

as *Leptotila* was repeatedly used by Swainson, and thus with obvious intent, it could not be ruled out as an 'evident typographical error' for *Leptoptila*, and so was accepted as simply a name, and therefore available under the A. O. U. maxim, "A name is only a name and has no necessary meaning;" or, to cite the B. A. Code of 1842, "In truth, it matters not in the least by what conventional sound we agree to designate an individual object, provided the sign to be employed be stamped with such an authority as will suffice to make it pass current." It is, therefore, entirely thrown out of the category of such cases as *Fregetta* and *Fregata*, discussed above.

It certainly is to be hoped that all sensible writers will go on writing as 'sensibly as they know how;' but in the above remarks on *cafer* and *Leptotila*—ostensibly anent the 'Merton Rules,' but really in ridicule of the A. O. U. Code—it is evident that not all of the 'puerility' is on the side of the supporters of Canon XL.

Nos. 34–37 of the Merton Rules call for no comment, being in essential conformity to current usage. We must dissent, however, from Rule 38 in so far as it relates to 'co-types,' this part being to the effect that when a species is 'described from more than one specimen, no single one being selected as the type,' the 'type' in this case is 'the sum of the co-types.' The position here taken seems so obviously unwarranted as to hardly merit discussion.

Rules 42–48, on the restriction of genera, are refinements of existing rules relating to this subject, treating the matter in detail on lines already for the most part generally approved.

Rule 49 provides a most cumbersome way of designating subspecies. Rules 50 and 51 relate respectively to the use of signs and methods of citation, the latter formulating practices already more or less in vogue.

As already said, the 'Merton Rules' are in the main in accord with other advanced modern rules and usages; the innovations, as noted above, are for the most part positively mischievous, from the standpoint of fixity in names; the adoption of the tenth edition of Linnaeus's 'Systema Naturæ' we regard as the one especially commendable feature of this new code, only so, however, on account of its geographical origin, since all recently promulgated Codes take this date as the starting point for the law of priority.

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THE ORIGIN OF GREEN RIVER.

IN his Current Notes on Physiography in No. 121 (April 23d) of this JOURNAL, Professor Davis, under the heading: 'Is Green River antecedent to the Uinta Mountains?' remarks that this question is not closed, as had been assumed by Mr. J. D. Irving in his paper on 'the Brown's Park beds of Utah,' and further that it does not appear clear from the latter's statements whether he considers it to be a superposed river, as maintained by me, or antecedent, as stated by Powell. He very pertinently remarks that it is remarkable, considering how frequently the Green is referred to as an antecedent river, that so little attention is given to the difficulties that such origin involves. Long before the appearance of the two textbooks he quotes (Tarr and Scott), LeConte and Geikie had each referred to it as antecedent and illustrating the slow uplift of mountain ranges, in apparent unconsciousness that any other view is possible. Suess, on the other hand, in his exceedingly careful review (Antlitz der Erde, I., p. 736) of the structure of this region, adopted my view without any reference to that of Powell.

In Powell's original publication (Exploration of the Colorado river of the West, p. 153) he makes no mention of the struc-

tural difficulties the river might have to contend with, but contents himself with the simple statement: "The river had the right of way; in other words, it was running ere the mountains were formed; not before the rocks of which the mountains are composed were deposited, but before the formations were folded so as to make a mountain range." Later he remarks: "I reserve the subject for a more full discussion in my report on the geology of the Uinta mountains." In this report, however, I had been able to find no mention of the subject whatever, and I had assumed that upon further study he had found the difficulties in the way of his theory too great to be explained away.

My study of the region was made in the summer of 1871. Powell continued his during the years 1874 and 1875, after, at his request, I had explained to him my views as to the structure of the range.

Upon the following facts with regard to its geology we are both agreed. The uplift of the Uinta Arch commenced at the close of the Cretaceous. During Tertiary times there were deposited in the lakes, which washed either flank of the range, not less than 8,000 feet of sediments that were derived, in part, at least, from the degradation of that Arch.

Now, as my map shows, these Tertiary beds, overlapping in a nearly horizontal position the upturned and truncated edges of the various formations composing the original arch, reach altitudes of 9,000 and 10,000 feet at various points along either flank of the western and higher portion of the range. The eastern portion of the range, through which the peculiarly winding cañons of the Green River have been cut, has an elevation of only 7,500 to 8,500 feet, a few of the higher points reaching 9,000 feet, and in one case 9,297 feet.

