

ment can be read to half-minutes by verniers on a graduated circle. This adapts it for use as a laboratory spectroscope and spectrometer. The whole instrument is thoroughly well made and serviceable for a great variety of general work, but, as previously stated, the universal construction is one which is least adapted for use where the great stability and rigidity required in stellar velocity determinations is necessary. For that purpose the universal form has been entirely abandoned elsewhere, and spectrographs of the most rigid possible construction have been obtained in which all universal features have been sacrificed to stability, and which make photographs of star spectra only in one region of the spectrum. Until such a spectrograph could be obtained here, I undertook the task of so modifying the present instrument as to render it serviceable for accurate radial velocity work, with what success will hereafter appear.

The dimensions of the optical parts are as follows :—The collimator objective is of 15 inches focus and $1\frac{1}{4}$ -inch aperture, but diaphragmed to slightly over an inch, to have the same angular aperture as the system of objective and correcting lens. The camera is of 15 inches focus and $1\frac{1}{4}$ -inch aperture. The train of three prisms has been the sole dispersing medium used in radial velocity work, the prisms of which are of such dimensions as to transmit the full beam from the collimator, and are made of dense flint glass whose index of refraction for H_γ is about 1.64. The refracting angle of each prism is about $62^\circ 30'$, which gives a total deviation for H_γ of about 160° . The resolving power at H_γ is about 40,000, the purity with a slit 0.025 mm., the normal width used here, is slightly over 8,000, and the linear dispersion 18.6 tenth-metres per millimetre.

ADJUSTMENT OF THE SPECTROSCOPE.

In placing a spectroscope in adjustment, three points require careful attention :—(1.) The collimator focus. (2.) The camera focus. (3.) The adjustment of the prisms to minimum deviation. Of these, in my opinion, the exact focussing