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Physical Models for Three Period-Changing Eclipsing Binary Stars CAMERON WESTERLUND, JASON RAY, MATTHEW BEAKY, Juniata College — Eclipsing binary stars are star pairs that orbit around the systems center of mass, with the plane of the orbit oriented such that the stars periodically block the others light as seen from Earth. If one star in the system evolves faster than the other, it may overfill its Roche lobe as it expands and transfer matter to the other star, which can be observed as a steady change in the systems orbital period. Three overcontact eclipsing binary star systems that are known to have a changing orbital period, and which are suspected of experiencing mass transfer, were observed during summer 2015 at the Juniata College Observatory in Huntingdon, PA. Differential photometry was performed using Juniatas 16-inch Schmidt-Cassegrain telescope and the 31-inch reflecting telescope at Lowell Observatory in Flagstaff, AZ. Using the modeling software PHOEBE, we analyzed the observed light curves to determine physical parameters of the neglected eclipsing binary star systems EG Canum Venaticorum, KN Vulpeculae, and V579 Lyrae. Complete light curves and preliminary models for these star systems will be presented.

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