



OFFICE OF THE DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING  
WASHINGTON, D. C. 20301

3 June 1968

Dr. William T. Pecora  
Director  
U. S. Geological Survey  
Washington, D. C. 20242

Dear Dr. Pecora:

Reference is made to Dr. Gruner's letter to you requesting information on the disposition of Mr. Fred Doyle's paper on cartography.

As you will recall, you forwarded Dr. Gruner's letter to Dr. Hornig who in turn forwarded it to the Department of Defense for reply. The DOD reply from Dr. Foster (DDR&E) is attached.

A copy of the DOD reply has also been sent to Dr. Steininger, Office of Science and Technology.

Sincerely yours,

A handwritten signature in cursive script that reads "John Kirk".

John Kirk  
Assistant Director  
(Space Technology)

Attachment



DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING  
WASHINGTON, D. C. 20301

RAR-10-10  
POL-A-4  
VOL-A-6  
mjr

25 MAY 1968

Dear Mr. Gruner:

This is in response to your recent letter to Dr. Pecora, in which you discussed Mr. Fred Doyle's paper, "Mapping from a Satellite System."

I have looked into the matter and find that we imposed the constraints to which you refer because of national defense considerations. As an employee of Autometrics working on Department of Defense projects, Mr. Doyle's publications are necessarily reviewed, in order to protect the national interest, as well as his own.

Our representatives discussed the security analysis in detail with Mr. Doyle in December and he concurred in their findings. Recognizing the potential awkwardness of the situation -- very much as described in your letter -- we worked with Mr. Doyle in preparing a clearable paper which has been available since February, and which could very well be considered as a candidate paper for your Distinguished Lecturer series.

I certainly share your interest in disseminating scientific information to the fullest extent possible within considerations of national security. I believe our action with Mr. Doyle has been in consonance with both criteria.

  
John S. Foster, Jr.

Mr. Heinz Gruner, President  
American Society of Photogrammetry  
105 N. Virginia Avenue  
Falls Church, Virginia 22046

~~TOP SECRET~~

~~(S)~~ NATIONAL RECONNAISSANCE OFFICE  
WASHINGTON, D.C.

THE NRO STAFF

April 19, 1968

MEMORANDUM FOR DR. FLAX

SUBJECT: Mr. Fred Doyle's Paper: "Mapping from Satellite  
Photography"

Problem:

To up-date your information on the current status of Mr. Fred Doyle's paper, "Mapping from Satellite Photography."

Background:

On February 20, I prepared a memorandum for you giving the background on a security review problem resulting from a paper prepared by Mr. Doyle (see Tab A).

Present Status:

Several weeks ago, Mr. Heinz Gruner, President of the American Society of Photogrammetry, sent a letter to Dr. William Pecora, Director, U.S. Geological Survey, protesting restrictions placed on Mr. Doyle's paper (see Tab B). Dr. Pecora, unaware of the background of this matter, sent Gruner's letter to Dr. Don Hornig, asking for advice in drafting a reply. Dr. Hornig sent the Gruner letter to you, asking for "wording of a letter that Dr. Pecora might send as a reply to Mr. Gruner" (see Tab C).

Since the review of the Doyle case was conducted under the joint sponsorship of DDR&E and the DIA, John Kirk and I agreed that (1) the reply should come from DDR&E, (2) the reply should go directly to Mr. Gruner, and (3) Dr. Foster was the logical person

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to sign the reply. John coordinated this response with Dr. Steininger on April 18.

Tab D is the proposed reply which John is taking to Dr. Foster.

Recommendation:

None. No action required by you.



PAUL E. WORTHMAN  
Colonel, USAF



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Dr. William T. Pecora  
Director  
U.S. Geological Survey  
Washington, D. C. 20242

Dear Dr. Pecora:

The American Society of Photogrammetry (ASP) is concerned by recent cancellations of lectures and withdrawals of articles that deal with the use of satellites for surveying earth's resources.

Your past support, interest in earth resources satellites (as evidenced by the EROS Program), and your established leadership in earth science, lead me to seek your help in clarifying the situation.

Mr. Fred Doyle, formerly the Head of the Department of Geodetic Sciences at Ohio State University, and now Chief Scientist of the Raytheon Corporation, Autometrics Operation, was selected as our distinguished lecturer for 1967-68. Mr. Doyle chose as his topic 'Mapping from satellite photographs'.

The ASP Distinguished Lecture series is jointly sponsored by the National Science Foundation. Mr. Doyle's lecture was similar, in content, to that he presented and distributed in reprint form before the Annual Meeting of the AIAA, in Dallas, Texas, November 1967. The first of his series of Distinguished Lectures was presented before the Potomac Region of ASP, November 13, 1967. A comprehensive summary of the paper was published in the January 1968 issue of Photogrammetric Engineering.

