The president then requested Mr. G. C. Tewinkel for the report of the Auditing Committee. Mr. Tewinkel stated that the committee had reviewed the Treasurer's accounts and found them in good order. It was added that since the business of the Society had grown, it was the opinion of part of the committee that the services of a professional auditor might be desired in the future. The president thanked the committee.

ADDRESS OF THE RETIRING PRESIDENT, O. M. MILLER

We have been privileged today to hear accounts by leading authorities concerning the use of photogrammetry during the war and concerning postwar plans for the use of photogrammetry in the very extensive mapping activities that are contemplated.

I shall not presume to add to what has already been said. My talk tonight will deal, rather, with the particular manner in which the American Society of Photogrammetry fits into the broader scheme of things that we have heard about and how it may, perhaps, be made to be even more effective than it now is in its role as a catalyst in photogrammetrical actions and reactions.

If I may be pardoned for doing so, I should like first to introduce a personal note. Before becoming president of the Society I had had very little to do with the actual direction of its affairs, and I must admit to having had a strong curiosity as to its inner workings. I think that in the past year I have received a liberal education on these matters, and it has been for me not only an honor and a privilege but a revealing and inspiring experience. It is amazing, considering that the Society depends entirely on the outside time of individuals, that it accomplishes as much as it does. You have just heard the secretary-treasurer's report. I should like to add a little more information concerning what has been happening during the past year. First of all, a word of appreciation to our secretary-treasurer, Mr. Schlatter, for the very capable job that he is doing. And it is in tune with what I shall say later to point out that so great is the volume of routine correspondence, etc. which has to be handled nowadays that he has to spend nearly all his spare time on the business of the Society.

The policy forming of the Society is, as you know, handled by a Board of Direction consisting of twenty persons. There have been seven board meetings this year, most of which have been well attended. The agenda for these meetings are always full and heavy, and the average length of a single meeting is more than four hours. In addition, there is the important work of the various committees, some of which are permanent and others set up as occasion demands from year to year.

May I call your particular attention to four aspects of the Society's work this year, not because there have not been other activities, but because these four to my mind are typical of what the Society must do and is trying to do. Because of wide divergencies of opinion concerning the manner in which the recent amendment to our constitution was to be put into effect, it was desirable to review in great detail the proposed and necessary revision of the bylaws. This required intensive work by many on the Board of Direction and in particular by Mr. Woodward, your president in 1944, who has been chairman this year of the Committee on the Revision of the bylaws. Every word of the new bylaws has received the closest scrutiny, and we are happy to say that the final revision is now ready and will be published with the approval of the Board very shortly.

A new and important committee that has also for all practical purposes completed its work this year is the Committee on the Civil Service Status of Professional Photogrammetrists. The present audience is well aware of the significance of its work. The Society has been fortunate in having had as chairman of this committee Mr. F. J. Sette, whose report of the committee findings will shortly be published in PHOTOGRAMMETRIC ENGINEERING.

Another phase of the Society's activities is, of course, its publication program. The sales of the "Manual of Photogrammetry" have been extremely encouraging and have fully justified the foresight and vision of its initiator, Mr. Medina.

You will all agree that Mr. McCurdy has accompoished most successfully the difficult task of maintaining high standards during wartime in the publication of PHOTOGRAMMETRIC ENGINEERING. Since, however, he has felt it necessary this year to relinquish the arduous job of editor, the Board of Direction has been faced with the problem of finding someone else. We have been fortunate indeed to obtain the services of Mr. John Davidson. The last two issues, brought out under Mr. Davidson's editorship, are convincing proof that he is a worthy successor to Mr. McCurdy.

One of the present difficulties in reading technical articles concerning photogrammetry is the lack of a unified system of notation for the fundamental geometrical concepts. The Committee on Nomenclature, under the chairmanship of Mr. Tewinkel, has prepared this year a report, published in the December, 1945, issue of PHOTOGRAMMETRIC ENGINEERING, which recommends a standard set of symbols for the more important elements frequently used in technical papers. If authors will adopt this system when writing articles on the mathematical aspects of photogrammetry, a great step forward will be made and their articles will be read with more sympathy and understanding than has perhaps been the case in the past.

These four specific activities illustrate the principal functions of this Society rather well and show, I think, that the Society is contributing much at the present time by coordinating the profession into a coherent and articulate group and by aiding in the establishment of sound practices.

