

## PANEL DISCUSSION CAMERAS, LENSES, AND CALIBRATION\*

### PARTICIPANTS

*Chairman and Moderator*, Dr. L. E. Howlett, Co-Director, Division of Physics, National Research Council, Ottawa, Canada.

### PAPERS

*The Specification of Resolving Power Tests.* Dr. Irvine C. Gardner, Chief, Optics and Metrology Division, National Bureau of Standards.

*Calibration of Lenses and Cameras.* Dr. K. Pestrecov, Research Department, Bausch and Lomb Optical Company.

*European Point of View on Standardizing the Methods of Testing Photogrammetric Aerial Cameras.* Mr. F. L. Corten, K.L.M.-Royal Dutch Airlines.

*English Viewpoint: Lens Testing and Camera Calibration.* Mr. J. E. Odle, Williamson Manufacturing Company.

*Various Viewpoints.* Professor W. Schermerhorn, Former President, International Society of Photogrammetry.

*A Camera Manufacturer's Comment on Camera Calibration.* Mr. Revere G. Sanders, Assistant Vice-President, Fairchild Camera and Instrument Corporation.



DR. L. E. HOWLETT

### DISCUSSION

*Chairman Howlett:* The arrangements that have been made for this panel discussion are to have a number of talks to direct our minds along the many lines of diverging opinions which exist in the matters of lens assessment and lens calibration. There is no question that one can work up a very energetic argument over every one of these matters.

I have no thought that we will not have an argument. I am in a neutral corner. But it is difficult for me to be neutral; I prefer to take a pig-headed and positive stand, but I shall try to be neutral under the circumstances of being chairman.

I have looked forward to this panel as a preliminary discussion to setting standards which will be promulgated in a few years' time by the International Society of Photogrammetry. I should like to suggest that it will be much more useful for future discussions if we try to see something in the other man's point of view and realize that even a partial agreement and concession from one to the other will be far more profitable than several different schools of thought becoming firmly entrenched in certain particular modes of thought.

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Some of you who have heard me on previous occasions in the past know that I have some very fixed and rigid points of view which might tend to be associated with the Canadian position. But we would be very glad to relax those or compromise in any way if we could get down to a general International basis whereby we know what each of us is talking about when we talk about lens resolution and lens calibration.

I suggest we all have that in mind as we hear the various points of view that will be brought forward this afternoon. It is not a matter of defending individual points of view, but of seeing how many times we can reconcile different points of view, one with the other, with a compromise here and a compromise there. We can then arrive at a working agreement, which may not be ideal, but at least will be a foundation for something worth while to come later.

I will now ask Dr. Irvine Gardner, Chief, Optics and Metrology Division, National Bureau of Standards, to present his paper. He is so well known to all of you that a long introduction is unnecessary. In fact, I propose to conserve our time and not read any long biographies.

## THE SPECIFICATION OF RESOLVING POWER TESTS

*Dr. Irvine C. Gardner, National Bureau of Standards*

AS A preparation for the 1952 International Assembly of the Photogrammetric Societies in this city, it is interesting and desirable to discuss resolving power tests at the present meeting. In view of this, I wish to congratulate Dr. Howlett, for the success that he has achieved in persuading representatives from the societies of the European countries to visit and join us in this discussion. And, as a digression, in addition to the welcome that they have received from the Photogrammetry Society, I wish to extend a personal welcome and the official welcome of the National Bureau of Standards. It has been my good fortune to visit Europe on many occasions during times of prosperity, of economic difficulty, and of war, and I have always been delighted and surprised by the courtesy and cordiality that has been uniformly extended to me by scientist and layman. This meeting of the Society makes the present week a very busy one, and I sincerely hope that our distinguished foreign visitors can remain in Washington over the week end and visit the Bureau again next week when there will be time and opportunity to show as many phases of the Bureau's activity as they may wish to see. I feel that the scheduled tour has been entirely too short for those coming from great distances.



DR. IRVINE C. GARDNER

To return to the subject at hand, I have been asked to discuss distortion and resolution. However, the time that has been allotted is limited, and I