

of thin layers closely adhering. They break with a resinous lustre, and when fresh and moist may be cut with a knife; but on drying they become nearly as hard as apatite. In two analyses by Professor B. Silliman, Jr., their constitution was ascertained to be as follows:\*

	Sp. gr. 1·894.	Sp. gr. 1·689—1·813.
Silica - - - -	35·138	31·252
Alumina - - - -	31·950	37·208
Water - - - -	30·800	30·450
Magnesia - - - -	1·050	0·061
Carbonate of lime -	1·210	0·008
Fluorine - - - -	trace.	trace.
Soda - - - -	trace.	0·062
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	100·148	99·041

They are essentially hydrous silicates of alumina, and have resulted from the decomposition of the lavas that overlie the cavern.

Mr. Peale found a passage leading from the place where he entered the cavern to the northeastward, which he supposed to be the continuation of the cavern up the mountain. He traced it along for five hundred feet, and found no termination.

Besides the volcanic region of the western district here described, there appears to have been an eruption of the same age near Laulii, within the central district, intruding there among the older rocks. Crossing a low ridge one hundred or one hundred and fifty feet high, just east of the place near the shores, I passed over large quantities of

\* "Alone in a close tube it gives off water copiously, which is neutral to georgina paper. The powder by heating becomes gray, but does not cohere. Alone in the platinum forceps it decrepitates, loses water, becoming opaque, but does not fuse.

"With carbonate of soda it forms a bead, transparent when hot and opaque when cold. With borax it yields a colourless transparent bead, alike in colour both when hot and cold.

"In nitric or hydrochloric acids it gelatinizes and dissolves, leaving a portion of silica; traces of chlorine and sulphuric acid were detected in the nitric solution. Traces only of lime, magnesia, and alkaline chlorids were detected by the usual tests. Ammonia produces a copious gelatinous precipitate of hydrate of alumina in the solution of the mineral. Lime-water throws down from the neutral solution a small precipitate, which, when collected and decomposed by sulphuric acid in a platinum vessel, distinctly etched a glass plate prepared with wax, thus proving the presence of a minute portion of fluorine.

"The partial decomposition of the mineral rendered its composition uncertain, as the water of constitution varied nearly ten per cent. in different portions, and the silica and alumina five or six."—B. S., JR.