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DISCUSSION FOLLOWING THE INTRODUCTORY TALK BY JEFFERIES

Skumanich — There is a hidden parameter in Jefferies' curves which I think should be brought out, namely, the thickness of the chromosphere or, conversely, the scale height. If the optical thickness of the chromosphere is held constant and there are changes in the density, then the physical thickness must change. Such *2.* change is governed by the momentum equation (e.g. hydrostatic equilibrium).

Jefferies — You are quite right. I should have mentioned that for illustration I took a constant optical thickness for the chromosphere and varied X independently.

Skumanich — This makes three parameters not two, and we should worry about the variations of all three.

Jefferies — Yes, that's correct, and the relationship of the thickness of the chromosphere to the density is of fundamental importance. In point of fact, if the optical depth where the chromospheric temperature rise begins

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is greater than the thermalization length then you'll have strong chromo - spheric emission, and if it's less the emission will be weak.

Athay - There is another aspect of the uncertainty coming into the profile, and that is the opacity of the atmosphere. Even the photoelectrically controlled lines depend on temperature due to the temperature dependence of the line opacities.

Skumanich — One more parameter is that which describes the kinematic situation, and this brings the number of basic parameters to four.

Poland — In reference to the statement that an increasing source function is the result of a chromosphere, it should be mentioned that Auer and Mihalas have obtained results that show it is possible to get emission lines due to optical pumping without a chromosphere. For example Hell lines can be pumped by hydrogen lines if the overlap is sufficient.

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