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March 26, 1963

X
Mr. Bernard L. Gladieux
Chairman
* X National Civil Service League
Sheraton Park Hotel
Washington, D. C.

To the ten winners of the Career Service Award of the National Civil Service League, I send warm expressions of gratitude. The Nation has good reason to be proud of the exceptional abilities you have applied in your productive years of service and your vital roles in shaping and moving our government programs. All citizens should be reassured to know that the demanding problems that confront our government are being met with knowledge, imagination, and leadership. The wide range of your achievements exemplifies the great variety of opportunities for a challenging career in the Federal service.

The National Civil Service League has again, by its selection and acclaim of outstanding award winners, made a valuable contribution to better public understanding of our career service. My best wishes for continued success in their endeavors go to Graeme C. Bannerman, Capt. Hewlett R. Bishop, August C. Hahn, Dr. G. K. Hartmann, Arthur C. Lundahl, Nicholas J. Oganovic, Dr. Hildrus A. Poindexter, James J. Rowley, Frank A. Taylor, and William H. Weathersby.

John F. Kennedy

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CHAIRMAN

UNITED STATES CIVIL SERVICE COMMISSION
WASHINGTON, D. C.

March 13, 1963

Honorable Frederick L. Holborn
Special Assistant in the White House Office
The White House

Dear Fred:

I am enclosing the draft of a suggested Presidential telegram honoring the ten award selections of the National Civil Service League. These ten men will be honored at a banquet on March 26 at the Sheraton Park. Please feel free to re-edit for improvement. I will be happy to serve as the messenger in delivering this communication.

Sincerely yours,


John W. Macy, Jr.
Chairman

enclosure

MEMO

President will
all on
Wednesday

OK
Full

D R A F T

To the ten winners of the Career Service Award of the National Civil Service League, I send warm expressions of gratitude. The Nation has good reason to be proud of the exceptional abilities you have applied in ^{your} productive years of service and your vital roles in shaping and moving our government programs. All citizens should be reassured to know that the demanding problems that confront our government are being met with knowledge, imagination, and leadership. The wide range of your achievements exemplifies the great variety of opportunities for a challenging career in the Federal service.

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JOHN F. KENNEDY



News from the *National Civil Service League*

315 Fifth Avenue, New York 16, New York MUrray Hill 9-3544

WASHINGTON CONTACT: Bob McCormick
Bob Wilson
STerling 3-4244

RELEASE: ALL NEWSPAPERS
TUESDAY, MARCH 5, 1963

WASHINGTON, D.C., MAR. 4 -- The National Civil Service League today announced its ten Career Service Award Winners for 1963. This award is given each year by the League to ten career Civil Servants who have made outstanding contributions to the Federal Government in their fields of endeavor.

Founded in 1881, a few weeks after the assassination of President Garfield by a disgruntled office seeker, the League had a major part in drafting the Pendleton Act of 1883, which established the Federal Civil Service System. Four Presidents of the United States have served on the League's Board -- Grover Cleveland, Woodrow Wilson, Theodore Roosevelt, and William Howard Taft. The League is the only organization of private citizens entirely devoted to improving the Federal Career Civil Service.

The ten award winners are:

Graeme C. Bannerman, Deputy Assistant Secretary, Office of Assistant Secretary of Defense (Procurement). Born in Washington, D.C., Mr. Bannerman is charged with supervising annual defense procurement amounting to \$25 billion. He has made countless contributions to the economy and efficiency of defense procurement.

Captain Hewlett R. Bishop, Atlantic Coast Director, Maritime Administration, Department of Commerce. A native of Long Island, New York, Captain Bishop, in charge of the largest field division of the Maritime Administration, rose from ordinary seaman to his present responsibilities. He has contributed to many far-seeing measures for maritime speed and safety.

[more]

August C. Hahn, Deputy Assistant Postmaster General. Mr. Hahn, originally from Beaumont, Texas, has risen through the Postal Service from letter carrier to his present high career post. He has a remarkable record of contributions to the improvement of our postal service.

Dr. Gregory K. Hartmann, Technical Director, U.S. Naval Ordnance Laboratory. Educated in his native Buffalo, New York, California Institute of Technology, and Oxford, Dr. Hartmann has been responsible for many important technical surveys and advances in the field of weapons technologies.

