diameter of the image increases nearly in proportion with the focal length, and therefore approximately, as the ratio of aperture to focal length does not vary much in large instruments, with the diameter of the object-glass. Consequently, the effective value of increase of aperture is not proportional to the increase of area, but more nearly to the increase of diameter, which was accordingly used in the comparison. So far as regards the relative dispersion of different instruments, the exposure time was taken as directly proportional to the linear dispersion, presuming the same height of spectrum in each case. No account was taken of the difference in the loss due to absorption and reflection in the prism-train, although this may be quite important in some cases. The exposure time required was taken as inversely proportional to the slit-width, and this, as one of the experiments detailed above shows, is probably nearly in accordance with the facts. In the following Table V, data of the various equipments which are and have been used for radial velocity work, so far as they were available to the writer, appear, but these data are incomplete and may in some cases be in error, although probably not to a marked degree.

TABLE V

COMPARISON OF EFFICIENCIES OF INSTALLATIONS

Equipment	Diameter of Objective, inches	Ratio of Diameters	Ratio of Areas	Linear Dispersion, mm per Tenth Meter	Slit Width, mm.	Theoretical Exposure	Actual Exposure Required		
							β *Ophiuchi*	γ *Aquilae*	α *Bootis*
Ottawa	15	1	1	18.6	0.025	1	50m	60m	6m
Yerkes	40	2.67	7.1	10.8	.038	0.42	75	115	15
Lick	36	2.4	5.76	12.5	.025	0.62	25?	25?	4?
Lowell	24	1.6	2.56	11.4	.025	1.02	120	120	20?
Newall	25	1.67	2.78	14.6	.025	0.76	70	75	15
Bonn	12	0.8	0.64	15.2	.020	1.91	75	75	15
Pulkowa	30	2.0	4.0	13.0	.020	0.80	65?	65	15
Lord	12½	0.83	0.69	18.6	.025	1.20	60?	60?	4

The above comparison shows that the Lick, Bonn, and Lord equipments *in practice* approach more nearly the theoretical efficiency than the Ottawa, but the Yerkes, Lowell, Newall, and Pulkowa depart farther from it.