Wednesday Oct 15th 1879.

Up early and Jerry prepared to leave for Kanab to carry in a pack of supplies, etc., and to bring mail in return. The morning was cloudy. Cold, cloudy, stormy. A late fall day, cleared up a little and grew warmer towards night. I went six or six and a half miles south and measured a portion of the landstone of the upper division of the Carboniferous. Yesterday took the measurements of the upper portion, by dowsing level and barometer, each gave 77 5/6 ft. Today added 6.15 feet more. These measurements are much greater than those obtained by Mr. Gilbert. So I took unusual pains to have them correct. Retined and fireaxed my rifles.
after eating it. This is the first time I ever saw these beautiful little crustaceans alive. At sunset the eastern cliffs were very beautiful as the dark red base and gray face above were capped by a golden crown, as the sunlight first touched the summits. The afterglow was also fine after the sun had set. Very tired, I wrote a little and tried to rest. Alone in my tent, 16th. Awoke at daybreak and heard a loud report, a rumble and then the rolling of rocks down the canyon. A portion of the cliff had broken off. The sunrise salute. West of the east side 1600 feet & measured the sandstone & limestone, also seemed a fine list of fossil changes from the chert nodules. Retired and fished for the night. Just after dark and Jerry came bringing 14 letters and a great pile of papers. Two weeks mail. How pleasant it was.
to read those from home. To hear
of the welfare of loved ones and
the general life of all my home
friends. Sig. G. Cappelli of Bologna
also writes acknowledging the receipt
of my Ulrich letter and invites me to
meet him at Bologna 1881, at the Inter-
national Congress of Geologists. Prof.
Geinitz of Berlin also acknowledges
receipt of U.S. papers, but as it is
written in German I cannot read it.
The beauty of an imperfect
education. Left papers for future
reading. After breakfast re-forming
shackled and started down the
canal. Entered the Marecaccio-
stone at leaning cork and from
several miles the canal gradually
developed until we were in a canal
within a canal. The outer walls
retreating, back leaning the cut in
the sandstone. From the
caught a glimpse of the white.
linestone 2000 feet above and
back from the main canyon. The
main canyon comes and winds
down the slide the sandstone and then
into the sandstone beneath.

Cut the wall.

Main Canyon

Cut the wall.

At the main wall is 1000 feet.
the outlet 1700 ft. Camped
at night beside a water pocket.
a hole in the bed of the stream. The
canyon is very narrow. Not over three
rods broad of the solid limestone,
strained red, rises 1000 feet to the
view. The high walls back cannot
be seen. The change from the sand-
stone with its ermine and beauti-
ful sculpture and picturesque
coloring to the massive forlorn sand-
stone wall is very striking. It
seems a lonely and long journey
down this canyon, but not one place has
treasures and some beauties where
energy and work is necessary to obtain or see them. This far my
trip has well repaid the labor
by the simple seeing the beautiful
and grand features of the natural
scenery. Not to mention the know-
ledge gained by a study of the
gneological structure. Twilight is
falling and it is about in this regis-
tree will reverse to rest as the
that will not be put up to night.
will read by the twilight and
turn in early.

Oct 12th. Last night I lay awake a long
time looking up at the stars. The can-
wall formed an oval frame to a beau-
tiful blue sky. The north star was
the center of the northern and and
towards midnight Jupiter the center
of the southern horizon. The quick
broken only by the astonishment of our
animals. The glow of the great canan
and above all the blue sky made
night stars above gave an infection
of the solemnity of nature in the hour when she is at rest that will not soon be effaced.

We at daybreak, heartfrosted collected a few fossils and then bid adieu to our camp. All were glad to leave it, a huddle to drink from and no feed for the animals. The canon con- turned to wind first east then west and in fact to all points of the compass. The trail was good and a few miles down a little clear water was seen in the bed of the channel and soon a small brooklet glided over the rocks. She's added to its volume and to whet the music of a moving book broke the stillness.

On our way down the canon a drove of cattle was ahead of us. At one point they stopped refused to be driven ahead. We let them pass by and found a rocky barrier in our path. By an hour's work a path was formed and we passed on only to find another greater mass of fallen rockwall
a dark pool of water between two high blocks of limestone. Off with the halter and saddles drive the animals in for a swim. Carry the luggage over the rocks and pack them on the trail. Reconstruct again. A log 20 feet long is hauled by ropes off the side of a slanting rock fastened there and stones driven against it to form a pool. The white mule rebels, lies down, rolls half over, unpack, build him a fire, beat well for future maintenance to reheat the coffee, drink her own.

Cary the back pack down the Canon. The sun is getting low as a level stretch sandbar is selected and the tent put up. A hearty supper is soon the cause of the day as forgotten in reading and writing. The grass is high along the stream as all one content since noon.

