

**Felch attempts to unravel information about the skulls sent in 1884.**

Cañon City Colo

Feb 4" 1886

Prof. Marsh

Dear Sir

I had hardly thought it necessary to make a map or diagram of the quarry of the past seasons work-after I had tried so fully to map out and explain as work was progressing but as it seems to be required in order to make it more fully understood I will prepare a diagram and forward it just as soon as I am able to do so.

But first I will try to unravel the mystery about those Skulls of 1884.

You ask "Can I tell the difference between =SK.5 & SK.5?="

It should be read "Skull No. 5-Skeleton No.5 query."

The question mark was adopted at your suggestion when we were in doubt, as to what Skeleton any bone should be referred to.

Skull No. 5 came out with Group No. 5-Skeleton No.5(?) and you will find it located on the map pf last years work, Range K. & L. Nos. 14 and 15 West End

Skull No. 9 was in Group No. 3-below and to the left of Gr. No. 5

Skull No. 8 that was packed in Box No 10 or 11-was taken out way back near the wall at the right of the large humerus D on No. 12 Range P

Skull No. 10 lay in the marl near the proximal end of the humerus J-the Skull we thought to be one of a small crocodile.

Next in regard to the two No.8s.

Before you came out in Sept. 1884 we had taken out Skulls No.8 (Box 11) also 9 and 10 and had so marked them.

By your advice after you came it was decided not to number Skulls in this way unless found with enough of the rest of the Skeleton, as in Ceratosaurus-and then give the whole Skull and Skeleton a distinct number-and you drew up and made a new and corrected list which I have now which reads

"Morosaurus	SK.1
Brontosaurus	SK.2
Diplodocus	SK.3 & 6

Ceratosaurus	SK.4
The one that we were ten at	
Work on to be SK.5	
Diplodocus No.2-	SK.6
Allosaurus	SK.7
Stegosaurus	SK.8"

By this plan-Skulls 8-9 & 10 were thrown out of the count and when later we got hold of the Skull of Stegosaurus packed in Box 27 we numbered that Skull No.8 in order to agree with the corrected list.

With the explanation made which I hope will be understood-it must be further borne in mind that the Skulls 9 and 10 of 1884-have nothing to do with any of the bones of last seasons work that are marked SK.9 and SK. 10 for if the work is pushed on far enough in the right direction-the Skulls of both will be found and numbered respectively 9 and 10.

This manner of numbering Skeletons, adopted at your suggestion has simplified matters a great deal-for in taking out the different groups we can easily keep things separate and distinct as Gr.- SK.9-Gr.1 SK.11 and so on, not being obliged to run the groups up with high figures if give(n) the date and separate lot of each years work as we otherwise would in marking.

I think you must have forgotten the instructions you gave me in regard to these matters.

The foot bones in Box 20 (1885) are the ones I think (the diagram will explain) belongs to the leg bones R=&Q= that were taken out in 1883 from near the West side of the Central Division-and I cannot locate all these bones now any nearer than to place them with Skeleton 9 of last seasons work.

As to the tail of Diplodocus-I will locate the exact position from where it was taken-also very near where Williston took out the one in 1878 and from the short distance between=six or seven feet=between breaks and none other intervening or connected am satisfied-both sections belong to the same animal.

Respectfully yours  
/s/ M.P. Felch

**Describes the placement of bones for Skeleton 11.**

Cañon City Colo

May 9<sup>th</sup> 1886

Prof. Marsh

Dear Sir

Yours with check for \$150.00 rec'd yesterday for which I find receipt enclosed—with many thanks

I send an outline showing the front-face of our working ground—and the portion on the right just worked off down to the top of where SK.11 lies

The tail shown running across this bench worked off, was continuous and regular from where we left off last fall and drawing is from one of this series.

I got out six and part of the 7<sup>th</sup> last year—and began on this 7<sup>th</sup>— and ran up to the 14<sup>th</sup> where they were broken off under the big coracoid.

