

body, on the 18th."

The ~~Memorial~~ ^{Canon} City district, thus visited by four members of Long's expedition on the 17th and 18th of July, 1820, and where Pike built his blockhouse ~~in winter almost downtown year earlier~~ ^{over a} century ago, is notable not alone for its stupendous river gorge ~~and topograph~~ ~~and dynamical features~~ and ~~diverse~~ mineral springs. For its all-around scenic and geological interest, it is scarcely ~~second~~ ^{that} to the region of Pike's Peak and the Garden of the Gods.

The dark, frowning gneisses and schists forming the ~~2000~~ ^{and} towering walls of the Royal Gorge, ~~and~~ belonging, it is supposed, to the Algonkian system, ^{become} less sombre in the canon of Grape creek, and are there ^{much more} beautifully striped, ^{and} crumpled, and contorted. In places they are penetrated by once fluid veins of granitic magma which, cooling slowly, produced huge imperfect crystals of mica and feldspar, forming that phase of pegmatite which is called "giant granite"; and again (notably in the Royal Gorge) they are cut by blackish-hued sheets of diabase. Leaning upon the eastern flank of the mountain gneisses ~~are strata~~ ^{are} of Ordovician sandstones with shaly intercalations containing remains of some of the oldest fishes known to science, curious, armor-plated forms related to those made famous by Hugh Miller in his work on "The Old Red Sandstones", but very much older than they. Over and ~~lying~~ ^{lying} eastward of these sandstones ~~is~~ ^{is} a much thicker series of limestones, which are of Silurian age, and ~~possess~~ ^{possess} certain of whose horizons abound in the curious chain corals and still more curious and problematical receptaculites, cup-shaped organisms, whose thick walls are radially perforated in regular quincunx order, and which may or may not be sponges; together with bivalve and univalve shells, and many other life-forms of that period. Following upon these, are series of rocks of several other systems, and among these, the famous Atlantosaurus beds which have yielded to Professor Marsh and others for the Peabody Museum of Yale, ^{and} the National Museum, etc., tons upon tons of the well-preserved bones of gigantic (as well as smaller) ^{immense} quadruped reptiles of ~~#~~ a Jurassic or early Cretaceous lakeside, ~~which snakes~~ ^{animals that in some instances} with a ~~length~~ ^{breadth} rivalled or exceeded in size the largest whales; ~~#~~ their thigh bones as tall as a man, ~~#~~ the centra or trunk-parts of their vertebrae over a foot in ~~the~~ ^{a square yard in area} and their foot-prints ~~two feet in diameter~~, in the case of the largest. Some herbivorous, others carnivorous; some with limbs nearly equal, others with the fore limbs very much smaller than the hind limbs; some armored with bone and crested with ^{huge} vertical plates and spikes of the same; they are, altogether, perhaps the most monstrous and remarkable relicts of ^{The} past ~~era~~ ^{that} have ever been dis-

entombed from a rocky sepulture in any part of the world. Cretaceous ~~sandstones and~~ ^{and} shales yielding petroleum, and ~~some~~ ^{and} Cretaceous sandstones and shales yielding the fossil leaves of temperate ^{and} semitropical trees, among them the leaves of huge palms, occur also within a short distance of ~~Mississippian~~ Canon City. And without ~~mentioning~~ further enumeration of the points of interest, it ~~will~~ ^{certainly} be conceded that for ~~Mississippian~~ examples of the handiwork of the Creator, the ~~Mississippian~~ "place where the Arkansas comes out of the mountains", and which Captain Bell and Doctor James and their party ~~had~~ ^{left on the 15th of July, 1820} is truly a remarkable spot, and one at which, had they known its extraordinary interest, it is safe to say they would have lingered longer.

On their way back to main camp down the river, they observed, "seven miles from the mountains, on the left bank of the Arkansas", ... "a remarkable mass of sandstone rocks, resembling a huge pile of architectural ruins. From this point, the bearing of James' [Pike's] Peak was found to be due north." ^{* Dr. James here introduces, as a footnote, an extract from Major Long's narrative, in which the latter proposes to name the Peak for Dr. James. It is omitted here, having already been given (page 112) in connection with the name of Pike's Peak.}

This rock-mass is still a striking topographical feature of the Arkansas valley, and is in plain sight from the ~~Mississippian~~ railway trains that now pass it daily on the opposite side of the river. It is a ~~Mississippian~~ little more than two miles northwest of Florence, and is locally known as "Castle Rock", a common place-name in Colorado. It rises to a height of something like 300 feet above the river, and consists chiefly of Niobrara Cretaceous limestones, cut off from that of the neighboring bluffs by erosion. Pike's Peak was a few degrees east of the true north, but was very nearly in the magnetic north. It is probable, therefore, that the direction here given by Doctor James, was based on compass observation, uncorrected for magnetic declination. — F. W. C.

"The Arkansas valley between our encampment of the 18th and the mountains, a distance of about thirty miles, has a meagre and gravelly soil sustaining a growth of small cottonwood trees, rushes, and coarse grass. Above the rocky bluffs on each side, spreads a dreary expanse of almost naked sand, intermixed with clay enough to prevent its drifting with the wind, but not enough to give it fertility. It is arid and sterile, bearing only a few dwarfish cedars, and must forever remain desolate."