Although there has been no concerted membership drive, the spontaneous interest in photogrammetry and in the Society at the present time is such that two hundred new applications for membership have been passed by the membership committee this year. Our members are drawn from a wide diversity of persons both here and abroad, working in government and in industry, in science and in technology. There are undoubtedly several incentives to become a member of our Society, but the obviously important ones are that the Society has something to offer in terms of service and that an individual or institutional member has an interest in ensuring the further development of photogrammetry. In industry, for instance, there are two main groups in addition to commercial mapping organizations for which the Society is a useful organization and with whose support it can aid in pushing forward the pioneer fringes of this comparatively new form of engineering. The first group consists of those who supply materials and equipment for the use of persons actively engaged in photogrammetry. Through its publications the Society can indicate to this group the material needs of photogrammetry and make easily digestible the results of research. The second group comprises the many industries that use the products of photogrammetry. For this group the Society can provide access to the most authoritative sources of information concerning the best ways in which photogrammetry can be usefully applied.

If, however, the Society is to function in this way with efficiency, it cannot be content merely to publish a more or less random selection of the results of individual research and achievement. It must be in a position, first, to collect all pertinent literature and, second, to select the more important original material for publication. This calls for the creation of a permanent adequately staffed office and library and for far more critical editorship than can possibly be available in spare-time work by an editor who has other duties to perform in his regular working hours.

It seems especially important to bring this to your attention at this time because, now that the war is over, there is a wealth of material on hand both in this country and abroad, some of which should be published, much of which should be abstracted, and all of which should be collected in one place and indexed for reference purposes.

Now should a library and permanent professional staff be established, the Society could speedily act in several additional capacities. It could discover research needs in photogrammetry and judge the relative importance of research problems. It could lend moral and material support in the raising of funds for approved research projects. It could make available the background for projected work and call upon experienced engineers for counsel and advice. Without destroying individual initiative, it could aid in the selection of the proper persons and organizations to carry out specified research tasks. It could organize the testing of new methods and results and, above all, publish these adequately and expeditiously. In short, to paraphrase a comment recently made to me by Professor Kissam, the Society could function as the very heart of research efforts in the field that it embraces.

And while we are on the subject of research, may I digress from the main theme of my talk for a few moments and attempt to bring into focus some of the present objectives and problems of research in photogrammetry?

As I see it there are four focal points:

Great strides have indeed been made in the last few years in improving the photographic process by increasing the resolution of images and reducing their positional distortions on the finished photograph. Continual and extended research is nonetheless still desirable in the design of lenses and cameras, toward increasing the stability of the materials on which the photographic images are recorded, and in the further development of suitable photographic emulsions.

One particular problem may be selected as representative. It has been found by experience that a precision camera giving excellent performance in the laboratory will fail to perform as well in the field. The extreme physical conditions encountered in aerial photography are a contributing cause of this, and much ingenuity can be expended, for instance, in devising means of protecting the performance of the camera against rapid changes of temperature. Movement of the plane during exposure is another cause. Some of the effects of vibration and turbulence are still obscure. On the other hand, several different ways of counteracting systematic movement during exposure have already been devised, and their development and adoption in the future should greatly improve the definition on aerial photographs.

The second point is this: A major advantage of aerial surveying over conventional ground-survey methods is the abundance of detail recorded by photography. But in order to map systematically from photographs, some form of ground control will always be necessary, and to reduce this to a minimum is a principal research objective.

To determine the position of the camera and the orientation of its axis at the

moment of exposure is a fundamental problem in aerial photogrammetry. The utilization of electronic devices for recording the position of the camera at the moment of exposure seems to offer wide possibilities at the present time. On the other hand, no device has yet come into existence that can control and record the orientation of the camera axis at the moment of exposure with the degree of precision required for all mapping purposes. Here is a great field for invention. Much study is still being given to the devising of methods for determining these positional and orientational elements after the photographs have been taken, by utilizing the images of points whose position has been established on the ground. Here mathematical theory could be further explored and expanded with advantage, especially in respect to the problem of orienting groups of photographs as units. Investigation is still required on the subject of the accumulation and adjustment of errors in the process of extending control through series of photographs.

As to point three: Mapping from photographs may be entirely graphical. Instrumentation and mathematical analysis, however, increase accuracy and efficiency. In this field of endeavor much remains to be done. New instruments will be designed and built, and new mathematical techniques introduced. Instrumention versus mathematical analysis is still a controversial subject. It seems fairly obvious that in the actual plotting of detail instrumental techniques should be employed, but in the controlling operations the proper division of labor between these two techniques is something that requires far more study than it has received in the past.