Arthur C. Lundahl, Assistant Director for Photographic Intelligence, Central Intelligence Agency. Born and educated in his home city of Chicago and in Zurich, Switzerland, Mr. Lundahl is perhaps the most distinguished authority in the United States on photographic intelligence.

Nicholas J. Oganovic, Deputy Executive Director, United States Civil Service Commission. Mr. Oganovic, whose mother still lives in Chisholm, Minnesota, started his outstanding career in field offices of the Civil Service Commission. He has since become Deputy Executive Director where he has been responsible for many improvements in the career Civil Service, such as the college recruitment program.

Dr. Hildrus A. Poindexter, Chief Public Health Advisor, Agency for International Development. Dr. Poindexter, a Washingtonian, is a career public health advisor. He has served all over the world, training hundreds, or even thousands, of top public health people for work in the so-called "underdeveloped nations."

James J. Rowley, Chief, United States Secret Service, Department of the Treasury. After leaving his native New York City, Mr. Rowley joined the Secret Service where he was, for 15 years, charged with the protection and safety of three Presidents of the United States. He is now in charge of the entire Secret Service, an outstanding security bureau within the Federal Government.

Frank A. Taylor, Director, U. S. National Museum, Smithsonian Institution.

Another Washingtonian, Mr. Taylor is a life-time employee of the Smithsonian Institution, and is now Director of the U.S. National Museum, the largest museum in the world.

William H. Weathersby, Country Public Affairs Officer, India, United States Information Service. Born in Memphis, Tennessee, Mr. Weathersby is unlike most of the other award winners, because he did not enter the career service in his youth; yet, he has risen rapidly to Country Public Affairs Officer in what the USIA Director calls the agency's "largest and most important operation abroad."

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Detailed biographies of the award winners are attached.

The winners will be honored at a dinner at the Sheraton-Park Hotel, Washington, D.C., on March 26, 1963.

RELEASE:

ALL NEWSPAPERS
TUESDAY, MARCH 5, 1963

NATIONAL CIVIL SERVICE LEAGUE

1963 CAREER SERVICE AWARD WINNER

LUNDAHL, ARTHUR CHARLES - - - Assistant Director for Photographic Intelligence,
Central Intelligence Agency

Residence: 4401 Chestnut Street, Bethesda 14, Maryland

Date and Place of Birth: April 1915, Chicago, Illinois

Length of Government Service: 20 years

Marital Status: Married, 2 children (one daughter, one son)

Education: 1934-42 University of Chicago
1948 Eidgen Techn Hochschule, Zurich, Switzerland
1962 Brookings Institute, Washington, D.C.

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Mr. Lundahl has been considered as the top photographic intelligence officer in the United States Government and, as such, he has been involved in the most important photographic problems affecting national security, including the Cuban crisis.

During World War II he served in the Navy's Photographic Intelligence Center, and is given great credit for the new and unique types of photography upon which our current intelligence efforts are so dependent. He has been called upon to deliver critically important briefings to senior policy officials concerned with the national security. His duties extend to obtaining the cooperation of all branches of the Government involved in the exploitation of photography for intelligence purposes.

He is active in professional, civic and community activities.

In nominating him, CIA Director, John A. McCone, stated:

"Mr. Lundahl has made major contributions to the science of photographic intelligence and has had a leading role in the development of an interagency photographic intelligence organization which is credited with accomplishments of great national significance."

GG 209/1

File
(new)

SELECTED PAPERS
ON PHOTOGEOLOGY AND
PHOTO INTERPRETATION



PRESENTED AT MEETINGS SPONSORED BY
THE COMMITTEE ON GEOPHYSICS AND GEOGRAPHY
RESEARCH AND DEVELOPMENT BOARD
WASHINGTON 25, D. C.

APRIL 1953

The knowledge of photogeology has grown steadily since 1922, when one of the first papers of significance, "The Face of the Earth as Seen from the Air," was written by W. T. Lee. Since that time, numerous articles and complete volumes on the subject have been written. The scattered texts, sections of reports, and separate papers prepared during the war give some approximate idea of the great work done by the military geology units. Research performed by the universities, commercial companies, and the Armed Forces and other government groups has brought photogeology to the point where a substantial, though scattered, body of literature has developed.

This subject, however, is too far flung and unwieldy to be easily covered in a single report. The implications of and correlations between the many aspects of photo interpretation and photogeology are such that it is difficult for any one textbook or any one author to cover them generally. The purpose, then, of such a series as this is to bring together as many different viewpoints as possible.

