action was pulling them to pieces, and they are in a mouth distinctly acid. Dr. Ames thinks this coppery color is due to the material being improperly or insufficiently amalgamated in the first place, and to *excessive grinding*, at least I think he *guesses* at the last. My experience goes to show that extensive trituration improves all amalgams, and especially copper amalgam.

Dr. Custer, who opened the discussion upon Dr. Ames' paper, and who fully endorses the theory advanced, says that "Copper amalgam consists of copper particles in a fine state of division, whose surfaces are more or less amalgamated. If this amalgamation is perfect there will be no copper surface exposed at all, yet if one of these particles be broken in two its whole inside will present a clean copper surface." He says, "there is no fusion of one metal into another." I have seen it stated time and again that there is no real chemical union between mercury and another metal in an amalgam. Perhaps there is not; but I believe there is fusion, just as much as there is between gold and silver, in an alloy of those two metals, or as there is in an alloy of silver and tin.

I do not know exactly what relations the different metals bear to each other in the state called fusion, whether the minute infinitesimal particles of each metal remain intact and distinct from each other; but, whatever fusion is, I think that the same condition exists in an amalgam. There may be particles of free copper in copper amalgam, and in the coarser grades I think there are; but their surfaces must be covered with an alloy composed of copper and mercury fused into each other. It is reasonable to suppose this coating of alloy has a perceptible depth, and the finer those particles are the more complete the fusion, and if we follow it up we can imagine a state of affairs when this fusion goes clean through the minute particles of copper, and then there would be no free copper contained in the mass. We can cover a piece of copper completely with mercury by rubbing it in; so, by grinding copper amalgam and breaking up the minute particles of copper and rubbing in the mercury upon them we get more complete fusion. But, better still, if the copper, in the first place, be precipitated in as fine a state as possible upon the mercury, we have a more thorough fusion still, for we know that copper precipitate, in a nascent state, amalgamates or fuses with mercury.