

ART. LIII.—*On Wheelerite, a new Fossil Resin*; by O. LOEW.

DURING the past season's field-work of the explorations and surveys west of the 100th meridian, under the command of Lieutenant George M. Wheeler, to which expedition I was attached as chemist, many interesting chemical facts were observed. Among these may be mentioned the occurrence of a new fossil resin, whose name heads this article. This resin,

which is yellowish in color, was frequently found in the Cretaceous lignite beds of northern New Mexico, filling the fissures of the lignite, and even interstratified in thin layers with the same. More of this substance was seen in the vicinity of Nacimiento than in any other locality. The strata of lignite, slate and clay, in the numerous sandstone mesas of this region, are plainly to be seen in passing by. The behavior of this resin with reagents and the analysis made proves this to be a new compound, heretofore undescribed.

On treating the resin with alcohol, the principal portion is readily dissolved, while a small part remains insoluble. The hot alcoholic extract of the resin deposits, on cooling, a few yellow flocculi. After the separation of the solution from these flocculi, there remains, after evaporation, a yellowish resin, which is very brittle and becomes strongly electric on friction. This resin melts at 154° C. At a higher temperature it emits an aromatic odor, burns with a smoky flame, and leaves a voluminous coal behind.

It is soluble in ether, less so in bisulphide of carbon. It dissolves readily in concentrated sulphuric acid, producing a dark brown solution. From this solution water precipitates it. It forms a compound with potassa in aqueous solution, and is precipitated by acids unchanged. Strong nitric acid readily oxidizes it, with the evolution of nitrous fumes.

0.106 grm. gave 0.284 carbonic acid and 0.076 water.

0.101 grm. gave 0.270 carbonic acid and 0.071 water.

The data give the formula C_5H_6O .

	Theory.	Experiment.	
		I.	II.
Carbon,	73.11	73.07	72.87
Hydrogen,	7.31	7.95	7.88
Oxygen,	19.58		

The true molecule of the resin is probably 5-6 times larger than the above formula expresses. Many fossil resins have been investigated; but none identical with the above, so far as known, has been described.

The retinic acid of Johnston, which he obtained by extracting the retinasphalt of Bovey with alcohol, is the only combination that bears a resemblance to the substance under discussion. This has the formula $C_{40}H_{45}O_6$; is slightly soluble in alcohol, readily so in ether, and melts at 120° C.

I have taken the liberty of naming this new mineral after Lieutenant George M. Wheeler, Corps of Engineers, U. S. Army, the honored and energetic leader of the expedition to which I am attached.

Laboratory of the Smithsonian Institute, Washington, D. C., March, 1874.