As a personal introduction to our subject, I want to touch briefly upon two of the most important aspects of photogeology: its immediate usefulness for peaceful purposes and its usefulness for military purposes. As examples of the former, I refer to the publication Resources for Freedom, the report of the President's Materials Policy Commission published in June 1952, which contains a section on "Possibilities of Improved Discovery Techniques in the Minerals Field." Later on, I am going to mention items from the section related to aerial photography in mineral discovery, as my first reference to primarily peaceful considerations of the photogeological problem.

It needs no elaboration to say that no one nation possesses all the minerals necessary to sustain its industry; therefore, each nation must obtain some essential minerals outside its natural borders. Through international trade, some nations become absolutely dependent upon others for necessary supplies, and this creates a buying potential for the exporter. If the domestic reserves of the essential minerals are inadequate, these minerals are considered strategic. When the supply of minerals is inadequate, the mineral is classified as critical. It follows, therefore, that critical minerals are not necessarily strategic. Examples of this are sulphur and molybdenum, both of which are nonstrategic to us because the bulk of the world production is in the United States. It should also be understood that materials that are strategic in one country may not be strategic in another.¹

¹H. J. Siegel, "Survey of Critical and Strategic Materials," Central Air Documents Organization, Technical Data Digest, pp. 16-24.

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the geological properties of the soil, but in some instances it clearly reflects chemical features of its environment. Vegetation of mining fields and ore bearing regions usually contains larger amounts of ore than does vegetation in surrounding areas. Such differences in mineral content often produce differences in light reflectance from the vegetation (whether they be of the same or of different species) that are discernible on aerial photographs. Some plants are fond of particular elements and thereby serve as indicators. Polycarphaea spirostylis in Australia is known to indicate copper deposits. In Missouri, Amorpha canescens is found to grow near galena deposits. The classical zinc pansy, Viola calaminaria et zinci, shows strong preference for zinc and is accordingly found on waste ore dumps of zinc mines in Central Europe.

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2. To use color photography in regional geological study to infer the existence of specific elements or minerals on the basis of changes in the color or tone of surface rock or soil as affected by differential weathering, alteration patterns, zones of mineralization, etc. Alteration pattern boundaries are sometimes worked out only with great difficulty from intent ground study of acid reactions. The same boundaries may often be worked out more rapidly on a regional scale from aerial photo interpretation.

3. To use experimental combinations of colored, or dichroic stereoscope filters in laboratory study of colored aerial photos to suppress unwanted ground data and intensify sought for diagnostic color indicators.

4. To further extend, generalize and widely disseminate the general principles of "photogeology". The geomorphologic, or land form interpretations made through a three dimensional study of aerial photos is invaluable in arriving at structural conclusions that might not otherwise be determined. Photogeology itself is the most economic method of rapid geological reconnaissance yet developed. By this technique outstanding regional anomalies can be quickly and accurately located and evaluation of these can proceed without the delay occasioned by detailed, but unspecified, geophysical or geological exploration. The interpretation of aerial photographs considers not only land forms and obvious geologic units but also the effects caused by variations in reflecting power of soils and rocks of exactly similar colors, the habit and density of vegetation, drainage patterns, the distribution

In the development of industry or the direct preparation for defense, minerals are an absolute necessity, for modern mechanized units are made from and propelled by minerals. There must be abundant supplies to build and maintain these units. For this reason, mineral supplies may determine the cause or cessation of war. Any warring nation cut off from supplies of strategic minerals during the long struggles must inevitably face defeat. Minerals can control war and enforce peace. Minerals are the basis of modern industry and their deficiency in certain countries has been an important factor in world unrest. Permanent world peace depends upon nations having access to mineral supplies.

The following information is taken from the section devoted to aerial photography in the report of the President's Materials Policy Commission:²

Aerial photography represents a powerful tool which can be used widely, quickly and relatively inexpensively in an indirect or direct manner to increase the rate of mineral discovery. The examples cited are only a few of the suggested uses and additional details or bibliographic references are available if required.