In the above paragraph, we see some of the ~~erroneous~~ impressions conceived and taken back to civilization by Long's party, which helped ~~Daniel Webster~~ and some of the old map-makers to place a "Great American Desert" east of the Rocky Mountains*. We must

* Such a map, for instance, as that which appeared in

, in 18th, a reproduction from which may be found on page 165 of Smiley's History of Denver.

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charitably assume that Long's party formed starved opinions of the high plains, while under the influence of short rations, or a vivid realization of ~~distance~~ its distance from apples, doughnuts and pumpkin-pies. It is a pity that they could not have had among their scientific instruments, a horoscope, to make their mouths water in viewing train-loads of the delicious fruits of orchard, vineyard and farm, which this part of the Arkansas ^{river} valley was destined annually to produce; or could not have realized, just then, that ~~distance~~ ^{near Turkey creek} Isaiah's words, "the desert shall rejoice, and blossom as the rose", were to be literally, as well as figuratively, fulfilled.

While Captain Bell's detachment had been away on its excursion, the people at the main camp ^{had not} been idle.

"Observations were made at camp, for ascertaining the latitude, longitude, &c., and all the party were occupied in their appropriate pursuits. Among the animals taken here, was the four-lined squirrel; (*S. 4-vittatus*), a very small and handsome species, very

~~The Chipmunk of the Rocky Mountains.~~ F. W. G.
similar in its dorsal markings, to the *getulus*, L.; but as far as we can judge from the description and figures of the latter species by Buffon, our animal is distinguished by its striped head, less rounded ears, and much less bushy, and not striated and banded tail, and by its smaller size. The *getulus* is also said to have no thumb warts.

"It is an inhabitant of the Rocky Mountains, about the sources of the Arkansas and Platte. It does not seem to ascend trees by choice, but nestles in holes and on the edge of the rocks. We did not observe it to have cheek pouches.

"~~Its~~ "Its nest is composed of a most extraordinary quantity of the burrs of the *Xanthium*, branches and other portions of the large upright cactus, small branches of pine trees, and other vegetable productions, sufficient in some instances to fill the body of an ordinary cart. What the object of so great and apparently so superfluous an assemblage of rubbish may be, we are at a loss to conjecture; we do not know what peculiarly dangerous enemy it may be intended to exclude by so much labour.

"Their principal food, at least at this season, is the seeds of the pine, which they readily extract from the cones.

"There is also another species*, ["]*S. lateralis*, Say, inhabiting the mountains, where it was first ~~observed~~ observed by those distinguished travellers Lewis and Clark, on their expedition to the Pacific ocean. It is allied to the *Sc. striatus*, and belongs to the same subgenus, (*Tamias*, Illig.), but it is of a somewhat larger stature, & en-

tirely destitute of the vertebral line, and is further distinguished by the lateral lines, commencing before the humerus where they are broadest, by the longer nails of the anterior feet, and by the armature of the thumb tubercle. It certainly cannot with propriety be regarded as a variety of the Striatus, and we are not aware that the latter species is subject to vary to any such remarkable degree in this country. But the species to which, in the distribution of its colours, it is most closely allied, is unquestionably the Sc. bilineatus of Geoffroy. A specimen is preserved in the Philadelphia Museum.

Footnote "The cliff swallow, " Hirundo leuconota, Say, is here very frequent, as well as in all the rocky country near the mountains.

Footnote "A very beautiful species of emberiza" Emberiza amoenus, Say, was caught, rather smaller than the indigo bunting, (Emberiza cyanea), with ~~which~~ a note entirely dissimilar. It was observed to be much in the grass, rarely alighting on bushes or trees.

Footnote "We also captured a rattlesnake" ...Crotalus...confluentus, Say, which, like the terkeminus, we have found to inhabit a barren soil, and to frequent the villages of the Arctomys of the prairie [i.e., the Prairie Dog], but its range appeared to us confined chiefly to the vicinity of the Rocky Mountains. Its rattle is proportionally much larger than that of the species just mentioned, and the head is destitute of large plates. It seems by the number of plates and scales, to be allied to the atracaudatus of Bosc and Daud., but their description induces the conclusion that their species is entirely white beneath. It is also allied to the Crotalus durissus, L. (C. rhombifer, Beauv.), but is smaller, and the dorsal spots are more rounded. A specimen is placed in the Philadelphia Museum. A new species of Coluber also occurred, C. testaceus.

Footnote "The only specimens of organic reliquiae from this vicinity, which we have been so fortunate as to preserve, are very indistinct in their character, and are only impressions on the gray sandstone.

"Hunters were kept out during the day on the 17th, but killed nothing. At evening they were again sent out on horseback, but did not return until 3 P.M. on the following day. They had descended the river twelve miles, finding little game. They had killed one deer, one old turkey with her brood of six. This supply proved highly acceptable, as we had for some time been confined almost entirely to our small daily allowance of corn meal.