No object not mentioned is worthy of it.
down often reaching the running water a mass of green was seen ahead attached to the side of the cliff. Approaching it was seen to be a great cluster of a plant attached to the cliff when a thing came out. Just out from the cliff twenty feet and so high a rope could have been. He leaves nine small of a dark olive green, scattered thickly on the entire mass and then shaded, brilliant scarlet flowers. Thru the mass the water penetrated and rained down as from a great spray. It was quite a refreshing sight as nothing of the character has been seen in many a long day. Tomorrow is an odd day & I hope it will be a day of rest for man the beast as all need it. A tremendous mass of lime stone has fallen from the cliff a short distance below it a trail must be built even around it. 6 1/2 miles from the nearest home we have had to walk twenty miles without water.
the same faith. Whatever our fortune, their finger at home and life is secure by care and foresight and given to its protection.

Sunday 7 p.m. 19th Oct.

After breakfast climbed up the cliff a hundred feet to a damp short to found a large cluster of ferns and wild plants. The fern resembled our own beautiful maidenhair, and altho' not as delicate and graceful may be a variety of it or another species of the same genus.

Adiyanah. Cliffs coming down the fell whereby getting a black thin nail of a safe thumb. Read papers until noon, ate a lunch and went down the canion to examine the canion of trail. We can chase the fallen briar bone gay go yawn and very rough and rough mass of roots and dirt. A hard looking road. Moss of limestone 70x50x32, 16,000 cubits of limestone. The mass has fallen recently.
as the dust has not worked off the rocks. What a sight it would have been to have seen this great mass 1000 feet high tumble over and plunge into the canon beneath filling it to a depth of 100 feet. Luckily it was in a bend for had it been on flat it would have been permanently obstructed. The cliff looks as if it had lost a chunk off its red surface leaving a long white scar. Small waterfalls fall quietly as we have seen them freshly broken lying in the bed of the canon. I trust they will hold up until we return this way. The canon ends by there. I do not care to be blocked in here or cramped. To die here would be unfortunate. Not as much to me as to those left behind. I prefer to meet their fate as far as the eyes may be among those that have no care for my safety and
the core of their left with them to a pool that lines the base of
lone and paying the tribute of
the love to that which held the
last of the life now gone.
Oct 20th. Ten hours of hard work
and three miles gained. We built
the trail around the fallen mass
of rocks and a rough one it was
far be suit of a portion of the
tracks on dome and charlie we pulled
too. Another slight turning of
the trail to a camp at the mouth
of a cairn coming from the
east. A hard day for man
and beast but seem to be forgotten
if we reach the Colorado to
summer. The rock is becoming
more shady and little benches
form along the lower portion of the
corner walls. It is warm and pleasant
so that the tent will not be unpacked
tonight. Jerry has pitched a roof.
of bread cooked hominy with
dried beef & I guess we can
eat a good square meal as a niece
of my bread & beef have consumed
since breakfast at annville.

Oct 21st 1879.

Left camp early and reached
the Colorado at noon. No without
some rough road however as at
me. Once it was swine in stock
for the animals. But me and
homic at lack & I feel reward
for the labor altho' I am about
used up tonight. Headached
at noon but that has passed
off. My right thumb nail is
coming off, result of a bruise &
trouble. A blow on the left
thumb with my stone hammer
consequent upon the right
being out of order, has healed
the end of that and in a
The sun has set and twilight is falling. A quart of half tea and a large slice of raisin bread ought to satisfy me tonight, but on the contrary I am hungry. The wine, however, is grand and to the right and left the Caron walls rise in a clean cliff over 2000 feet. In front, down the mine a great mass of white wall rises like an immense castle pile falling to ruin from thousands feet above to the summit of its gray cliff. To night it is a great black mass yet small as compared with the greater extent of Caron walls beneath. By the light of the rising sun the effect...
from my seat is removed. The Canon is all gloom and shadow & towering above it stands on its own. A silent grey mass resting on the dark red rock beneath. Projecting headlands from dark shadows and form the buttresses supporting the main mass. This is a thousand feet high and twice as long. How small it looks two miles away. Its base is half a mile above the river.

