

ART. II.—*On the Age of the Coal found in the region traversed by the Rio Grande*; by C. A. WHITE.

DURING the past few years many discoveries of coal have been made within the region which is traversed by the lower portion of the Rio Grande, besides those which were made by the members of the United States and Mexican Boundary Commission and other early government expeditions. In Texas, coal has been found in Webb, Maverick, Presidio and El Paso

counties; and in Mexico, in the States of Nuevo Leon and Coahuila. By certain local geologists and mining experts, whose reports have fallen under my observation, a part of these coals have been referred to Carboniferous age, and others to Triassic* age. From personal examination in the field, extending over a large part of the region in question, and an examination of fossils which have been collected by different persons† from strata associated with the coals, I am satisfied, however, that none of them are of earlier than late Cretaceous age.

In some cases the coal of this region is worthless for practical use, but in others it is of good quality; all of it having the general characteristics of the coals which are obtained from the Laramie and Fox Hills formations in Colorado, Utah and Wyoming. From the data and observations just mentioned I do not hesitate to refer all the known coal of the region under consideration to one or the other, or both, of those formations.

In the region of the Lower Rio Grande these two formations appear to be as intimately associated with each other as they are to the northward. Their strata are so similar in general character that it is usually difficult to define a plane of demarkation between them, and in the absence of paleontological evidence it is often difficult or impracticable to distinguish the one from the other.

I have at present no evidence of the presence of the Laramie formation in Webb and Maverick counties, Texas, the coal which has hitherto been found there belonging to the equivalent of the Fox Hills Group of the Cretaceous period. The mines at Santa Tomas, some forty miles above Laredo, and those seven miles above Eagle Pass, are the principal ones on the Texas side of the river. The equivalent of the latter coal is also found on the Mexican side, a few miles from Piedras Negras, opposite Eagle Pass.

From data furnished by Mr. Gardiner, I also learn that both the Laramie‡ and Fox Hills formations exist on the Mexican side of the Rio Grande, in the northern part of the State of Nuevo Leon and the adjacent eastern portion of the State of Coahuila, and that both formations are coal-bearing there.

On the occasion of a late journey in Coahuila, I found both these formations to be well developed in the region which is

*In an otherwise important article by W. H. Adams, M.E.; in the *Trans. Inst. Mining Engineers*, vol. x, pp. 270-273, entitled *Coals in Mexico*, Santa Rosa District, he refers the coal-bearing rocks there to Triassic age; and those at Eagle Pass to the Permian, both of which references are erroneous.

†The collections referred to were made by Mr. James T. Gardiner, of New York, Mr. W. F. Cummins, of Dallas, Texas, and Mr. R. T. Hill, of the U. S. Geological Survey.

‡ See this *Journal*, III, vol. xxv, pp. 207 et seq.

traversed by the Rio Sabinas, a tributary of the Rio Grande. I traced the Laramie strata along the north side of the Sabinas valley for a distance of nearly forty miles, beginning a few miles above Sabinas station of the Mexican and International Railroad, and going down the valley to the southeastward. At the hamlet of San Felipe, about fifteen miles below Sabinas station, some important mines have been opened in the Laramie Group on both sides of Rio Sabinas; and the presence of coal in the same formation has been proved at several other localities in the same district.

On the south side of the river, some twenty miles southwestward from Sabinas station, and westward from the railroad, exposures of coal were observed in strata equivalent with the Fox Hills Group, but no important mines have yet been opened there.

Little is yet known of the character of the coal deposits in the southern part of Presidio and El Paso counties, Texas, respectively; but the coal which is found at White Oaks in Southeastern New Mexico, some 75 miles northeastward from El Paso, is reported to be of good quality. Coal of either Laramie or Fox Hills age, or both, is also well known to exist at many localities in New Mexico and Colorado, along the eastern base of the mountains. It will thus be seen that there is a belt of these two coal-bearing formations extending nearly or quite continuously from the valley of the South Platte in Colorado to the State of Nuevo Leon in Mexico.

It is not necessary to inform the practical geologist that this series of strata is entirely distinct from the coal-bearing rocks of Carboniferous age which extend southward through the Indian Territory into Northern Texas, and also distinct from the Tertiary lignite beds which range through eastern Texas and portions of other Gulf States.