A. Indirect Uses of Aerial Photography

1. To complete the topographic mapping of the United States and other world areas as quickly as possible by photogrammetric means. Topographic maps are needed in planning the systematic search for minerals, the preparation of geologic maps, and the efficient exploitation of all significant mineral discoveries. Photogrammetry, the science of making maps and extracting quantitative information from photography, offers the cheapest and fastest means yet devised for making topographic maps. The United States is probably the poorest mapped of all the great industrial nations of the world. About one quarter of the United States is mapped adequately and approximately 50 years will be required at the present rate to complete the task. New precision cameras, stereo plotting instruments and related instrumentation are already available to make more precise the practice of photogrammetric mapping. These new instruments and procedures can be used to make maps generally better, faster and more cheaply than conventional ground survey.
2. To prepare aerial photographic mosaics of potential mineral discovery areas as a basis for many types of annotations or transparent overlays bearing geochemical, geological, geophysical, geobotanical and other earth science field data which may offer "convergence of evidence" as to place and type of mineral existence.

² "The President's Materials Policy Commission Report, 1951, p. 100.

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8. To extend and systematically use the "convergence of evidence" principle in securing airborne magnetic or other instrumentation records simultaneously with black and white or colored photography over potentially fruitful mineralized areas. The most spectacular recent example of the successful application of this principle in a limited sense is the discovery in 1947 of what appears to be the worlds greatest iron ore deposit, Cerro Bolivar, in Venezuela by U. S. Steel Corporation. Some experts believe the total holding will prove greater than two and a half billion tons. This enormous deposit was discovered from stereoscopic aerial photographs through careful geological and vegetative interpretation and tracing of the twisted extension of iron bearing rocks from smaller deposits held by Bethlehem Steel close to the Atlantic Ocean on the south bank of the Orinoco River. Airborne Magnetometers flown over Cerro Bolivar recorded the largest magnetic response for any ore body in the world which has yet been recorded. Careful field checks at selected points indicated high grade ore averaging 59 per cent iron content.

On the military side, much might be said by way of examples in describing the World War II experiences of the Military Geology Unit alone of the U. S. Geological Survey. Starting with a few men in 1942 and expanding to more than a hundred by 1944, the Military Geology Unit did a monumental job in taking geological information, which in its own context was overlooked or otherwise practically useless to the military, and presenting it in a form that was palatable and readily understandable by the field commanders.

We have much to learn still in the military uses of geology, but I think that with the start of the Military Geology Unit here in Washington and the widespread growing interest evidenced by the literature, we shall push forward. A classic example of our early disparity, as compared with the Germans, is noted when we re-examine the facts of the Italian Campaign of World War II, where the Germans fought a tenacious defensive action with a very fine balance between the size and distribution of their forces related to the terrain. We all know what tough fighting it took for us to penetrate into Italy. How many of you have read that the Germans had 600 geologists with their armies in Italy alone? It is reported that, at that time, we had less than 100 geologists on a global basis.

There is no question about it; the geologists armed with the aerial photography as the German geologists were could well choose the best positions for defense, could well choose the best probable areas wherein trafficable

and pattern of cultivated lands, railroads, quarries, reservoirs, and other cultural features. The application of photogeology to exploration work should be considered as an aid rather than an end. It has been argued that in areas of good exposures aerial photos are unnecessary and in regions of no outcrops they are of no value. Such reasoning is specious. For example: in the swamps of the Gulf Coast of the United States -- a region noted for its lack of topographic expression and surface geology--salt domes have been interpreted as anomalous areas from the photographs by the drainage patterns surrounding them. Mud volcanoes in dense tropical jungles have been readily interpreted from the photographs by a "timber halo." Ancient stream channels, filled by younger deposits, both in jungle and desert regions are expressed on the photos by vegetation and soil changes. Kelp adhering to the off-shore submarine outcrops of the Monterey shale delineates the Elwood anticline off the Santa Barbara, California, coast and is clearly discernible on the aerial photographs. The intersection of transverse faults in the Mother Lode district of California, indicating points of rich mineralization, stand out clearly on the aerial photographs but are difficult to locate and observe in the field. The pattern and strike of the pegmatite veins in the San Gabriel Mountains of southern California are at once apparent from the pictures. Innumerable examples could be cited where no surface geology or cartographic units are visible in the field but where ample data are present on the photographs to make sound deductions and interpretations.