"At the commencement of our tour, we had taken a small supply of sea biscuit. At first, these were distributed at the rate of three per day to each man; afterwards two, then one, then one for two days, then one for three, till our stock of bread was so nearly exhausted

that it was thought proper to reserve the little that remained, for the use of the sick, should any unfortunately require it. We then began upon our parched maize, which proved an excellent substitute for bread. This was issued, at first, at the rate of one pint per day for four men, no distinction being made in this or any other case between the officers and gentlemen of the party, and the citizens attached to it. When we arrived at the Arkansas, about one third part of our supply of this article was exhausted, and no augmentation of the daily issues could be allowed, although our supplies of meat had for some time been inadequate to the consumption of the party.

"We had a little coffee, tea and sugar, but these were reserved as hospital stores: our three gallons of salt were expended. We now depended entirely upon hunting, for subsistence, as we had done for meat ever since we left the Pawnee villages, our pork having been entirely consumed before we arrived at that place. We, however, apprehended little want of meat, after we should have left the mountains, as we believed there would be plenty of bisons and other game in the plains over which we were to travel.

"At 2 o'clock P.M. on the 18th, rain began to fall, which continued during the remainder of the day, and made it impossible to complete the observations we had begun.

"The Arkansas, from the mountains to the place of our encampment, has an average breadth of about sixty yards; it is from three to five feet deep, and the current rapid. At the mountains the water was transparent and pure, but soon after entering the plains it becomes turbid and brackish.

^{Subjoined to this part of} Doctor James' narrative, as footnotes, are technical descriptions, by Thomas Say, of the latter's Fringilla psaltria, (the Arkansas Goldfinch, now known as Chrysomitris psaltria); Fringilla frontalis (the Crimson-fronted Finch, nesting about houses, and hence familiar to dwellers in the Pike's Peak region as the "House Finch", now scientifically known as Carpodacus frontalis); Hirundo lunifrons (the Cliff Swallow, which, like the preceding bird, but less commonly, has come, since settling of the country, to ~~nest~~ about buildings, and is to be called the "Eave Swallow", and by ornithologists Petrochelidon lunifrons); Emberiza amoena (the beautiful little Lazuli Finch, now Cyanospiza amoena); Sciurus quadrivittatus (now Tamias quadrivittatus, or ~~Sciurus~~ the Colorado Chipmunk); Sciurus lateralis (now Tamias lateralis, or Say's Chipmunk); Crotalus confluentus (the ~~con~~ Great High Plains Rattlesnake); ^{and} Coluber testaceum (Coluber amoenus ^{flavus} ~~flavus~~ ^{testaceum}), the Crimson Whip Snake, which is more vividly colored in southern Colorado and New Mexico than north of the

Arkansas river); ~~the Tessellate~~ (now Cnemidophorus tessellatus, ~~Tessellated Swift~~) all the type-specimens of ~~MM~~ which species, with the exception of that of Say's Chipmunk, were collected at this encampment.

"19th. This morning we turned our backs upon the mountains, and began to move down the Arkansas.

"A large and beautiful animal* of the lizard kind, (belonging to the

Footnote *In a footnote here, Say describes this form as Ameiva tessellata; it is now known as Cnemidophorus tessellatus, the Tessellated Swift. -F.W.C.

Genus Ameiva,) was noticed in this day's ride. It very much resembles the Lacerta Ameiva, as figured and described by Lacepede, but the tail is proportionably much longer. Its movements were so extremely rapid that it was with much difficulty we were able to capture a few of them. ~~MM~~

"We had proceeded about eight or ten miles from our camp, when we observed a very considerable change in the character, both of the river and its valley; the former becoming wider, less rapid, and filled with numerous islands; the latter, bounded by sloping sand hills, instead of perpendicular precipices. Here the barren cedar ridges are succeeded by still more desolate plains, with scarce a green, or a living thing upon them, except here and there a tuft of grass, an orbicular lizard*, basking on the scorching sand, a solitary Pimelia, a Blaps,

Footnote *The orbicular lizards (Phrynosoma) are now generally known by the briefer, though very inaccurate, name of "Horned Toads". -F. W. C. or a Galeodes; among the few stunted and withered grasses, we distinguished a small caespitose species of Agrostis, and several others, which we thought to be undescribed. Near the river and in spots of uncommon fertility, the unicorn plant, (Martynia proboscidea, Ph.,) was growing in considerable perfection. This plant, which is sometimes cultivated in the gardens, where it is known by the name of Cuckold's horns,* is a native of the Platte

Footnote *Sometimes also as "devil's claws", from the facility it has of clamping onto the heel of the descendant of Adam. -F. W. C. and Arkansas, and is occasionally seen in every part of the open country from St. Louis, westward to the mountains.

"A little before noon, we crossed a small stream, which was called Castle Rock creek, from a remarkable pile of naked rocks, and halted for dinner on the bank of the river.**

Footnote **The creek just below which the party is stopping for dinner, is Fountain Creek, which was then, as now, known as the Fontaine qui Bouille (the French trappers' rendering of the Indian names meaning Boiling Spring.) In attempting to rename it,