This coracoid we took up but found no more of the tail—and we have worked some two feet farther East uncovering a large flat bone which we think is a scapula but finding no appearance of the tail—think it must have been broken off and lost under the coracoid.

This coracoid is the big bone mentioned in my last is very massive—and shaped a good deal different—being much longer in proportion to its width and the hole in it only a depression instead of going clear through—and being quite unlike from any others found.

In the top of the bench we have a pubis ilium—ribs and other bones cropping out of SK.11.

A part—one end of this pubis must have been sent in Block Z Gr.SK.11 last fall.

In the blocks on the backside of the Group 5(backside of working ground is East, front West) All the bones shown in the outline should be found and if kept in good condition—will match up to a hair—the rest of this Skeleton when sent on—for I know there has not been a fragment of this face been broken away or lost since we took out Group 5 & 6.

I want to get enough of the top layers worked off over SK.11—so that when we commence on that we shall have a clear field and nothing else on hand—and after removing the scapula ahead and possible one section from the big vertebrae on the left of SK.9 we shall then have all the room we want for a while.

Respectfully yours

/s/ M.P. Felch

**Continues to describe layout of Skeleton 11.**

Cañon City Colo

June 13' 1886

Prof. Marsh

Dear Sir

I send with this a diagram showing a horizontal section on about a median line through SK.11-sec.1 the distance across Gr.7 and sec.2 through Gr.8.

That marked "Top" is from us as we face the wall to the East.

The diagram will show that all the dorsals we left here must come in a line through Gr.7- but I made a little mistake on section 2 which is corrected in the narrow strip-3

After making 1 and 2 I took the chisel and worked off some rock on the left side of the rim, and found a point of separation at the place near the bottom where I have since drawn the ink lines across

In clearing off this rock I find there is no question but what this is the sacrum-and lays closely connected with the right illium.

This sacrum, portions of the right and left illium, the ends of several leg bones, two of which start in this block running back and also portions of the ischia and one pubis besides other bones are all in one massive block that will weight 400 pounds or not more.

I shall try to make a box strong enough to hold it and ship it as is-for I can find no good points to separate it without danger of breaking it into many small fragments.

The missing leg bones are found running back from this block-so I have no doubt now but what everything is all hear. Just on the right side of the sacrum I have worked out most of two very large dermal plates-one lapped over the other.

From their situation they must have come directly over the left illim.

I got these out in nice shape and their connection with the rest will match up to a fraction.

We cannot work much farther in without damage to SK.9 and after getting what we have of SK.11 matched up-grouped and taken care of we shall take down more of SK.9

The farther we go back the nearer the two Skeletons come together and as No.9 is on top and partly overlying 11 we have to take out No.9 first.

Respectfully yours

/s/ M.P.. Felch

**Relates parts of Skeleton 11 to Skeleton 8 as it came out of the ground.**

Cañon City Colo

June 23<sup>rd</sup> 1886

Prof. Marsh

Dear Sir

I send with this some diagrams to explain the position of the different groups up to the point where we are now at work.

Not only the dermal plates to the right of the Skeleton, but some leg and other bones had to be worked out and grouped separately here-and as there would be no connecting points between them after taking up it best to show their position and connection before taking out by diagram

The last large plate but one on the right side (South in quarry but on left side of Skeleton) outlined in red is not quite perfect in outline as portions on the left side of the line of separation between 8 and 11 had been packed up when the diagram was made but is about right as to size or width

The last one and largest is correct in outline-but had got moved away from its natural position-being a little back and outside of the left ilium.

The animal here lay on its left side and up against the bank of our old river bed-bringing its left hip the highest the right hip and some leg bones having slid downhill toward the bottom of the bed.

Most all of the plates along here lay up and on the outside of this bank resting on the marl bed-which was the reason we had to take them out separately everything around them loose, with no good rock to take them up in.

If these diagrams were filed away and left until the boxes arrived with the Skeleton they might aid some in restoring the group.

