

# BAA CLUB BULLETIN

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Editor - L. FEINAGEL

## MAY 7 MEETING FEATURES WALTER SEMERAU

During the meeting in the Roosevelt Room of the Museum of Science Walt will give a demonstration-talk on his latest advances in the field of solar observation. His talk will include slides of his equipment and photographs taken through his coronagraph and spectroheliograph. He will explain the mechanics and principles of his instruments and give a forecast of things to come.

Please try to get there before 8 P.M. as we would like to get the business meeting over as soon as possible and get to the meat of the program.

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## NEW MEMBERS

These two people have entered the club since our last meeting:

- 38) Wagner, Hoyt - CL 5591  
19 Alexander Drive  
Clarence, New York
- 39) Peltz, Thomas - RI 4664  
122 Shepard Avenue  
Kenmore 17, New York

These names will be included in the June membership listing.

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There will be one more meeting this year on June 4, the first Wednesday. This meeting will be devoted to a complete report of the I. G. Y. activities in the Buffalo Astronomical Association and subsidiary committees. This includes a report from the Moonwatch Committee, Auroral Committee, and the Semerau Solar Observatory. Mr. Lindberg will be present to report on the advances of the Moonwatch Committee.

During this meeting we will also have our annual election of officers. Since this is a most important phase of our club you are required to be present for these elections and to co-operate in the nomination of these offices.

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## AN AMATEUR ASTRONOMER BUILDS A PHOTOCELL GUIDING SYSTEM

Walt Semerau, of 135 Zimmerman Blvd. in Kenmore, has kept the world of astronomy and engineering in amazement with the construction of a series of instruments for solar observation. To see this array of objects clustered about a mounting causes the person to think that they would take a lifetime in the construction. Actually though, Walt has built, in his basement workshop, a spectroheliograph, a time lapse camera and a photocell guiding system in little over a year.

This latter piece of equipment, the guiding system, has not yet been officially publicized and so this paper might consider it an honor to disclose a few of the details of the setup.

The principle is basic: a photocell tube, when light is shining on it, will effect a current flow in the circuit in which it is connected. This optical-electronic principle has innumerable applications of which this is the more complicated.

The optics consist of a single convex 3" objective with a 60" F.L. This in itself will give a 5/8" image of the sun but when coupled with a negative lens a Barlow effect results and a 1" disc of the sun is obtained. This disc is projected on a pyramidal-mirror arrangement (see illustration). The top of the pyramid is cut off because only the light from the very edge of the sun is

" Pieces of cover slips, used in microscope preparation, served for mirrors and a rod slipped through the center of the pyramid and the negative lens gives more accurate alignment and dispenses with a tube", writes Walt.

The two photocells on each axis are connected in parallel with Brown Continuous Balance Amplifier and are powered in parallel by a 90 v. dry cell battery. If there is any axial displacement of the image in Declination the one photocell will receive more light than the opposite and the amplifier will send out an A.C. voltage, with polarity corresponding to the displacement, to a synchronous motor geared to drive the declination. The polarity determines the direction of the motor and the displacement is corrected. This same setup is duplicated for the R. A. axis.

After using this guiding system for a couple months, Walt reports: " Its performance exceeds my most optimistic hopes. With its angular correction of less than a second of arc, I can leave it for hours, on a clear day, and depend on its guiding. "

Sometime during the weeks to come, Walt will have completed the time-lapse cameras for both the Coronagraph and the Spectroheliograph and with this setup, he can leave the observatory and attend to other matters while the " Eyes " scan and record every minute change in our mysterious source of life.