Mr. Doyle found it necessary to cancel presentation of his paper before the Annual Meeting of the Canadian Institute of Surveying and Mapping; later he cancelled his scheduled lecture at the University of Delaware, and finally, withdrew entirely from our Distinguished Lecture series. Concurrently, Mr. Doyle's written version of his lecture was also withdrawn; this paper had been set in type and was scheduled for publication in the March issue of Photogrammetric Engineering.

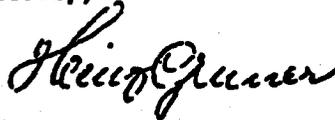
It is hard for us to reconcile Mr. Doyle's actions with his long history of support to our Society and his reputation for scientific excellence. The scientific facts and extrapolations contained in Mr. Doyle's paper are generally known among workers in his field but need wider distribution in the form of publication in journals and texts, and in oral presentation in lecture series. We feel, therefore, that it is very regrettable that Mr. Doyle has found it necessary to cancel additional presentation of his excellent paper.

S&T Cent. No. 1611

The aim of our Society is to disseminate scientific information and we pursue this aim with vigor. Mr. Doyle has assembled information that is scientifically sound and should be disseminated. I would like guidance from you and any assistance you can provide in making it possible to make Mr. Doyle's paper available to the scientific community.

We look forward to hearing from you in the near future.

Sincerely,

A handwritten signature in cursive script, appearing to read "Heinz Gruner".

Heinz Gruner, President  
American Society of Photogrammetry

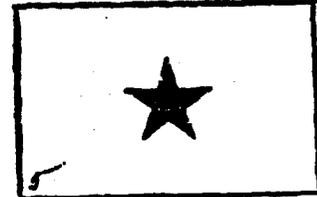
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THE WHITE HOUSE  
WASHINGTON

THIS DOCUMENT CONTAINS 1 PAGE  
No. 1 of 2 copies, Series A

April 4, 1968



Dear Al:

Here is a letter from Heinz Gruner, President of the American Society of Photogrammetry, to Dr. Pecora which expresses concern over the withdrawal of Mr. Fred Doyle from the ASP-NAS Distinguished Lecture Series and of his paper from publication. Bill Pecora has asked my advice on how to answer this.

I understand Mr. Doyle took these actions at the direction of DOD which judged that the public presentation and distribution of Mr. Doyle's paper would be contrary to national interests in connection with reconnaissance satellites. I confess, frankly, that I am unclear as to the wisdom of the DOD action.

Mr. Gruner's letter must now be answered, and it seems clear that if we are to avoid bringing public attention to the relationship of national security and reconnaissance satellites, the reply and necessary action by DOD must be carefully planned. In view of this, I would appreciate your recommendation on the wording of a letter that Dr. Pecora might send as a reply to Mr. Gruner.

Sincerely,

Donald F. Hornig  
Special Assistant to the President  
for Science and Technology

Enclosure - S&T 460-2

Dr. Alexander H. Flax  
Assistant Secretary for Research  
and Development  
Department of the Air Force  
Washington, D. C. 20330

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**DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING  
WASHINGTON, D. C. 20301**

**Dear Mr. Gruner:**

**This is in response to your recent letter to Dr. Pecora, in which you discussed Mr. Fred Doyle's paper, "Mapping from a Satellite System."**

**I have looked into the matter and find that we imposed the constraints to which you refer because of national defense considerations. As an employee of Autometrics working on Department of Defense projects, Mr. Doyle's publications are necessarily reviewed, in order to protect the national interest, as well as his own.**

**Our representatives discussed the security analysis in detail with Mr. Doyle in December and he concurred in their findings. Recognizing the potential awkwardness of the situation -- very much as described in your letter -- we worked with Mr. Doyle in preparing a clearable paper which has been available since February, and which could very well be considered as a candidate paper for your Distinguished Lecturer series.**

**I certainly share your interest in disseminating scientific information to the fullest extent possible within considerations of national security. I believe our action with Mr. Doyle has been in consonance with both criteria.**

**John S. Foster, Jr.**

**Mr. Heinz Gruner, President  
American Society of Photogrammetry  
105 N. Virginia Avenue  
Falls Church, Virginia 22046**

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~~(S)~~ NATIONAL RECONNAISSANCE OFFICE  
WASHINGTON, D.C.

April 19, 1968

THE NRO STAFF



MEMORANDUM FOR DR. FLAX

SUBJECT: Mr. Fred Doyle's Paper: "Mapping from Satellite  
Photography"

Problem:

To up-date your information on the current status of Mr. Fred  
Doyle's paper, "Mapping from Satellite Photography."