Respectfully yours

/s/ M.P. Felch

**Relates parts of Skeletons as they were found.**

Cañon City Colo

Dec 20<sup>th</sup> 1886

Prof. Marsh

Dear Sir

I took in a load of boxes this morning and found your letter of the 15<sup>th</sup>, in regard to the trouble you were having in trying to match together work that has no connection whatever.

Boxes 1 & 2 contain each a larger block—one from Gr.8 and the other from Gr.11-while 3 contains but a portion of Gr.7-the remainder being in Boxes 4 & 5.

If you had got out the whole of Gr.7 with the diagram before attempting a restoration of the group, you would have had no trouble, for the diagram explains=how to put it together=which side up-North South & c which matches to the front and what to the back-and all the points for connecting last years work with this

So you say the break is a clean one showing a part of one ver. And the spine of another in Gr.5-and the front of Gr.7 are placed in position-although in 7 the ver. And spine are in separate blocks.

The block with the spine is long small, triangular (Section wise) and comes to the bottom under other blocks about the right-center of the group-the block with the ver. Being a good deal larger and to the left-center, on the front.

Between this ver. In the front and back to Gr.8 there is not more than 2 \_ or three vertebrae that I could make out before reaching the big block in Gr.8= the next group in regular order=and in which Gr. The sacrum begins.

There is nothing to bridge over,-what there is in Gr.7 must fill the bill back to 8-and I could put it in shape in ten minutes for I know positively it is all there, and will match if you get at it according to directions laid down in the diagram.

I wrote in regard to this when I took it out that for all the pains I took to have it well protected last Winter, the frost worked the rock some, making it come out in more pieces than it otherwise would but there was not a particle of SK.11 lost though there was a trifle of SK.9 crumbled away.

After Gr.7-comes 8 then 11-groups 9 & 10 being under 7 and 8-and Gr.12 being under Gr.11.

I have divided them horizontally on account of a rotten streak-and though it might be well enough to examine 9 and 10 while looking over 7 and 8 I do not believe there will be much of SK.11 found in the under groups.

Those ribs in a separate package were broken away from the rest I think, as they lay higher up and to the left-some portions of which may be found as far along as in the top of the big block in Gr8.

I had them laid away through the winter-but after finding the rest of the Skeleton was of importance concluded to send them along as they might fill some gap.

I think all of the diagrams of SK.11 but 14-17 and 18 were packed in Box No. 38.

There can be nothing done toward putting groups together without the diagrams-for in them I have tried to give all the explanations necessary-and what they do not give I can add very little too new-as they are the main history and record as I work along

Respectfully yours  
/s/ M.P. Felch

**Relating groups of bones as found. Health problems continue.**

Cañon City Colo

Feb. 2<sup>nd</sup> 1887

Prof. Marsh

Dear Sir

I send an outline showing as near as I can remember the position of the groups in SK.11.

If only you had room to spread out and keep matched up one or two groups ahead of the work there would not be much trouble-but as it is the next best thing in order is a careful study of the diagrams-not only separately but collectively.

Some of the groups may have but very little if any of SK.11 but as the bones were all crowded and mixed together I had to group and mark them all as belonging to that skeleton.

From what you said I think you had got about Grs.1-8 and 11= and were in search of some leg bones to match. These must be found in Gr.13 which lay to the left of 8 and 11 or in Gr. 17 which goes back of 11-or in some of the under groups-9-10-12 (which lay under 7-8-11) In Gr.13 there is some portions of a leg-tibia and fibula I marked on a diagram of the group-and these may be what you want.

Beyond that is back and to the left of Gr.15 I am a little mixed-but think they come in about as marked in the sketch-the skeleton of a carnivore running up close to and crossing SK.11 made the work very difficult-and it was all hard to keep track of-but it is my impression that beyond 15 of what there is of SK.11 will be found in the left end of Gr.16-and the left end of Gr.20. Certainly none will be found in Gr.21 as that lay entirely to the right.

On the whole I fear that you are going to have trouble with this all the way along-unless you can manage some way to get room enough to lay out one or two groups ahead.

I have been bad off for the two weeks with my old trouble of neuralgia of the heart, am as yet hardly able to be up.

