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14 May 1965

MEMORANDUM FOR: Director of Central Intelligence

Executive Order
65-2436

SUBJECT : The Navy's Integrated Operational Intelligence Center

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[Redacted]

reference

The NPIC survey team and I visited the Columbus Division of North American Aviation on 11 May to see and be briefed on the Navy's Integrated Operational Intelligence Center (IOIC). The briefing was conducted by [Redacted]

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The initial planning for the IOIC began about 1958 when the Navy decided that it needed a capability to continuously update its tactical estimates. Neither Navy nor the Air Force had the means for immediate processing and interpreting of sensor-derived information in a tactical situation.

The design concepts settled upon in advance were that the system should be capable of multi-sensor acquisition [Redacted]

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[Redacted] and the Intelligence Center should be capable of integrating the products from these sensors. Optimum use was to be made of machine language to permit rapid information handling within a Center and for ease of communicating between Centers. Most important: the components should be either already in existence or within the state of the art.

The system was built around an existing aircraft: North American's A3J, now designated the RA-5C. The RA-5C is a mach 2 aircraft capable of carrying the bulky and heavy equipment packages needed. The critical feature of the system is a machine readable binary data block imaged on each frame of photography, which is keyed by an inertial navigation system. The IOIC has its own photo processing laboratory. When the developed film is placed in a dual screen projection viewer, the data block drives the IOIC's self-contained computer and permits a variety of automated manipulation of the photography, including on line mensuration and automatic film transport. The data block also enables automatic plotting to be done. The storage and retrieval aspect of the Center is not automated beyond punched card sorting and collating.

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NAVY review(s) completed.

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The IOIC is a compact installation that combines all of the facilities essential to photo interpretation. It is a quick reaction system that permits rapid readout of photography and its integration with information from other sources. The efficiencies of the system derive from the mating of an inertial navigation system with a machine readable binary data block, plus compatibility among all elements of the system. The success of the system depends upon a start-to-finish control of acquisition, processing, and exploitation. North American has little knowledge of how well the system has functioned on the Ranger in Southeast Asia. [redacted] did not know if it had yet been fully tested operationally.

Although the IOIC has many automated aspects, some of which are truly ingenious, much of the operation must still be done manually. The IOIC does not eliminate the human element in film viewing, in laboratory processing, or in storage and retrieval. We see two specific weaknesses in the system. The first is that it is highly inflexible. The exploitation phase will fit only the acquisition system it was designed to accompany. Second, the system permits only a crude interpretation of large scale photography. It lacks the precision needed for interpretation of satellite photography. The demonstration we saw of the system's mensuration capability suggests that it may be inadequate even for tactical needs.

The mating of an inertial navigation system with a machine readable data block is an excellent innovation. We understand that the OXCART vehicle employs the same or a very similar concept. We intend to explore with NPIC the feasibility of its adapting some of the IOIC techniques (such as automatic plotting, film transport, and mensuration) in its exploitation of OXCART photography. The main stumbling blocks to a broader application of the IOIC concept by NPIC are that NPIC must exploit photography in a variety of formats, each with its own unique data reduction scheme, and that NPIC has limited influence on the design specifications of the acquisition systems. Officers at NPIC have followed the development of the IOIC and are thoroughly familiar with it. We spoke with officers at FTD and at SAC who know the system well. None with whom we have spoken foresees for the near future an application by NPIC of the IOIC concept. It must be borne in mind, however, that the IOIC is a first generation system, and it would appear that IOIC-like systems will produce a growing volume of film for NPIC exploitation. In this event we believe that NPIC will want to apply some of the IOIC concepts.

Notwithstanding our view that the IOIC has a limited immediate application to NPIC's problems, I still think there would be much to be gained from a cross-disciplinary examination of photo interpretation technology. I was much impressed by [redacted] knowledgeability of intelligence systems and his common sense approach to problem solving. If he were available, he would be an excellent candidate to serve on any panel that might look into the matter of possible new approaches to photo interpretation.

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J. S. Earman
Inspector General

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