According to Powell's theory, however, the river had determined its course before

the uplift of the arch, and has continued to occupy the same bed to the present day. "The principal cañons through the mountains," he says, "had been carved nearly to their present depth before the last of these sediments were deposited."

What, then, became of the river while these 8,000 feet of Tertiary sediments were being deposited? It could hardly have continued its course at the bottom of the Tertiary lakes while the sediments were depositing. But if it ceased to flow during this time its bed must have been filled with sediments as well as the rest of the country, and when the lakes were finally drained, it is hardly conceivable that, in redetermining its course across the 150 miles of Tertiary beds on the north side of the range, it should have attacked the flanks of the Uinta range, themselves partially buried, at exactly the same point it had entered before.

There are many other features that require explanation before Powell's hypothesis can be accepted, one of which Professor Davis has pointed out in the Brown's Park depression, a longitudinal valley 40 miles long and 5 to 6 miles wide, open only at its eastern end, and nearly in the axis of the range. It is supposed to have been formed by engulfment, and has twice been occupied by Tertiary waters, once in Eocene, and once in Miocene or later times.

How the river kept its course (which three times wantonly leaves the open valley to cut cañons in its hard walls) through all these vicissitudes, would seem to require a more direct explanation than that "The river preserved its level, but the mountains were lifted up, as the saw revolves on a fixed pivot, while the log through which it cuts is moved along."

Inasmuch as the promised discussion did not appear, I have recently asked Major Powell to explain to me his conception of how these things could have been accom-

plished, but he says it is so long ago he no longer remembers the course of reasoning he followed at the time.

I assume that Capt. C. E. Dutton, who at Powell's request took up and completed the latter's Colorado cañon geology, is likely to have voiced his matured opinion on this point. In his paper on the Grand Cañon (2d Ann. Rep. Director U. S. Geol. Survey, p. 62), in treating of the persistence of rivers, Dutton gives a most graphic description of the course of the Green river in its passage through the Uinta mountains. In spite of the fact that he places Horseshoe Cañon on the south instead of on the north flank of the mountains, it is evident that he must have read Powell's description, for he uses not only his metaphor about the 'right of way,' but also the simile of the log preserving its position while the log moves. Whether consciously or not, however, he certainly does not agree with Powell's hypothesis, for he says in conclusion: "What then did determine the situations of the present drainage channels? The answer is that they were determined by the configuration of the surface existing at or very soon after the epoch of emergence. Then, surely, the water courses ran in conformity with the surface of the uppermost (Tertiary) stratum."

Dutton elsewhere states more definitely that the course of the Green or Colorado river south of the Uinta mountains was determined at the close of the Eocene. If this is correct, I was probably wrong in assuming that the Green river first found its way across the Uinta mountains after the Wyoming (Bishop's Mt.) conglomerate had been deposited, because I found undisturbed remnants of this formation on either side of the river, both on the north and south flanks of the mountains and at such elevations that, if the beds were continued across the intermediate country on the same level, they would completely cover that por-

tion of the mountains through which the Green river now runs. I have for a long time been hoping and still hope that some other geologist may make a more thorough examination than I was able to at that time, and determine the nature and extent of this singular formation, which has never been satisfactorily accounted for. Whatever may be the outcome of such an examination, it would seem proper that the antecedent origin of this river should be held in abeyance until some positive evidence of it can be furnished.

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U. S. GEOLOGICAL SURVEY.

ZOOLOGICAL NOTES.

THE SCIENTIFIC NAME OF THE VISCACHA.

ONE of the best known mammals of the pampas of the Argentine Republic is the viscacha, now usually called *Lagostomus trichodactylus*. Unfortunately this name proves to be untenable, but in order to show that such is the case it will be necessary to refer briefly to the history of the species. The animal was first described in 1801, by Azara, who considered it identical with *Cavia acuschy* of Gmelin, which is now known to be an entirely distinct species. Rafinesque, in 1815,* proposed the genus *Viscacia*, apparently without description, so that his name is not entitled to recognition. One year previous, in 1814, according to Waterhouse (Nat. Hist. Mamm., Rodentia, 1848, p. 213), a living viscacha was placed on exhibition in London,† where it was examined by Blainville and Cuvier. Blainville soon after described the species as *Dipus maximus*.‡ Some years later the same animal came into the possession of Brookes, a member of the Linnean Society of London, who gave a full description both of its

* Analyse de la Nature, 1815, p. 56.

† Burmeister states that there were two.

‡ Nouv. Dict. d'Hist. Nat., nouv. éd., XIII., 1817, pp. 117-119.