Respectfully yours

/s/ M.P. Felch

## Diagrams position of groups of bones.

Cañon City Colo

Feb. 27<sup>th</sup> 1887

Prof. Marsh

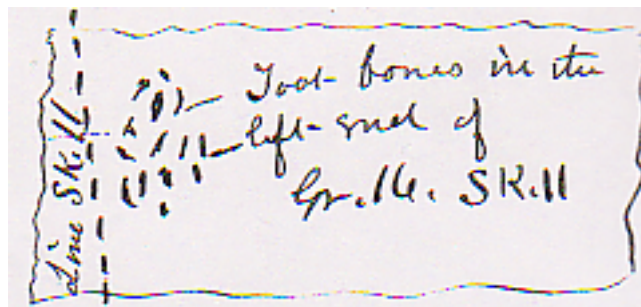
Dear Sir

Yours of the 11<sup>th</sup> was received-and I was glad to hear that the last lot of boxes had all got through safe and that you had the group in SK.11 mathed together all right up as far as 20.

It hardly seem possible that both hind feet should be missing when so much of the rest of the Skeleton is found to be in position and I think before get through with groups 8-11- and 13- or what cam in closely adjoining those groups you will find one or both of the hind feet.

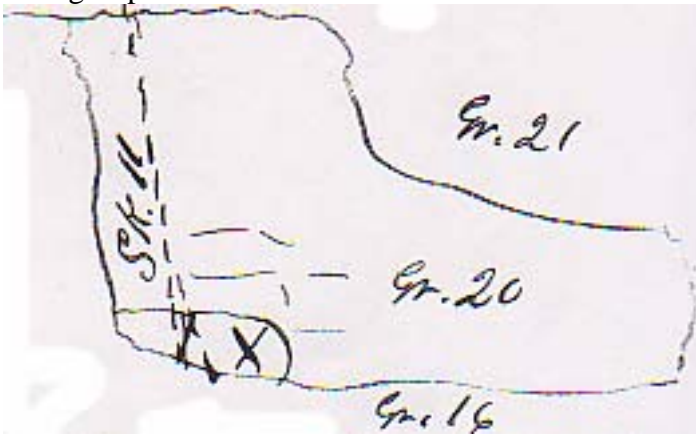
A little way from where the tail passed through group 16 there appeared to be a solid mass of bones (foo3) of some kind there

Should the hind feet of  
Sk.11 not be found elsewhere  
It may be well to examine there



There will be no need of touching GR.20 till the others are worked up to that group-and when that is reached you will find it about this way

There is a block on the  
Front side and left end of  
The group (X in diagram)  
That will be found to match on  
To a block in Gr. 15-also to a block  
In Gr. 16-that is-this block X above in Gr.20-and which  
Is a little to the right of the main line of SK.11-will be found to match on to blocks in  
both groups 15 and 16.



Such is my recollection of the matter-after having a good deal of trouble myself at this point to keep the connection

## **Redescribed foot of Diplodocus bones.**

Cañon City Colo.

May 22<sup>nd</sup> 1887

Prof. Marsh

Dear Sir

Yours of the 18<sup>th</sup> I rec'd today.

In relation to the foot-whether Diplodocus or not may be a question-but I think when examined in connection with the leg bones—and its position to known portions of Diplodocus already found it can be pretty safely placed with that family.

I will send with this my full diagram with explanation and instructions for matching together. If this can be filed away safely till you get the bones it will save making a copy. I will give some further points here to go with the diagram.

- (1) "Bone No. 4" which is supposed to be the astragalus and possible another bone (some if it in rock) was closely connected with and broken away from the leg bone.
- (2) This bone=No.4= was not connected with No. 5 (1<sup>st</sup> metatarsal) but there was about one inch between them-the metatarsal setting up on one end-but its position otherwise is very accurately marked on the diagram
- (3) No. 6 is the next joint-natural marks connecting with the distal end of No. 5
- (4) The portion of bone No.8 joins on to the inside of No. 5 by both natural and artificial marks-and so on through all the rest-but No. 12 the big claw, No. 18 a small terminal, Nos. 20 and 21 which were in the position marked-only bedded a little lower down in the soft marl than the ends of 17 were.