Last, but of equal importance, is the fourth point: Comparative studies are required in the fields of administration and operation. Should the trend be toward a breakdown of the mapping processes into tasks that can be performed with relatively unskilled labor, or will greater efficiency be achieved in the long run if the individual operators are drawn from a reservoir of highly trained and skilled technicians?

Now before I hand over the affairs of the Society to your incoming president, I should like to revert to the main theme of my talk and summarize it from a broader point of view. In a recent article by Aldous Huxley civilization is defined as a series of complicated devices designed to prevent the aggressive man from becoming too aggressive. Though undoubtedly Mr. Huxley had his tongue in his cheek in making this comment, it nevertheless reflects a cynical and pessimistic point of view. I like better the concept of civilization as the reaction of man to a realization of the truth, "When was ever honey made with one bee in a hive?" The American Society of Photogrammetry may be but a very small part of the putting into practice of this concept, but it is a vital one judging from what we have heard today concerning the importance of mapping for the future welfare of the world.

World leadership in all fields of science and technological endeavor is a responsibility that the United States is in a position to assume. The opinion that it should take this responsibility is widely held, not only by those of us who work and live here but also by many persons abroad, where the struggle to provide the necessities of life interferes with other activities. The United States should not fail to continue its leadership in photogrammetry. Every means should be taken in this country, therefore, to ensure for photogrammetry a full oppotunity for further development, and the expansion of this Society's facilities is the essential first step in this direction.

At the conclusion of his address, Mr. Miller called upon Mr. Grover M. Plew for a report of the election committee. Mr. Plew reported that the com-

mittee, consisting of Mr. Kendall, Mr. Linck and himself, had tallied the approximately three hundred ballots, with the following members being elected: for president, Gerald FitzGerald; First Vice-President, Revere G. Sanders; Second Vice-President, R. M. Wilson. As Directors: K. T. Adams, Harry T. Kelsh, O. S. Reading, John A. Whittle and George D. Whitmore.

Mr. Miller thanked the committee and called the attention of the members to the fact that in order to have either the president or first vice-president located in Washington, it had been found advisable to rotate the officers each year. He remarked that it had been a fortunate year for him because he had been an out-of-town president and since Col. FitzGerald had been in Washington he had carried much of the burden. He finished by saying, "I have found him a great moral support at all times." Mr. Miller then called upon past-president Col. Minton W. Kaye to escort the new president to the platform. He said, "Col. FitzGerald, I turn over the affairs of the Society to you—I believe that is the easiest way of doing it."

INAUGURAL REMARKS: COL. GERALD FITZGERALD

Most of the talks made by incoming presidents of this Society have been, and probably should be, somewhat in the nature of new year's resolutions, to the effect that next year we will do more to accomplish our primary objectives. We all say it, in different ways of course, but what we really mean is that there is more work to be done than we are now doing and let's get off the dime. New committees will carry the torch, or light new ones for membership drives, research and development, education and training, and so on down the list of those things essential to the conduct of our business. Ambitious programs will be set up to accomplish an ultimate objective and that is as it should be, for as someone has said, "A man's reach should exceed his grasp, or what's a heaven for." Our year to year programs must present a continuity of effort if we are to achieve desired results, while at the same time they must be flexible enough to accept new ideas, new trends and new responsibilities.

Substantial progress has been made during the war years in spite of many serious handicaps in the form of curtailed meetings, paper restrictions for PHOTOGRAMMETRIC ENGINEERING, and most of all, the greatly increased duties and workload carried by our active membership on war mapping and related activities. With the war over, we cannot rest on well earned laurels of victory, for we now face new and greater obligations.

From every indication, 1946 promises to be one of the most important years in the youthful history of our American Society of Photogrammetry. Those of us who have been entrusted with guiding the destiny of the Society during the coming year are confronted with a great responsibility, and at the same time, a great challenge. We are now firmly established as a National organization with an active progressive membership and a clearly defined objective to foster and promote the science of photogrammetry in our own country. Although affiliated before the war with the International Society of Photogrammetry, we have, nevertheless, devoted most of our efforts toward solving our own domestic problems. Many of the broader aspects of research and development, education and training, have been neglected by our photogrammetrists in the belief that the European nations were better organized and equipped to do this work. In fact, so profound was this conviction in past years, that we have suffered an international inferiority complex in regard to photogrammetry. World War II has completely altered this situation; first, by the great expansion and develop-