H. HOLYOAK,

Stake Clerk.

PAROWAN, June 25, 1887.

—In Prescott, A. T., June 30, Judge Wright passed sentence on Frank Wilson and John A. Johnson, the latter colored, who were convicted at the present term of court of the murder of the Clevenger family in March, 1886, and fixed the date of execution for Friday, August 12. Under the new law passed by the Legislature, the execution must be private, only the officers of the court and two witnesses being allowed to be present.

THE FAR EAST

RECORD OF MEN AND DOINGS IN ASIA.

The Pacific Mail Steamer, *City of Peking*, arrived in San Francisco, June 20th, bringing Shanghai advices to May 27th and Yokohama news to June 2d, as follows:

JAPAN.

The loss of the Messageris Maritimes mail steamer *Menzaleh*, proves to be one of the most singular on record. The *Menzaleh* left Hongkong on May 14th for Kobe, and after overhauling the *Anadyr* and towing her into Shaughai, immediately proceeded on her voyage to Yokohama with the mails and passengers for Japan. All went well till the saddlers were passed and for about forty-five miles to the northeast. The passengers were sitting down quietly to dinner and were discussing the events of their previous voyage in the *Anadyr*, when suddenly a great crash was heard, and the vessel lurched and trembled violently. At the same moment a seething noise proceeded from the engine room, as if great masses of water had been suddenly dashed in the fires. The captain at once informed the passengers that the ship was sinking. Orders were promptly given to lower the boats, the passengers at the same time being told to save their portable valuables and papers. The male passengers also lent what assistance they could in getting down the boats.

Captain Blanc and the officers and engineers were busy trying to ascertain the precise nature of the damage, but with the inflow of water and outrush of steam it was an almost impossible task. It was, however, at once apparent that the accident was caused by the propeller dropping off and the machinery giving way, a portion going clean through the bottom of the ship before the steam could be let off. The sea was rushing in with tremendous velocity through the rent in the bottom, and by the time the boats were lowered, about ten or fifteen minutes or so after the crash was heard, there were several feet of water in the engine-room and the vessel appeared to be settling down.

A high sea was running and fortunately a passing steamer, the *Glenshiel*, saw the wreck and picked up the occupants of the boats. In the morning, as the *Menzaleh* was still afloat, the captain of the *Glenshiel* attached a hawser to her and a detail of his men manned the pumps. Some unfavorable comment was made on the reluctance of the crew of the *Menzaleh* to go back to the vessel or to work the pumps. After a day and a half of towing, the *Menzaleh* suddenly sank in a smooth sea. All the mails and the passengers' baggage were saved.

On the afternoon of May 13th, the United States steamer *Essex*, bound for Nagasaki, when about twenty miles west-southwest from Iwo-sima Light-house, discovered a Japanese fishing-boat, containing five men, laboring in the trough of the sea and making signals of distress. The *Essex* immediately went to the assistance of the boat and took her in tow. A fresh wind was blowing and considerable sea running at the time. While being towed a sea broke over the boat and capsized her. The ship promptly lowered her lifeboat and rescued the five men, then they hoisted the fishing-boat on board and brought all to the anchorage, off Megami point. The fishermen stated that they belong to Fukahori. They had left the Goto islands in the morning in fine weather, but the wind and sea had increased to such an extent that they were momentarily expecting to be swamped. They had three times shipped seas which filled their boat and washed away their nets. They expressed great gratitude to the officers of the ship for their rescue. The crew of the *Essex*, feeling sympathy with the poor men, whose whole fortune probably was invested in their boat, contributed a sum of money (\$60) sufficient to replace the nets, sail, oars, etc., which were lost.

A rumor is current to the effect that the Senate will be reorganized shortly, and all the Senators made peers. Thereafter the Senate will consist of members of the nobility. Hitherto any measure passed by the Senate could be rejected by the Cabinet, but in the future such action will require the sanction of his Majesty the Emperor.

It has often been stated that foreigners will be permitted to land anywhere throughout Japan after the existing treaties are revised, but we now hear that this mixed residence is to be restricted at first to the vicinity of Yokohama, Kobe and Nagasaki.

It has been stated that Count Ito and other high officials contemplate, in conjunction with private wealthy gentlemen, the establishment of a school for the higher instruction of girls. The scheme has recently been decided to be carried out; a curriculum for the proposed school has already been compiled. The capital of the school is to be 10,000 yen, half of which is to be provided by the Educational Department and the other half is to be raised among the public. Two female teachers will be employed from England. It will not be long now before we see the foundation of this institution.

