

PANEL
THE FUTURE OF PHOTOGRAMMETRIC
EDUCATION*

Informal Discussion of Papers by Participants

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I AM under two handicaps. Firstly, I am without preparation, not having known I was to be on this panel until a few hours ago; and I have not had the opportunity to see or read any of the papers of my fellow panel members.

Secondly, I believe I am the only member on the panel who is not now teaching photogrammetry in one form or another. Actually it is some fourteen years since I last taught in a university.

Therefore, I view the subject this afternoon not so much as an educator but rather as a physicist; and I look upon photogrammetry not only as a profession but as an applied science. As such I make a strong plea for educating our photogrammetrists as applied scientists and for giving them a broad scientific base upon which to build their future work.

Professor Jackson adequately described photogrammetry. He divided it into two parts. But as I see the photogrammetry of the future, it will be not only photography and interpretation as described by him, but also electronics of a most difficult sort. It will include physical as well as geometric optics and all the earth sciences enumerated by Professor Doyle. Therefore, the accomplished photogrammetrist of the future will more likely be a general scientist than an applied photogrammetrist.

Some of the speakers on this panel mentioned the lack of research workers in photogrammetry. I second the need for them. One reason for the scarcity is the effort to make research men out of photogrammetric technicians. That is very difficult. It is easier, I believe, to make a photogrammetrist out of good scientist than the reverse.

A single course in physics plus one course in optics plus a single course in mathematics is not sufficient for the future photogrammetrist. He will have to know how to handle complicated equipment, for example, the electronic computers and equipment that is even more complex. Consequently, I hope our universities and colleges will give future photogrammetrists not one course in physics, but several years; not one course in geometric optics, but also one in physical optics; not a smattering of courses in surveying and some of the earth sciences, but a thorough training in the broad geologic and geodetic sciences, including astronomy.

I find myself in strong disagreement with Professor Moffitt and in rather close agreement with Professor Doyle. Professor Moffitt called for very special-

* This is the completion of the Panel papers and discussion. The first and major part is in the December 1955 issue (Vol. XXI, No. 5 pp. 739-754) and consists of papers by Messrs. Jackson, Moffit, Meyer and Doyle.

ized professional training rather than broad academic training. I agree with Professor Doyle in advocating the opposite.

I ask this rhetorical question, "Are we educators or are we instructors in trade schools?" I believe we should be educators trying to train and develop men with broad points of view, both in the humanities and in the sciences. I disagree with those who believe we should simply train trade school graduates to work a multiplex projector. Among other things, I venture to predict that in one or two decades, the multiplex operator may be seeing the end of his days.

In conclusion, Mr. Chairman, I hope that the goal of future photogrammetric education will be to train photogrammetrists as scientists rather than as multiplex technicians.

DISCUSSION

MODERATOR: There will now be an opportunity for some discussion.

There has been a certain amount of unanimity of opinion. It has been stated that photogrammetry is definitely a science and should be approached from a scientific standpoint and that we must consider such as optics and mathematics. (Our men have been instructed along that line for some time, but in a limited way.) Also we must start thinking about giving instruction in other lines, such as electronics. Again the student should be quite familiar with statistics.

Information theory, electronics system research, and electronic computing devices in my opinion will undoubtedly play an important role in future photogrammetric education.

Joseph C. Elgin, Dean of Engineering School of Princeton University recently expressed his opinion that engineering is to become more scientific, for example in such lines as geodesy, geophysics, photogrammetry, applied mechanics, soil physics, and soil mechanics. I am sure that instruction in basic sciences will make better scientists out of our engineers. One of the staff in the Aeronautical Engineering Department at Princeton applies himself equally well to problems of the airplane's stability, optics, electronics and to typical mechanical engineering problems.

I think it is quite possible that in the future we will no longer use the names civil engineering, mechanical engineering, chemical engineering. Instead engineering will be one big, broad field in which a man with the fundamental training we have been discussing can turn not only to photogrammetry but to many other fields.

I will now question some of the panelists. Professor Doyle, why should we have a first-order instrument in our engineering schools?

MR. DOYLE: I didn't state that this is necessary. I believe that in a school which sets out to train a geodetic scientist, photogrammetry is only one of the subjects with which he should be familiar. Photogrammetry by itself is not a science, it is just one subject with which a scientist should be familiar. We should train these individuals in all of the subjects which make up the geodetic or earth sciences.

Relative to instruments, I believe significant research in photogrammetry can be done with a first-order instrument not only in aerial photogrammetry or in topographic photogrammetry, but also primarily and essentially in the non-topographic applications of photogrammetry. At Ohio State I have received a request from four different agencies for work in non-topographic fields. I have had to discourage these requests because we lack the proper equipment for extracting all of the information that is available on the photographs.

As a matter of interest these particular requests include first of all, one from