that they are always bountifully forthcoming. But the things which one really wants, the physical character of an alleged discrepancy, its numerical value, the so-many per cent of error under such conditions,— these one is left to wish for in vain, supposing that one has not long since learned to pay the personal groaning for the personal satisfaction. So far as I am concerned, if I could not adequately state how big a sin it is under which somebody else is staggering, I should prefer to hold my peace, believing that matters of vague conjecture are not fit to be chronicled. Nobody on the same side of common sense would today attempt to exhaust so complex a problem as the one in question in a single instance. It is reasonable, however, to try to remove piece by piece, element by element. What we did was an endeavor to remove the preponderating element, and I must reiterate that if our respite had not been cut short by recent unfavorable legislation, other things would have been brought out in their turn and in due time. Perhaps it is heresy to state that an immense future awaits laboratory research in physical geology; but stating it, one would like to refer not so much to the punching of clay or the pulling of taffy candy, as to legitimate physical measurement However, others have survived even the odium of cultivating "exact" methods. We are soothing ourselves with the comfort of so thinking.

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The Lac de Marbre Trout, A New Species.

DESCRIPTION: B. 11 12; D. 13; A. 13; V. 9; P. 14; Vertebræ 60.

The specimen described is about twelve inches in length. Body subfusiform, compressed, pointed at snout, slender at the tail. Height of body near one-sixth of the total length; head one-fifth, crown convex. Snout one and one third, and interorbital space one and one-half times the eye. Eye little less than one-fifth of the head, two-thirds of the space between the orbits on the forehead. Mouth large; maxillary straight, extending backward almost as far as the hinder edge of the eye, bearing strong teeth on its lower edge for nearly its entire length. Teeth on intermaxillary and mandibles stronger. The tongue bears a series of four strong hooked teeth at each side, and behind the glossohyal on the basibranchials there is a band of several series of smaller ones. Gill rakers straight, short, sharp, rough, 8 + 14 on the first arch. Opercle thin, with a few striæ. Scales very small; apparently there are about two hundred and thirty in the series immediately above the lateral line and more than two hundred and fifty in a row five or six scales above this. Distance from first ray of dorsal to end of snout little more than that from the same ray to the tip of the adipose fin. The middle of the total length falls halfway between the ends of the hinder rays of the dorsal and its base. Dorsal and anal fins are slightly emarginate at the ends of their median rays. Pectorals and ventrals small; base of latter slightly behind the middle of that of the dorsal. Caudal pedicel slender, notch very deep, hinder border sinuous, as in Salmo alpinus, lobes pointed. The caudal notch is deeper in this species than in any other of the American forms except S. namaycush.

Back dark brown with an iridescent blueish tint, unspotted. Dorsal dark, clouded, without spots or bands. Pectorals, anal and ventrals orange in the middle, yellowish or whitish toward bases and at their margins. The dark color of the back shades into whitish tinged with pink below the lateral line. Ventral surface white, no doubt reddish in breeding season. Head black on top, silvery on the cheeks, white beneath. Flesh pink. Caudal fin yellowish toward the base, brown toward the hinder border, which has a narrow edging of light color. Faint areas of lighter tint suggest a few spots of red in life along the lateral line; the condition of the specimens is such that this may be left in question, as also the number of caeca or presence of parr-bands of which there are faint indications

This fish is evidently allied to the blue-back of the Rangeley Lakes, S. oquassa, but reaches a greater size than that species, and is readily distinguished by the maxillary and its dentition, the caudal fin, and the coloration. Similarly when compared with S. arcturus, S. stagnalis and S. Rossi, it is seen to be quite distinct. With the saibling, S. alpinus, introduced in Sunapee Lake and elsewhere, it has still less in common.

Our specimens were taken in Lac de Marbre, Ottawa County, Province of Quebec, Canada, whence they were sent by favor of the Hon. J. G. A. Creighton. They reached us at the instance of Mr. A. N. Cheney, fishing editor of *Shooting and Fishing*, who when asked to suggest a specific name replied with the question, "How would it do to name it for Mr. R. B. Marston, editor of *Fishing Gazette*, London, an Englishman overflowing with good feeling for everything pertaining to fish, fishing and America, and who is doing much to enhance friendly interest between the people of the two countries?" In consequence of the suggestion this handsome char, one of the handsomest of our species, is introduced under the name, *Salmo* (*Salvelinus*) *Marstoni*.

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Tucumcari.

THE writer first visited this historic locality in 1887, before he had had opportunity to define the Denison beds at the top of his Lower Cretaceous section in northern Texas, and fell into the error, which others have not escaped, of concluding, from the peculiar Jurassic-like *Gryphæa dilatata*, Marcou, the only fossils found upon that visit, that the beds were Jurassic, and so published his opinion.

Later, however, after having had an opportunity to complete his study and arrangement of the stratigraphy of the Comanche series in central Texas, he discovered in the Denison beds[1] of his Washita Division certain features which led him to believe that his early diagnosis of the Tucumcari beds was erroneous, and that they were really closely allied in age to the Denison beds. Under this impression, which was communicated orally to all interested, he availed himself of the first opportunity to revisit Tucumcari, April 30, 1891. He then discovered in association with *G. dilatata* the list of additional species herewith given, and, at earliest opportunity, under date of May, 1892, published, in a general discussion of the region, the following revision of his previous conclusions, which was the first printed announcement of the Cretaceous age of the *G. dilatata* beds: —[2]

"The Trinity Sands and Red Bed Regions.

"The writer has twice visited the Mesa Tucumcari and found it a most interesting geological remnant of the former area of the Llano Estacado The table or summit described by Capt. Simpson is covered with the typical Llano Estacado formation, identical in composition and formerly continuous with the sheet which covers the Llano proper, some 20 miles distant. Below this is a vertical escarpment of 50 feet or more of typical Dakota sandstone resting upon loose sands and clays, forming a slope identical in aspect and fossil remains with the Denison beds of the Washita Division, which have been eroded away from the 400 miles intervening between it and the main body of those beds at Denison, Texas. Beneath this is a large deposit of the typical Trinity sands *country*[3] of white pack sands, thin clay seams and flagstones, while the base is composed of the typical vermilion sandy clays of the Red Beds."

Notwithstanding the above clear statement of my opinions, the Third Annual Report of the Geological Survey, printed nearly a half-year afterward, devotes many pages to asserting that I held to the Jurassic age of the *O. dilatata* beds at Tucumcari. Upon pointing out this misquotation, instead of acknowledging the error, and repairing the injustice, it was followed up by a privately

[1] Denison beds as originally defined and used by writer. Not the Denison beds of Taff, as used in an entirely different meaning. Compare Bulletin of Geological Society of America, Vol. II., p. 591, and Third Annual Report of Texas State Geological Survey.

[2] "On the Occurrence of Artesian and Other Underground Waters in Texas, Eastern New Mexico, and Indian Territory West of the 97th Meridian," by Robert Thomas Hill (being part of Vol. III of Senate Document 41, 1st Session, 52d Congress, Washington, May, 1892

[3] For "country of" read "consisting of" — a typographic error.