

Proposed Bylaw Amendment

Business Meeting to be held on November 1, 1965

Society President Ethan M. Stifle has announced that the Board of Governors approved at its July 22, 1965 meeting that an Annual Meeting be called for Monday, November 1, 1965. This Annual Meeting will be held in the Marquette Room, Queen Elizabeth Hotel, Montreal, Quebec, Canada, and will be held in conjunction with the 98th Semiannual Technical Conference immediately following the Get-Together Luncheon.

One purpose of this meeting is to vote on a proposed revision to the Society's Bylaws. This revision has been prepared by the Revisions Committee, Robert G. Hufford, Chairman, and has been approved by the Board of Governors. The Society's Constitution and Bylaws were published in the April 1965 *Journal*, Part II, pp. 13-18.

The proposed Bylaw revision to be offered at this meeting is:

Article III, Sec. 2, Subsec A, paragraph 2. Regional Representation

Amend to read: "Except as hereinafter provided, the Eastern and Central regions of the United States shall include such Sections of the Society as have their headquarters' city located respectively in the Eastern and Central time zones; the Western region shall include all other Sections having their headquarters within the United States and all other members of the Society resident in the United States but not included within the geographical area assigned to any Section. The Board of Governors may assign any of the foregoing Sections or members to an adjacent region upon determination that such assignment will better serve the interests of the members of that Section. The headquarters city and geographic boundaries of each Section, together with the region to which assigned, shall be defined in the Administrative Practices."

Letters to the Editor

Re: Automatic Lens Design

Dear Sir:

Mr. Brixner's article on automatic lens design* might easily leave its readers with some incorrect impressions. The "classical" lens referenced by Brixner is erroneously reputed to have been designed by me. It is not sufficient to publish a simple note to the effect that I did not design this lens. This would receive no attention and the damage has been done. Furthermore, such a disclaimer would be an implied insult to those who did design the lens and an implied agreement with Brixner. I make no such implications; the fact is not that the performance of this lens is bad, but that Brixner's evaluation of it is fallacious. I have analyzed the relative merits of the Brixner lens and the classical lens and summarize my findings below.

I first evaluated the "classical" lens by causing the computer to duplicate, insofar as possible, the type of evaluation which Brixner performs — more as a matter of curiosity than as a serious attempt to "evaluate" the lens. The numbers generated thereby were too large to be taken seriously. When results are as incredibly bad as those indicated it is a matter of common sense — to say nothing of common courtesy — to submit them to the criticism of the lens designer. I thereby obtained from the Northrop Corporation the following information:

(1) The entrance pupil of the lens is well behind the first lens vertex, not in front (as shown by Brixner);

(2) the lower rim rays of oblique pencils are vignetted by a filter in front of the lens;

(3) the lens was designed to concentrate the maximum possible amount of the energy of a star image into a suitably small core, and rather than allow this core to become unduly large, a flare around the core was allowed in the off-axis images;

(4) the lens is to be used with a square image format and the nature of its use assured that almost all events recorded would fall within the inscribed circle ($8\frac{1}{2}^\circ$ off-axis). Consequently, *little design attention was given to the corner images* — except as regards distortion — compared with the area which would contain almost all of the information. (I was also presented with a high-quality photograph taken with the "classical" lens.)

An evaluation of the "classical" lens according to the intended use as outlined above — and with the proper plane of best focus, the proper entrance pupil, and the proper vignette of oblique rays — promises good performance. The axial image (discounting the inevitable secondary spectrum) is excellent. This fact is of course buried if off-axis flare light is allowed to participate in selecting the plane of best focus. The position of the plane of best focus as reported by the designer is 0.26 mm inside Gaussian focus, whereas Brixner finds the plane of "best" focus to be 0.37 mm outside. To well beyond 8° off-axis, the core image remains small and contains a substantial part of the total energy.

It is an extremely tedious task to compute to any degree of precision how small the core image is and what percentage of energy it contains. In the final analysis this depends on secondary spectrum and hence will be almost completely dominated by the amount of weight given to the ends of the spectral range.

Brixner's allegation that the lens has a large residual of lateral chromatic aberration is particularly illustrative of the misconceptions which can arise from an off-the-cuff analysis. The centroids of the off-axis images do indeed move with wavelength about as Brixner reports. (Some of the most aberrated rays are vignetted and centroid shift is not quite so severe as alleged.) This chromatic aberration of the centroids is primarily due to the fact that in blue light flare tends to be inwardly directed, and in yellow light more outwardly directed, but the core images are essentially superposed at all wavelengths. A

*Automatic lens design illustrated by a 600mm $f/2.0$, 24° field lens," *Jour. SMPTE*, 73: 654-657, Aug. 1964.