elevated temperatures, their great volatility, as compared with earthy and metallic oxyds, would keep them in the gaseous form till the last stage of precipitation of earthy oxydized matters, when by far the greater part of the globe was probably solidified. Hence we now find them in the earth's superficial crust, instead of being, as Mr. Forbes would suppose, carried to the centre of the planet.

Judging from what we know of chemical affinities, and of the proportions of the elements now existing in the superficial parts of the globe, we cannot conceive anything else than the production of a homogeneous oxydized silicated mass, upon which, at a late period, would be precipitated the noble metals. From this mass, while yet liquid, there might take a separation of various crystalline compounds, by a process analogous to that by which pure lead separates from the bath of the argentiferous alloy in Pattinson's process, as Fournet has already suggested, (Geol. Lyonnaise, 1862, page 398). The last congealed and lighter portion of our globe, with which alone we have to do, was, probably, a sort of mother-liquor from which, during its slow cooling, compounds of various constitution and density may well have crystallized. In furnace operations, it is true, we may obtain, besides silicated slags, a dense stratum of reguline metals, sulphids or arsenids on the one hand, and a lighter one of saline sulphates or chlorids on the other. But neither of these classes of compounds was possible in the cooling globe, the reguline matters for reasons just given, and the saline compounds, for reasons yet to be explained.

I have in my lecture set forth that the earth's superficial crust must have been composed of silicates of the metallic, earthy and alkaline bases, surrounded by a dense acid atmosphere of hydrochloric, sulphurous and carbonic acids, besides watery vapor, nitrogen and oxygen. These chemical combinations are such as would naturally result from the affinities brought into play at the elevated temperatures then prevailing, in virtue of which all those elements capable of forming fixed and stable compounds with oxygen would be precipitated as oxyds. In these conditions, as already said, no metallic sulphids would be formed, and the whole of the sulphur would be found as sulphurous acid. In like manner the production of alkaline chlorids under such conditions, is inconceivable, since in the conjoined presence of oxygen, hydrogen, and silicon or silica, an alkaline silicate and hydrochloric acid would result. Even, if, as Mr. Forbes supposes, chlorid of sodium were to be formed in the heated atmosphere, it would be precipitated into a bath of fused silicates, covered by an intensely heated at-