

them. A system of fiducial lines which may be adopted with advantage in ordinary collimators is, however, worthy of note. Instead of setting one spider line upon the image of another, the spider line in one collimator is replaced by a fine transparent line through a narrow band of some opaque substance on a plate of glass. Thus when the observer looks at the image of this band in the other collimator he sees in the center of the field a fine horizontal or vertical bright line on which he can set the dark line of his collimator with great precision. This plan does not, however, so far as I can see, readily permit the setting to be made by means of the dark band collimator. Whether this limitation is a serious defect is a question on which opinions may differ.

OBSERVATORY BUILDINGS.

In the course of my journey I had the opportunity of visiting two new observatories of the first class erected within the past few years: one, the Imperial Observatory at Vienna, the other the Astro-Physical Observatory at Potsdam. It is generally necessary to design an observatory with especial reference to the character of the observations to be made and the objects to be pursued. To this may be added the frequent necessity for gratifying some public taste with respect to architecture. For these reasons one observatory cannot well serve as a model for another; but there are certain special features which would work equally well under nearly all conditions, and which are therefore worthy of consideration in building any observatory.

In the Vienna Observatory the architectural element predominates. I did not observe any new feature of especial importance to the designers of future observatories except those already noted.

The Potsdam Observatory, as its name implies, was designed with especial reference to physical observations upon the heavenly bodies. This branch of astronomy in its present development is so new that every establishment for prosecuting it has to be planned with reference to the special work to be done. Hence, notwithstanding that the observatory in question is, in its outfit and design, one of the most perfect yet built, those features of it which it would be advisable to incorporate in another establishment, built perhaps for another purpose, would generally occur to the designers of such an establishment. The following are, however, well worthy of consideration in all plans of new observatories.

The effect of the sun's rays upon the metal roof of the building is to heat