

difficult to work. In grey cast iron, the carbon is in the free state, forming little particles of graphite.

In welding, it is necessary to obtain grey cast iron, and so the requisite conditions to do so should be taken in consideration.

The rapid cooling of cast iron in fusion tends to bring the combination of carbon and iron to form white iron. In welding, special attention should then be taken to get very slow cooling so as to obtain grey cast iron.

Also the use of a filling rod containing a higher percentage of silicon helps the carbon to separate in a free state, and to make consequently grey cast iron.

Manganese should be avoided, as it has the contrary effect. Burning the carbon by the blowpipe will tend to produce white iron.

To resumate, I will say that it is easy to produce perfect welds in cast iron, easily to be machined by sticking to the following conditions.

Slow cooling: silicon in the welding rod—absence of manganese; avoiding to burn the carbon by keeping the welding flame at quarter inch to half inch from the molten metal; by using a proper flux which destroys the oxide formed.

I thought I would like to explain these little points which explain why the cast iron sometimes cannot be machined due to improper treatment.

Mr. J. Macmillan,—

I have very much enjoyed Mr. Arnett's paper. No doubt, you are all more or less interested in this oxy-acetylene welding process. Probably some of you possess welding outfits, and there may be others who are considering the purchase of one. I would like to give a word of advice to prospective buyers of welding plants: be sure that you get a plant which is large enough to handle the work which you intend to undertake. Be sure it is one that is built of the best materials and see that the people from whom you buy give you full instruction on its operation and maintenance.

This system has had somewhat of a set back in consequence of the number of irresponsible people who are getting up cheap "outfits" and placing them on the market—merely get-rich-quick schemes, and resultantly there are people who are prejudiced against oxy-acetylene welding, although it will do all we claim and more.

Mr. L. R. Arnett,—

These remarks are very true. I know of a case where an outfit was sold for \$75.00 and the man did not seem to be able