incorporated and what avoided in the design of large reflecting telescopes. As is well known, in the 60-inch mounting the tube swings in a huge fork on the north end of the polar axis and in the 100-inch centrally between the two sides of a long bifurcated polar axis. In the case of the 60-inch, owing to interference of the tube with the mercury float, low declinations cannot be reached, while with the 100-inch the forked polar axis prevents the telescope tube from reaching a circle of about 30° radius around the pole. While such limitations are not very serious, especially where as in this case there are two large telescopes which supplement one another, yet in the design of the Canadian telescope it was deemed desirable, other things being equal, to have it mounted so as to reach the whole of the sky available at this latitude. As this is readily obtained by a type similar to the Crossley, Ann Arbor or Melbourne mountings, the Mt. Wilson forms were not seriously considered, although they have advantages in their symmetrical form, in the fact that the axis of the tube intersecting the polar axis lightens considerably the weight of the moving parts and requires a somewhat smaller dome than when the tube is mounted eccentrically. At the Detroit Observatory, Ann Arbor, where is a $37\frac{1}{2}$-inch reflector of quite recent construction, I also obtained useful assistance in many details of construction, and am indebted to Dr. Curtiss for his willingness to assist in every possible way.

The Harvard Observatory was visited and I was much interested in the novel and original way the mounting of the 60-inch Common telescope was being carried out and in their method of synchronized electrical driving in the place of the regular governor type employed in most telescope driving clocks. Director Pickering was most kind and eager to give assistance in preparing specifications to give the best results.

Finally the works of the Warner & Swasey Co. of Cleveland and of the J. A. Brashear Co. of Pittsburgh were visited and further information of a very valuable character in regard to the mechanical and optical details of the proposed telescope were obtained.

This mass of information, much of it of course contradictory, was then arranged and tabulated and I set myself the task of preparing specifications from which competitive tenders could be obtained. In these specifications the purpose was to set forth the general form of the mounting and optical parts, the essential operations to be performed with suggestions as to the means, and the character of the workmanship required, but at the same time to leave the makers of the instrument full scope for the exercise of their ingenuity and experience in working out the details of the mechanism.

In deciding between opposing opinions in regard to the best practice optically or mechanically, especially in the latter, I was possibly better equipped than most astronomers owing to my mechanical training and knowledge and I venture to think that owing to this training the telescope is a better instrument than would have otherwise been the case.

It has seemed desirable to insert here the specifications sent to the competing firms, as indicating what I considered the best practice before the telescope was designed and in the hope that they may possibly be of use to others. As will be noticed when the description is given, these specifications were altered in a few details but generally speaking were fairly closely adhered to, and were sufficiently definite to enable tenderers to closely calculate the cost of the completed instrument and hence give an equal chance to all.