

February 22, 1948

John Chipman

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At Dr. Russell's invitation, I was present at a test of the horizontal extrusion press at the B & T Metals Company in Columbus with some billets sent from M.I.T. The experiment was planned for 9 A.M., February 21. Present were Mr. Jones of duPont, Dr. M. Smith of the company, Dr. Russell, Cinnell and Layton of Battelle, several men from B & T and myself. The 70 pound billets were heated to 1000°C in a natural gas atmosphere and transferred to the press. The rod is extruded horizontally through a shear type die after which it is picked up by tongs.

The dies used were made of a steel developed by Battelle. The first billet started to extrude in a satisfactory manner but was rather crooked. Therefore, the press was stopped momentarily so the end of the rod could be gripped. When the press was restarted, apparently the die had been sufficiently heated by the long contact with the metal so that it softened and closed in so the remainder of the rod tapered off to a point. The die originally had been heated to about 300°C. A second die was put in and two billets extruded successfully. These were rather crooked but it was found possible to straighten them quite well using the same technique we had found satisfactory at Wolverine, namely, to pound them with wooden blocks.

The surface of the first rod was good, about as good as the best we have ever obtained at Wolverine, although showing ribs. The second rod was somewhat less good because the die had been scored.

The working conditions at this factory are much more pleasant than at Wolverine since ordinarily no lubricant was used on the Al, making the surroundings much cleaner. There is also an advantage in the fact that the rod is extruded at floor level and probably some improvement by the use of the horizontal rather than the vertical press. The slower speed of this press and better control appear to be in its favor for our metal. However, the extrusion of tube, especially of the thin wall, appears improbable on this press because of the method of holding the die and mandril. Therefore, it is believed that it may be useful to continue some of these experiments at Wolverine.

A sample of the extruded rod was brought back for grinding experiments.

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EC/o
 CC Cooper
 Foote
 Greenwald
 Doan
 Grayton