The canon is far more impressive to me now than at first acquaintance. Its great proportions and every changing feature as it is seen from different heights at varying times of the
day gave me an opportunity for study and reflection. The
rills are now bare but the water is a tinkling from
the continned sediment washed in by recent rains away from
the country. Drinking from it yesterday the taste of
the clay was evident. Today we had a clean, running
brook coming down the Kast
Canan for our use. Sunlight
has faded into night and now
I am in our tent writing by the
"glimm" as the "tattam disk" is often
called. My thoughts are roaming
and from present afternoon
I shall finish my work here
 sooner than I anticipated and
dig out on up the Canan. Itrust
able I wish to go there.
or offer Kanab to receive the geographical work done there last month. If I can find a place of near the great natural sponge that will permit of my climbing to the top of the inner wall, 1760 feet, I shall care a week otherwise, dry camps and such pleasant incidents will occur. I wish to write to Ed to-night so will let this scribble answer for today's addition to my notes for Martin & Austin Janies. (One note to fill this out.) The peculiar softness of the atmosphere tends to smooth and soften the sharp edges and rugged outlines so that a distance the rock becomes quite smooth but finds it broken on near approach.
Oct 17:

Worked in the Kaibab Canion. Nothing of special incident occurred. Found that a part of Mr. Gilbert's earlier phase is sandstone.

A ten minute sketch of my old ruined sketch. At any be that I can get a photograph of this point, as the photograph was done a few years ago. Will...
do so if possible.

I am now gaining in energy and spirit and if nothing unforeseen occurs shall hope to push along so as to gain strength myself and keep the work in good control. One reason of depression in arriving here was coming from a higher colder atmosphere to the lower level of warmer weather. Our food is now excellent. Beef, bread, rice, dried fruit hold out in good order. We eat a loaf of bread for day weighing 2½ to 3 pounds. Plenty of other "truck" as Jerry calls it. My meals are immense. Do not drink tea or coffee have no desire for milk, butter, eggs, milk, or valley cured me of those articles for a time at least. Would like to have some tea in place of it.
Saturday eve.

The sun has just gone down behind my old ruin and a half hour remains ere darkness will done me in.

Jerry calls supper, O.K.!


Today has been a busy one. We the Colorado Caverns a mile over the rocks to examine photo. Return to dinner & then up the Penaab Cavern to perform away until 3.30 P.M. to obtain a few rare fossils. Return to camp, put fern in store gathered on the way and then up for a wash the hair, feet, personal and washing of stockings, trunks etc. Mended shirt, clean a hatchet and boots & fixed up generally. And also feeling tired that incline does not
fak at all well. Tomorrow is Sunday but we shall leave + go up the canyon a few miles. The water we get about the bad places the better. The barometer is falling. Jerry's rheumatism is steady, and they got caught down here with high water above means trouble. It may not rain in three or four days, but by that time I hope to be above desolation camp as we called it. I shall not be sorry to turn homeward. This is a grand canyon and much there is that is beautiful about it. Still I have seen it & I think under favorable conditions I am ready to leave it. "Farewell forever! Farewell forever! To the wild Colorado, with its lands & its rocks, it will trouble us no more."
Last night, the light of the moon awoke me about 3 o'clock. I got up, went inside the tent, as I thought the scene must be fine. I was not mistaken. The weird effect of the moonlight was to brighten the glow of the great canyon and at the same time to give its soft walls a picturesqueness of beauty that no other light could give. The shadows were deep and the soli-ent anglet hatted in the soft silvery light made each separate cliff a study by itself. The walls appeared twice as high as by daylight and almost seemed to touch the stars on the eastern side. It was a sight that only an artist could picture out before you. My few fudde words cannot half express what little I could see.

Dawn at the foot of the great
black cliff the ruin went rushing
roaring along. I could not help
think of Dante’s “Inferno” where
Dante has represented the dark
rushing of ruin. Soon this
will be all stored in memory’s
walls and my trip to the Colorado
a thing of the past. There it will
be placed, side by side with
Mt. Desert and a few other places
I treasure to think of when that
is left free to wander back
to the beautiful and striking
objects that have crossed my
little wanderings in this small
world small as it is. I fear I shall
never compass its mysteries as hidden
in the lower rocks. All to think I
would like to give my energy for
great to come. May perhaps it
it will be so. Who knows?.
Sunday Oct 26th 1879.

We were up eating breakfast at sunrise & soon after were tracking up. All went smoothly until old Billy, a poor old used up pack horse, made a mistake going along a narrow part of the trail. He failed to recover & after turning a complete somersault landed down in a pool of water three feet deep and lay there helpless. By rolling him over he gained his feet and we soon had him out. Decided to camp a mile above and while we unpacked Billy's hack made a mess it was. Just as to some my valises, just one half wet, note book, diary etc. suffused much matches, sugar, rice.
homing packed. Luckily the opposite pack did not get packed & our plans & my package of books escaped. He can
in very dry & all is either again as far as can be.
The tent is up, the stones cleared away, drift thrown in. Williams cut & laid over at and my bed is in order. A large flat rock serves for a candlestick & table & all is comfortable. It is still warm. Last night I
snuggly kept one thickness of blanket over me.
The can is directly opposite a spot in the candle wall where I can get up the three hundred feet & carry up the section nicely.
I woke.
Oct 29th 1879.

