ENGINEERING CLUB OF CANADA

There is no question about one point that Mr. Duguid made, and that was the great increase in power necessary to remove a given quantity of metal, with high speed steel tools, with quick removal as compared with ordinary carbon steel at the former rate of removal. This just illustrates the story of driving a steamboat at her ordinary speed. If you want to increase the speed you will use up more steam and burn a great deal more coal in proportion to the increase of speed. It is an illustration of an exception to that old adage, "most haste less speed," but in this particular case we get speed and we also get more haste, and so we get through quicker by using this speed.

In regard to diagram Fig. 1, I would like to say a word in defence of the "old man" who said "Don't make the tools too broad." I am not sure myself but what perhaps Mr. Duguid has overlooked the chief points in the old man's favor, as later on he spoke of the manner in which the cutting edge of the old carbon steel tools crumbled away, therefore the use with high speed steel of the larger edge no doubt helps to preserve the tool, but there is no doubt as to the superior results with high speed steel, and that class of tool is the right one.

Mr. Duguid spoke of certain conditions in the old days: the tool dresser. I am looking back, and it is a long while ago, to the time when I was working on a lathe and planer. I was somewhat of a crank myself, I do not say that I was a cracker-jack, but I do say that I was a crank, and one of the things I was always most particular about was the forging of my tools.

Mr. Harkom then gave an illustration on the blackboard of what was considered the best method of shaping tools for heavy cuts when machines were not so rigid and steel had not the qualities of the modern high speed article.

The practice of throwing a heavy stream of water directly on the chip, as shown by Mr. Duguid, and not under it, is undoubtedly right. It stands to reason that it must be right as this is unquestionably the best way of applying the cooling medium to the point where the heat is greatest.

Mr. Wickens,-

I think the thanks of the Club are due to our president for the paper which he has read to us to-night. It has been more than well prepared, and he has shown us that he is master of his subject, and I have very much pleasure in moving a hearty vote of thanks to our president for his very able lecture.

Mr. Newman,-

Before seconding that motion, I would like to ask for a