Background:

On February 20, I prepared a memorandum for you giving the  
background on a security review problem resulting from a paper  
prepared by Mr. Doyle (see Tab A).

Present Status:

Several weeks ago, Mr. Heinz Gruner, President of the  
American Society of Photogrammetry, sent a letter to Dr. William  
Pecora, Director, U.S. Geological Survey, protesting restrictions  
placed on Mr. Doyle's paper (see Tab B). Dr. Pecora, unaware of  
the background of this matter, sent Gruner's letter to Dr. Don  
Hornig, asking for advice in drafting a reply. Dr. Hornig sent the  
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to sign the reply. John coordinated this response with Dr. Steininger on April 18.

Tab D is the proposed reply which John is taking to Dr. Foster.

Recommendation:

None. No action required by you.

  
PAUL E. WORTHMAN  
Colonel, USAF

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~~(S)~~ NATIONAL RECONNAISSANCE OFFICE  
WASHINGTON, D.C.

THE NRO STAFF

February 20, 1968

MEMORANDUM FOR DR. FLAX

SUBJECT: Mr. Fred Doyle's Paper: "Mapping From Satellite  
Photography"

PROBLEM:

To acquaint you with the background and current status of Mr. Fred Doyle's paper, "Mapping From Satellite Photography".

BACKGROUND:

Last November, Mr. Frederick J. Doyle, Chief Scientist, Autometric Operation, Raytheon Company was invited to present a paper to the American Society of Photogrammetry and the George Washington University, as part of the latter's Distinguished Lecture Program. Mr. Doyle selected "Mapping From Satellite Photography" as his topic, a subject which flows naturally from his Autometric activity, where he works on portions of the National Reconnaissance Program (his clearances are SI, TK).

He processed his paper, at the last minute, through DIA and the NRO Staff. DIAMC (mapping and charting) believed that, with a few changes, the paper was presentable. The NRO Security office concurred.

During discussions on this subject, Mr. Doyle appeared quite hostile to security review (or control). It was as a result of this experience, as well as experiences with certain ACIC mappers and charters, that Mr. Mazza and Commander Miles, DIA, instituted a procedure calling for all cleared DOD persons to send any papers they prepared on earth-sensing to DIAXX, prior to presentation, publication, or regular (white) submission to ASD/PA (see Tab A).

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While I did not see the paper Mr. Doyle passed to us in November (nor did any SACC member), I had felt serious concern in September 1967 over a draft report, "Panel C - Geodesy/Cartography," which emerged from NASA's Woods Hole Summer Study. Mr. Doyle was the chairman of Panel C and I learned that certain offensive statements in this report originated with him (see Tab B for these statements). Mr. Mazza asked the DIA to remind Mr. Doyle of his "obligations to the U. S. Government under the provisions of TALENT/KEYHOLE. . ." (see Tab C)

On January 24, 1968, the Raytheon Company sent a paper, "Mapping From Satellite Photography," to ASD/PA, requesting clearance for presentation at the Canadian Institute of Surveying at Edmonton, Canada on January 31. ASD/PA, through an error which it later recognized, did not send this paper to us for review. On January 26, John Kirk gave the paper to me with this note: "I object. Amendments are impossible. No reason I want to write down. I am tempted to call Harry Evans and tell him to turn this guy off."

Reviewing John Kirk's copy of the paper, I was struck with the many security problems it raised (see Tab D). Mr. Doyle had employed a very positive tone throughout; his references to resonant altitudes, 60 n. m. as a practical perigee, the feasibility of stellar photography, Mark 5 recovery vehicles, the deboosting procedure, and the use of thin base film could only have come from someone thoroughly acquainted with the NRP.

This January version of Mr. Doyle's paper was very similar to the November version, but did extend a little farther into forbidden areas. I advised John Kirk (and Mr. Mazza) that I agreed absolutely that this paper could not be given. John Kirk asked if the NRO Staff would be embarrassed over denying clearance in January to a paper it had cleared in November. I replied that the NRO Staff would prefer being 50% right to 100% wrong; that the November decision was a judgment error which should be corrected openly and frankly.

On January 30, I received a call from the local Autometrics office and was advised by Mr. Scesnes, a security administrator, that Raytheon had instructed Mr. Doyle to become ill and return home from Canada. Mr. Scesnes also informed me that (1) the National Academy of Sciences had the offending speech in galley for inclusion in a forthcoming manual of the American Society of Photogrammetry but that Autometrics was withdrawing it promptly from publication, and (2) the National Academy of Sciences had booked Mr. Doyle for a series of speaking engagements as a Visiting Lecturer on this same subject. Could Autometrics representatives meet with someone to discuss this problem?