The Emperor and Empress have notified the Japan Red Cross Society that they will contribute 5000 yen annually toward the expenses of the society.

An American firm in Yokohama is contemplating the establishment of a big company for the manufacture of leather at Jinsen, in Corea. Korean skins will be used, and after tanning, will be shipped to Japan for sale.

It is rumored that on the return of

Count Saigo, Minister of State for the Navy, a great change is expected in the Naval Department, as at present the department is engaged in increasing naval doctors and accountant officers, and the perfection of sailors' instruction.

The present term of service of Richard B. Hubbard, the United States Minister, was to expire in July, 1888, but the minister has recently received instructions from the home government, ordering him to remain here for one year more.

The residents of Wakayama, in the province of Kii, a famous place for its production of cotton flannel, contemplate establishing a spinning company, with a capital of 66,000 yen. Of this sum 60,000 yen are to be devoted to the purchase of machinery ordered from England.

The Naval Department will shortly order from France seventeen torpedo boats at a cost of 3,500,000 francs.

CHINA

A private correspondent to *Der Ostasiatische Lloyd*, says that the rebellion in Hainan is assuming a worse aspect every day. At one moment there was the prospect that the victorious Black Flags would subdue the native tribes; and they actually did subjugate several. But as soon as the Black Flags took possession of the villages the most fearful and inhuman persecutions and oppressions began, the consequence of which was that the revolt broke out again with renewed vigor. An energetic leader and above all money for the soldiers were required before there could be any chance of restoring peace. Trade, in consequence of the troubles, was in a bad way at Kionghau, and there was at present no prospect of any improvement. Notwithstanding this the construction of a railway between Hoihow and Kionghau was spoken of.

A Hankow letter of May 10th says: The tea market was opened on the 9th by Russians. The crop both of Hankow and Kionghau teas is the worst ever known, there being absolutely no fine tea. Business is almost entirely confined to the Russians, only seventeen chests of Hankow tea having been bought for London, purchases for that market being mainly confined to Ning-chow and Keemans; but the total business thus far is quite insignificant and not enough to fill one ship.

Prices paid by buyers for Russia are fully 5 taels above the limits generally sent from London. It has naturally happened that settlements have been small, and, taking the intrinsic quality of the leaf into account, the prices are little less than those paid last season. Arrivals are very heavy, the estimated unsold stock being 350,000 half-chests.

The crisis that has been so long impending in the China tea trade seems at last to have arrived, and the native tea-pickers, who have been living on upon the prestige acquired before India and Ceylon had shown how tea should be picked and packed, will at last have to succumb or be compelled to reform their ways. Against the bright, uniform infusions of Indian teas, the China teas exhibit a mixture of dark, decayed leaves throughout. The natives attribute this to want of rain previous to the picking time and to excessive rains after the picking had begun. Be this as it may, the fact remains that worthless leaf has been fired and packed en masse, upon which heavy charges and duties have to be paid, which the buyers, for London at least, decline so far to make good. For Russia and America, whither Indian teas have not yet made their way, shipper take what they can get, and in doing so are paying prices which, judged by intrinsic quality, are often positively higher than last season's. The only teas with any flavor at all are the Keemen's, and these have been taken to some extent for London at 2 to 3 pence per pound over present values in that market.

Chinamen acknowledge that the first crop will be 10 per cent. larger than last year's, but assert that they are now entering into a binding combination to pack no second crop tea. They also talk of storing their present stock under advance and withholding it from the market until the proposed combination has had its effect. It remains to be seen how far the credulous West will be influenced by the report of these crucial measures. Thus far London buyers are practically holding aloof, it being the unanimous opinion that a further decline here of at least 2d per pound must be patiently awaited.

The *Shen Pao* says that a new telegraph line is being constructed from Wuchow, on the borders of Kwangtung and Kwangsi, to Kwel-lin Fu, the capital of Kwangsi. Also that the Shanghai Tao-tai has ordered a number of mudboats with a view to dredging operations. The first step will be to dredge the Heu-ka Pang and the Heh-kin Pang creeks.

The *Hu Pao* says that 1,000,000 taels are estimated to be the probable expense of certain palace improvements. Three steam launches are being constructed at Peking, and apparently for use in the Palace lake, and 200 acres are being set apart for what seems to be an arsenal somewhere inside of Peking. It is stated that naval tactics in the K'un-ming lake had already been instituted 100 years ago, by the Emperor Kien-lung, and the lake is now being cleared of weeds and garbage with a view to practice with more modern machines. The same paper says two chain, or suspension bridges, have arrived at Tientsin from France, and it would seem that they are to be put up across the river there as soon as the piers are ready.