

# SYMPOSIUM ON PHOTOGRAMMETRIC TECHNIQUES—COMMERCIAL OPERATIONS

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## FOREWORD

Last year the Publications Committee initiated a program of devoting issues to a particular phase of photogrammetry. With great pleasure it presents a symposium of activities under the title of "Photogrammetric Technique—Commercial Organizations." The Publications Committee expresses its sincere thanks to Mr. Kenneth E. Reynolds for his tireless efforts and very worthy accomplishments in monitoring this symposium. Further, it expresses appreciation to each contributor identified in the symposium.—*Publications Committee.*

## INTRODUCTION

When the Publication Committee of the Society decided to devote a specific issue to commercial phases of Photogrammetry, I undertook the job of compiling the articles with some trepidation for two reasons. The first is the most obvious, namely, lack of time in commercial organizations to devote otherwise productive labor to the task of writing an article. I realize that the contributions in this edition, not only of the commercial firms, but of the government people, represent many hours of compilation and editing. To all of the individuals involved, I am deeply grateful.

The other reason, not so obvious, is the competitive situation. After all, if one can do a job more accurately, and/or more quickly, it means lower bids and more business at the expense of competitors. Under these conditions, it is poor business to publicize "trade secrets" even though they may be very interesting reading for members of the Society.

It was felt that the readers of the Journal are, for the most part, familiar with the old established companies such as, Abrams Aerial Survey, Aero Service Corporation and Fairchild Aerial Surveys, through previous editions and references in not only the Journal, but also the MANUAL of PHOTOGRAMMETRY. The names of a few of the contributors will be new to some, but their work is of a high standard and if the science of Photogrammetry is to grow, encouragement must be given to the commercial people, particularly the young firms which have acquired excellent photogrammetrists on their staffs.

One great difference is evident in the method of operation of government agencies versus commercial firms. Very fundamental research work is in progress at all times in the government departments, to trace errors and to devise ways and means through calculation or instrumentation for correcting them. This involves costly research staffs which are beyond the means of commercial mapping firms.

NOTE:—References, indicated in the text by numbers in parentheses, are given immediately following the end of the article.

Since errors introduce not only inaccuracies but also delay in the preparation of maps, the commercial firm, for economical reasons, is forced to assign values to various known errors and take these into consideration in completing the final map.

Such articles as those by Dr. Howlett, and Mr. Sewell, should be of aid along these lines to photogrammetrists in general, regardless of connection.

The chart accompanying the article on, "A Functional Comparison of Stereoscopic Plotting Instruments" is published with the hope that it will be useful, as a reference, for quickly comparing the various instruments that have been referred to many times in previous issues.

I should like to take this occasion to thank not only those who contributed material, but also those who had every intention of doing so, but did not find sufficient time prior to the deadline date.

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## PHOTOGRAPHY FOR SURVEY PURPOSES

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THERE was a time when mapping consisted of compiling data obtained directly in the field by measuring distances and angles. Many engaged in the actual compilation of maps had served in the field and through this experience had a feeling for potential errors and their relative importance from the beginning of the field measurements to the printing of the final map. Progress in survey methods has been very rapid during the last twenty years, and new branches of scientific knowledge have been introduced. Among these, photography is already of very great importance and consequently a careful study of the subject by photogrammetrists is justified. Similarly, radar will soon be widely introduced into survey operations, and will merit similar attention.

Photography introduced many physical phenomena with which map makers were not previously familiar, and even now full comprehension of these and their influence on map making is not always possessed by the personnel involved. The situation has probably been greatly aggravated by the fact that the widespread use of photography for amateur purposes has led many who should really know better to consider photography an art rather than a science. At least a general knowledge of the science of photography is essential to the photogrammetrist since so many photographic factors have a direct bearing on the accuracy of the final map. Without this knowledge it is inevitable that some potential errors are ignored, and others are put into quite the wrong perspective. Too often, discussions take place on acceptable tolerances for a certain stage in the mapping process, with apparently no thought, or even knowledge, of the fact that, in other steps of the photographic process, anything approaching the suggested tolerances is beyond present practice by reason of either inadequate developments or practical considerations of bulk, weight, convenience, and practicability. It is not uncommon to hear photogrammetrists who are content to map from paper prints urge stricter tolerances on lens distortion. Some complain of the dimensional instability of film bases and urge manufacturers to greater improvements when, at the same time, they are not insisting that all available means be taken to obtain optimum performance of present-day film bases. Such situations occur all too frequently, and there is consequently some value in a review of the photographic factors which influence the final accuracy