where it is required to run a line on the same course as the governing line. We might also suppose that sometimes at the second observation the instrument is reversed, or that the telescope at least may have been reversed in its Y's. Now, gentlemen of the present day, how many would trust or vouch for the correctness of a line the course of which was obtained by an instrument of the above description?

Then, as to instruments for measuring distances. We all a few years ago used the old Gunter chain, made up of one hundred longer pieces of iron or steel wire and from two hundred to three hundred shorter pieces of wire, so put together as to form the chain. These were all sure to wear and liable to accidents, and in a short time the chain was anything but sixty-six feet long. To-day most of us would not like, for work requiring care, to trust to the old-fashioned chain. For my own part, I may say that I have not used one for any kind of work for nearly ten years, but have used continuous steel bands of various kinds. I have had some of Chesterman's blued steel bands that have measured not less than one thousand miles of line, and some of the lines in new townships amongst the rocks and mountains in the worst portions of Algoma, in both winter and summer.

I would say that I think some better method than that now followed should be adopted for testing and correcting the lengths of chains and tapes. The old pine stick five links long is quite incompetent to correct a steel tape sixty-six feet or more in length.

I understand that the Dominion Lands Department have perfected arrangements for issuing to D.L.S.'s standard steel tapes, one hundred links long, divided and marked at given temperatures. If these could be made available to P.L.S.'s, and a copy of the standard be deposited with the Inspectors of Weights and Measures throughout the Province, this might give all the uniformity desired; but I think every surveyor should be in possession of a standard of not less than sixty-six feet long himself.

I would make a passing reminder also of some of the instruments common nowadays, used for economy's sake, such as the various telemeter appliances for measuring distances, the different planimeters for mechanically adding the area of any figure, and the equatorially mounted transit, commonly called the solar, for mechanically solving the astronomical triangle. One of our members, Mr. McAree, presented a good paper at our last annual meeting on Solar Azimuths, which reminds us that one of the objections to taking observations on the sun for azimuth is on account of the rapid movement of that body making it difficult to get the exact instant of observations of the limb, and time being a very essential element in the calculation. With the solar this source of error does not apply. The contacts are taken by it with the same ease and precision that the same could be made on Polaris or other slow moving star at its elongation, and if the instrumental error can be eliminated I see no reason why an observation by the solar on the sun should not approximate to the same precision as one on Polaris.

I had intended to substitute my description of the planimeter for my report on instruments, but as that got in yesterday, and as our