Nothing of special incident has occurred the past three days. We have made another camp: below the desolation camp. I have collected a lot of fine fossils and also added to the measured section. Have taken several hard chisels of the canon walls but cannot get to the toh yet. Tomorrow I propose searching for fossils. Next day moving out up above all the bad places. On our way up here we passed the hole where Old Billy set me in the water. I might I write lying on my side, head bolstered up. A boil on the knob of the neck is under full headway.
and is very painful. Hinders me about my work. Last Spring I had them because I was run down. That cannot be the reason now. Jerry has just had a large one on his neck. He is well and strong. I wish it had left away a week longer. It is serene work to climb and pound with a hammer when every blow and movement hurts. Still it is nothing but a job to continue and can be endured for a few days.

Jerry is getting homesick to get out of this canyon. He says he wishes to get where he can see something & see outside of these rocky walls. I cannot blame him much as it is not a cheerful place by a long ways. Good night.
Oct 31st 1879

Farewell October. To me you have been an eventful month in many ways and to-night I bid you good bye willingly, still not without a sense of regret as your bright beautiful days have appealed to the higher aesthetic sense and more practically have enabled me to work with energy and comfortable surroundings. I bid bid you farewell.

At 8 a.m. we left camp. Jane carried the heavy pack & the other three animals the remainder of our worldly goods. Slowly and sure we wound in & out, up & down, around great boulders, through the water & after twice unpacking & once marrting a swim we reach our nearest camp at the natural change (mentioned when going down) above all the bad places & now the trail althes rough in places will...
permit us to remain in the saddle until Hanot is reached. I am under the impression that we shall probably go in by the 7th or 8th of November.

The weather is warm and comfortable. The wind and the hanging snow make music that is pleasant to the ear. On this little grass plot our camp fire burns and the tent, our little home, is bright and pleasant. I am getting quite accustomed to the manner of living and to stay am more willing to remain than since starting.

My boil has reached its maximum development and is now in the decline.
Like some of the folks of old
I worked all day Sunday and will work another day. Our provisions are nearly out and after to day will live on bread and a slice of bacon. Day until we reach Karab. Under the circumstances working on Sunday was necessary if the work was done at all.

There remained one hard, dangerous climb to measure a section of limestone that hitherto had been guessed at as it was nearly inaccessible. Jerry accompanied me and we chose a cliff about two miles above camp as looking the most favorable. At the start it was a bad place but then better for 200 feet. The struggle commenced here at a steepening angle of the cliff gave a little hold and we nearly a seen then slipped well clinging to points just out.
an inch or two up the face of the cliff we went for our 200 feet and near the top found a shot where the rock overhang. The only shot we could get off. It was hard to back out so I managed to get my hands on one and getting a good swing out and pulled the rope. A stiff time would have sent me 400 feet as on path had taken us out on the steep face of the cliff below. I then helped Jerry and we were soon at the top. By a line measured the section and then decided that we would rather walk ten miles of the canyon rather than attempt the descent by the path we came up. Decided when we started off our rocky and rough ground as the path lay at the foot of the entire range of cliffs 2000 feet high, two miles of the way
stuffed by a side Canon. That we started to go up & around and at one place its walls were broken. Then we started down & touched an old Indian trail after a rough climb we landed at the bottom of the canyon only to find our way stopped by a fall of 30 feet over a ledge in a very narrow place, off the side & along narrow ledges 150 feet about the bottom & then down a place not very safe to the base was reached again. Three miles scramble over the boulders & our anniversary was reached, ever home of hard work was over.

**Evening.**

To day have felt rather used up but did the work laid out. I did well to night. Tomorrow we start out for hard work.
probably spend three days on the way. We leave an unusually pleasant camp to go north at 2000 feet or more where it will be cold & windy. It is beautiful October weather here. Just at sunset I took a bath to breathe the great sponge as we call it, letting the water stream over me. (I will tell you more of this sponge on my return.) This will probably close my long letter to you as on the march there will be no time to write & the tent is not put up at night.

Please keep this as I may wish to read it some time. I shall register it as it has been too much trouble to write it. To have it lost is your affair, not mine.
A, B, No. 6 -

5 bottom X hi. 6. X

8 - 9. X

12 X

13: 14 - Begin under 20 with 12 X

15 X

16 - 18 - X

19 - 20th check for Shuma - X

21 - Bone of Lion? X

22 - 87. X

40th note an under - X

43 X

44 - 47 X

45 - 51 X