On February 13, DIA sponsored a meeting to examine the extent of Mr. Doyle's problem. Mr. Kirk and I joined this meeting and explained, in detail, the national policy background for the security actions we had taken. We analyzed Mr. Doyle's paper, pointing out to him that it is virtually impossible for a cleared person to write on satellite reconnaissance without giving something away. He, and persons like him, were very close to a situation where one can be a member of the team and keep silent or not make the team and be vocal.

Mr. Doyle and the Autometrics representatives who accompanied him were respectful and cooperative. Mr. Doyle raised two follow-on problems:

1. An American Society of Photogrammetry request that he present a paper on lunar mapping during its March convention.
2. An International Society of Photogrammetry request that he organize a presentation on NASA Photogrammetric Space Program to be given at Lucerne, Switzerland next summer.

I promised Mr. Doyle that we would give him prompt replies on both questions. I also told him that I would ask our Major ~~1011~~ to meet with him to search for a good technical area in which Mr. Doyle could prepare speeches and papers in the future. It seemed important to John Kirk and me to give Mr. Doyle a safety valve of some kind so that he could continue to be active in journals and symposia.

PRESENT STATUS:

The answer to a safety valve for Mr. Doyle appears to be in the photogrammetric geodesy of the moon. Major ~~1011~~ has worked out terms of reference in this regard:

1. Size and density of control nets to be based explicitly on lunar requirements.
2. Cameras for lunar mapping to be frame cameras of 8-, 12-, and 24-inch focal lengths. There will be no mention of panoramic or strip cameras.
3. References to orientation of terrain cameras and/or the vehicle by the use of stellar cameras will be based on data collected from ESSA BC-4 cameras.

4. Discussions of moon-mapping at scales such as 1 to 50,000 or better will reference aircraft program capabilities already known to the scientific public.

Based on these guidelines, Mr. Doyle agrees that he can prepare a paper for the March meeting of the American Society of Photogrammetry. We have already reviewed a draft with him.

Regarding his Lucerne meeting, Mr. Doyle is arranging for such a presentation, rather than giving it himself. He plans to have Dr. Loman or Dr. McNair (both unwitting) prepare a paper on the use of GEMINI photography, emphasizing geology and map revision. Future possible NASA programs will not be discussed by this group. We will see the paper in draft and final form.

Our arrangements, then, are such that Mr. Doyle will no longer walk the borderline of NRP disclosure. He will, however, be able to give excellent papers in his field of interest, following our guidelines. DIANX (security), DIAMC (mappers and charters), and DDR&E (John Kirk) have concurred in this solution to the problem.

RECOMMENDATION

While this memorandum is for information only, it could be useful in answering any queries which might come to you from National Academy of Science representatives.

  
PAUL E. WORTSMAN  
Colonel, USAF

AMERICAN SOCIETY OF PHOTOGRAMMETRY 105 N. VIRGINIA AVE., FALLS CHURCH, VIRGINIA 22046, TELEPHONE: 534-4617

Dr. William T. Pecora  
Director  
U.S. Geological Survey  
Washington, D. C. 20242

Dear Dr. Pecora:

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Your past support, interest in earth resources satellites (as evidenced by the EROS Program), and your established leadership in earth science, lead me to seek your help in clarifying the situation.

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S&T Cent. No. 160-

The aim of our Society is to disseminate scientific information and we pursue this aim with vigor. Mr. Doyle has assembled information that is scientifically sound and should be disseminated. I would like guidance from you and any assistance you can provide in making it possible to make Mr. Doyle's paper available to the scientific community.

We look forward to hearing from you in the near future.

Sincerely,



Heinz Gruner, President  
American Society of Photogrammetry



**DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING  
WASHINGTON, D. C. 20301**

**Dear Mr. Gruner:**

**This is in response to your recent letter to Dr. Pecora, in which you discussed Mr. Fred Doyle's paper, "Mapping from a Satellite System."**

**I have looked into the matter and find that we imposed the constraints to which you refer because of national defense considerations. As an employee of Autometrics working on Department of Defense projects, Mr. Doyle's publications are necessarily reviewed, in order to protect the national interest, as well as his own. Through error on the part of a reviewer, an earlier version of Mr. Doyle's paper had been approved for presentation and publication. As soon as the error was noted, corrective action was taken.**

**Our representatives discussed the security analysis in detail with Mr. Doyle in December and he concurred in their findings. Recognizing the potential awkwardness of the situation -- very much as described in your letter -- we worked with Mr. Doyle in preparing a clearable paper which has been available since February, and which could very well be considered as a candidate paper for your Distinguished Lecturer series.**

**I certainly share your interest in disseminating scientific information to the fullest extent possible within considerations of national security. I believe our action with Mr. Doyle has been in consonance with both criteria.**

**John S. Foster, Jr.**

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