

ADAPTING A UNIVERSAL SPECTROSCOPE FOR RADIAL VELOCITY DETERMINATIONS.

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ONE of the chief lines of work planned by the Director in obtaining the instrumental equipment of the Dominion Observatory was stellar spectroscopy. It was hoped that satisfactory work in that line could be done with a fifteen inch telescope and a suitable spectroscopic outfit. Recent investigations by the writer have shown that such a telescope, with an efficient correcting lens, can successfully attack almost all the stars reached by some of the larger equipments, and that the field open to it for one particular branch of spectroscopic work, the determination of the radial velocities of stars, is a very wide one. Consequently the greater part of my time has been devoted to putting the instrument into satisfactory shape for the accurate determination of such velocities, and other spectroscopic work has only been partially touched upon. It is hoped however in the near future, when more assistance has been obtained, to broaden the line of research to include investigations into the spectra of stars of different types, into peculiar spectra, and into some parts of stellar spectra,—the region of longer wave length, now almost entirely unknown and untouched upon.

The principal radial velocity work so far undertaken has been the determination of the velocities of certain of the brighter stars, the so-called standard velocity stars inaugurated by Frost, and the determination of the velocity curves and orbits of some half dozen spectroscopic binaries. The chief value of the velocity determination of the standard stars in this case lies undoubtedly, as will be evident below, in the test they furnish of the accuracy of the spectrograph. That such tests were necessary will appear when I come to describe the process of putting the instrument into shape for accurate work.