the pressure of the fluid metal perfectly, and at the same time to permit the escape of the gases formed by the action of the metal on the damp sand. If the material be air-tight, then danger would be from pressure, arising from the rapid generation of the gases, and the casting would thus be spoiled. In moulding, an accurate pattern must first be made, generally in two or more parts. Pattern-making involves much knowledge and skill.

Copper is a refractory metal, which melts at from 2200 to 2600 degree Fahrenheit—a temperature that can be reached only in a furnace, assisted by some form of coal, and an artificial blast. We must have good evidence before we assert that these dwellers by the lakes possessed these indispensable auxiliaries to successful working in metals. Copper, when melted, is thick and pasty, and without the addition of some other metal, will not run into the cavities and sinuosities of the mould. Even now there is no article smaller than a three pound hammer cast in pure copper. In casting in copper, it is positively necessary to put the materials in a crucible, and that the surface of the melting mass be covered with a flux in order to protect the melting metal from the oxidizing action of the atmosphere. The manufacturing of good crucibles, such as will withstand the heat necessary to melt the more refractory metals, involves such a degree of knowledge, that for many generations the entire civilized world was dependent on a small section of Germany; and even now Hessian crucibles are unsurpassed. It will sufficiently indicate difficulties and scarcity of the materials used, when it is known that America today is dependent upon Europe for the immense number of crucibles used in this country.

A large majority of these copper implements have specks of points of pure silver scattered over their surfaces. Now I am prepared to prove that one single particle of pure silver, visible even with the aid of a microscope is evidence *positive* that the specimen was never melted. A fibrous texture is another evidence that these implements were hammered or rolled out. This fibrous quality is well exhibited by the stria of hard bands found in all specimens. We certainly would expect to find some evidence of a *sprue*—the point where the metal is poured into the