I was wrong in one thing about there being but one joint in between the metatarsals and claws for 15 13 14-15-13-14=which are the 3<sup>rd</sup> metatarsal and two joints are all closely connected together in one section.

There will be no trouble whatever in your putting the whole thing together just as we found it and though it was very difficult to get out I don't believe you will find any fragments missing.

We have now not more than a week or two more of work before we shall have to go to stripping.

In order to get off enough to get working ground for the balance of the season we shall want to go back at one point some at feet=this the widest=and at the least pint some 8 feet back-36 feet in length.

This only takes in where No.11 and the big carnivore left off-and leaves out the heavier part of the north side.

To do this work will take two good men a month at least. Shall I put in another hand next month or try to get along as we are. I am not stout enough to do much at that kind of work.

Respectfully Yours  
/s/ M.P. Felch

P.S.

I will sign the form soon and send on.

Please send on the vouchers to sign for May soon

P.S. 2' Monday 23"

Weight of feet net	68 lbs
Feet with distal ends of legs	103"
Weight of legs alone	129"

Total weight of feet and legs 197

The feet alone with box and pkg would weight about 100#

The feet and distal ends of the leg bones-box + c about 130#

M.P.F.

**Describes list of bones “enclosed” which are assigned Yale accession #1894.**

Cañon City Colo

June 26” 1887

Prof. Marsh

Dear Sir

Enclosed you will find the list for “Contents of Boxes” recently sent on, or Lot No. 1-1887.

The next lot will be continued by number in regular order from these just sent.

All of the foot and connecting bones will be found in the first three boxes- Nos. 1-2-3-the balance of the boxes containing “Gr. No.1 1887” a very large group coming just back of where Grs.20-21-SK.11-lay

All of these groups are so intimately connected that one cannot be worked out alone-though I suppose 20 and 21 and well be ready for the (Gr.1-'87) when the lot arrives

I hope that what we took to be spines in this group will turn out to be so-and that more of the vertebrate will turn up also.

The heat for the last fide days has been simply terrible and I was quite overcome for a day or two.

We are getting along as well as could be expected-have the upper layer of marl nearly off and can go to using powder to remove the upper rock in a few days more.

I hope to receive the vouchers for June soon.

Respectfully Yours

/s/ M.P. Felch

P.S. I find that I am out of the official envelopes

### Box No. 1 Contains

All of the foot and two section of "Leg No. 1"

This group consisting of the big foot and three leg bones is marked "Lt No. 1SK.12"

The diagram of the group was sent by mail in May.

### Box No. 2 Contains

All of "Leg No. 2

All of "Leg No. 5

Four sections of leg bones and lot of parcels of Gr. 1-SK.12

A small group off(sic) odd bones marked (diamond) found near Gr. 1-12

Leg No. 4 was found near or adjoining Blocks No. 54 and 55 of "Lt No. 1-87"

### Box No. 3 Contains

Bl. 16 of "Lot.1'87"

A small group marked "X-12" explained on diagram of the group

Part of "Leg No. 4"

And lot of parcels of "Lt 1-'87"

Boxes 1-2 and 3 comprise all that are in any way connected with the big foot and legs in "Gr. 1-SK. 12"

"Gr. No. 1.'87" is the great group in all the remainder of the boxes-a little of which was put in their boxes to fill up.

### Boxes 4 to 13 inclusive Contains

"Lt No. 1-1887"

This group is fully mapped out and explained on the diagram of the group which will be found in Box 13.

Briefly here this group is continued from Gr.20 and Gr. 21 of Sk.11 sent out last season.

Box No. 14 Contains

Part of a femur that was found last season near where "Lt 1-SK.12" was taken out.

The balance of this was removed and not saved in 1883.

This box also contains a dermoid (i.e., skin lime") plate found near found near the big foot.