It seems, from the color index data alone, that the cluster is remarkable in possessing a main sequence which reaches only F stars before the red giant branch sets in, and in having two early-type stars which are apparently quite independent of the cluster's main sequence and giant branch. Further study of the spectra of some of the fainter cluster stars would be of interest.

*U. S. Naval Academy,
Annapolis, Md.*

Gaposchkin, S. The eclipsing systems SX and RX Cassiopeiae.

SX Cassiopeiae. The eclipsing variable SX Cassiopeiae, discovered by Mme Ceraski on Moscow plates in 1909, has been studied on the basis of 2045 photographic observations, in addition to the 537 visual observations published by Dugan, and Struve's spectroscopic results. The period and the elements as found by Dugan are confirmed. The relative dimensions are as follows:

	Photo-graphic	Visual
G6 star		
Mean radius	0.200a	0.250a
Luminosity, $L_1/(L_1 + L_2)$	0.36	0.46
A6 star		
Mean radius	0.044a	0.118a
Luminosity, $L_2/(L_1 + L_2)$	0.64	0.54
Inclination of orbit	87°:7	88°:3
Ratio of surface brightness	36.9	5.3
A6/G6		
Ratio of radii A6/G6	0.22	0.47

It has been found that in view of the uncertainty of the spectroscopic determination of the mass function, a mass of five times the sun's mass for each component would be close to reality. Then the absolute dimensions of the system are as follows:

	Photographic	Visual
G6 star		
Radii	19☉	22☉
M_{vis}	+0.09	-0.23
A6 star		
Radii	4☉	10☉
M_{vis}	+0.60	-1.39

Our observational photographic results and the relative dimensions obtained from them agree exactly with those determined by Gerasimovič in 1927.

The chief result of our investigation is that the radius of the blue component, A6, is smaller, the shorter the wave length. SX Cassiopeiae provides the first conspicuous example of this phenomenon. A comparison with Struve's spectroscopic observations suggests that the peculiarity of the blue component is associated with a thick atmosphere, which surrounds not only the A6 star but probably the whole system, and is asymmetrical in distribution.

RX Cassiopeiae. The photographic light curve from 2037 observations and visual light curve from 324 observations are combined with Struve's spectroscopic results to determine the relative and absolute dimensions. The whole light curve undergoes a variation with a period 517.6 days and a range of 0.46 magnitude. The photographic light curve shows a difference of 0.16 magnitude between the maxima, the largest ever observed. An additional drop of brightness of 0.08 magnitude is observed just before primary minimum. The visual light curve shows a much larger ellipticity of the components, analogous to that in the system SX Cassiopeiae, than the photographic light curve. The relative dimensions are as follows:

	Photo-graphic	Visual
G3 star		
Major axis	0.39a	0.36a
Luminosity, $L_1/(L_1 + L_2)$	0.43	0.36
A5 star		
Major axis	0.17a	0.28a
Luminosity, $L_2/(L_1 + L_2)$	0.57	0.64
Inclination of orbit	78°:8	
Ratio of surface brightness	7.2	2.8
A5/G3		
Ratio of radii A5/G3	0.43	0.8

If we adopt seven times the mass of the sun as the mass of each component, then the absolute dimensions of the system are as follows:

	Photographic	Visual
G3 star		
Radii	37☉	32☉
M_{vis}	-1.4	-1.4
A5 star		
Radii	16☉	26☉
M_{vis}	-1.9	-1.7

As in the system of SX Cassiopeiae, the existence of a considerable gaseous envelope around both