know if this is done the tools will not have any cracks, and therefore the tools would probably stand three times as long as the tool which was not so carefully heated while being dressed.

There is no doubt that high speed steel can be over heated, although high speed steel will stand much more heat than carbon steel, but when it has once been over heated part of its usefulness is gone, and cannot be restored, while you can restore the usefulness of carbon steel after it has been over heated.

Mr. Duguid spoke about the difficulty of getting heavy enough cuts with high speed steel. Our old lathes were built on the old style, the spindles were light, the belts were narrow, and if we put on too heavy a cut the tool carriage would spring and we would have everything twisted out of shape. We were also bothered by trembling, or as we call it, chattering.

All this was not the fault of the steel, but simply because we were trying to make the tool do more work than it should. When we were turning engine shafts, we never got a round shaft, and you can imagine the difficulty we had in making these shafts fit into the holes that had been bored round and true.

Chairman,—

From time to time we have old members, who have left the city attend our meetings. I know you will all be pleased to hear that we have with us to-night Mr. Harkom, consulting engineer, of Richmond, P.Q., and we will be pleased to hear from him. He is one of the old school as well as one of the modern ones, and can link the past with the present.

Mr. Harkom,—

I must confess that when I came here to-night I did not intend to say anything; however, when I received a notice of this meeting I did hope that I would be able to be present, and I am very pleased that I was able to be here and express my personal gratification and appreciation of the instructive paper which our president has read to us to-night.

During the course of his address I began to wonder whether it was possible to have another illustration like the one showing the horse power required to remove metal with high speed steel, making a comparative table in which the use of carbon steel could be shown. I know, of course, that it would be very difficult to do so, and it would be necessary in making this test to set aside the ordinary work. This would, of course, be out of the question under the conditions under which we have to work in these days. Before the advent of high speed steel we did not find it necessary to formulate such a table as that.