5. To systematically precede every major mineral search with detailed aerial photographic study to initially locate critical or key zones and thereby save geological effort otherwise wasted in general reconnaissance. Such key zones are faults or lode bearing fissures which often can be traced for many miles on the aerial photos. Expeditions in northern Australia have done valuable work in planning and directing prospecting work according to lode line and fissure delineations detected on aerial photos. Here it was possible to detect a once worked mineral lode across the country by its effect on the vegetation and soil as clearly noted in the aerial photos. Canadian engineers have practiced for years the principle of studying aerial photos so as to eliminate unlikely areas and prepare to put parties in the field right at the most promising areas for detailed work. The Invincible Lode in the Glenorchy area of New Zealand was photographically traced across numerous recent faults which offset the lode considerably. Apart from lode structure, the usefulness of air photographs in determining the extent of alluvial deposits is important. The tracing of ancient meanders and stream beds that may contain placer deposits can be done with greater accuracy from air photographs than from work on ground, hence a boring and prospecting programme can be planned and directed from the information so obtained. The delineation of the

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conditions might be expected off the roads, could predict areas wherein caves might be expected or underground storage effected, could do many, many things related to water supplies, location of construction materials, and many other functions.

Finally, it appears unmistakable that in war or peace the use of photographs for geological purposes offers tremendous possibilities and great challenge. I hope the results of our studies will eventually lead to a series of collective works to supplement the books of H. T. U. Smith, Eardley, and others in this country.

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WEDNESDAY, MARCH 27, 1963

10:40 am

The President arrived in the office.

11:05 - 11:10 am

The President received the National Civil Service League Winners for 1963:

Graeme C. Bannerman

Deputy Assistant Secretary of Defense

Captain Hewlett R. Bishop

**Atlantic Coast Director of the Maritime Administration
Department of Commerce**

August C. Hahn

Deputy Assistant Postmaster General

Dr. Gregory K. Hartmann

Technical Director, U. S. Naval Ordnance Laboratory

Arthur C. Lundahl

Assistant Director for Photographic Intelligence, CIA

Nicholas J. Oganovic

**Deputy Executive Director, U. S. Civil Service
Commission**

Dr. Hildrus A. Poindexter

**Chief Public Health Advisor, Agency for International
Development**

Mr. James J. Rowley

Chief of the U. S. Secret Service, Treasury Department

Mr. Frank Taylor

Director of the U. S. National Museum, Smithsonian

Mr. William H. Weathersby

Country Public Affairs Officer (for India) USIA

Mr. John W. Macy, Jr.

Chairman, U. S. Civil Service Commission

Also present were:

National Civil Service League Officials

Mr. Bernard L. Gladieux

Mr. Robert L. L. McCormick

Mr. Rocco C. Siciliano

Mr. James R. Watson

11:12 - 11:17 am

Mr. Robert Komer

11:35 pm

The President went to the Mansion.

FRIDAY

SEPTEMBER 7, 1962

Page 2

4:02 - 4:20 pm (General Marshall Carter) OFF THE RECORD
(Mr. Ray Cline)
(Mr. Art Lundahl)
(Hon. Robert McNamara)
(Hon. Dean Rusk)
(Hon. McGeorge Bundy)

4:20 - 4:54 pm (Hon. Dean Rusk) OFF THE RECORD
(Mr. William Tyler)
(Mr. Martin Hillenbrand)
(Hon. Paul Nitze)
(Hon. Robert McNamara)
(General Lyman L. Lemnitzer)
(Hon. McGeorge Bundy)

4:53 - 5:22 pm (Senator Robert S. Kerr) OFF THE RECORD

5:23 pm The President motored from the White House
the the Ellipse to board helicopter for flight
to Andrews Air Force Base.

5:52 pm The President was airborne from Andrews Air
Force Base for flight to Newport, Rhode Island.
QUONSET NAVAL AIR STATION
NEWPORT, RHODE ISLAND

6:40 pm The President and party arrived at the Naval Air
Station.

6:45 pm The President and Senator Smith departed the Airport
and motored to the dock where they joined Mrs.
Kennedy aboard the Honey Fitz.

7:30 pm Arrived at Hammersmith Farm aboard the Honey Fitz.

7:35 pm Arrived at the residence.

1:00 pm

LUNCHEON list continued from previous page:

Congressman Peter Frelinghuysen, Jr.

Congressman John E. Moss

Congressman Cronelius Callagher

Hon. John A. McCone

Hon. Fowler Hamilton

Hon. David K. E. Bruce

Mr. Philip L. Graham

Mr. James B. Reston

3:30 - 5:48 pm

The Rt. Honorable Harold Macmillan

Prime Minister of Great Britain

H. E. the Rt. Hon. Sir David Ormsby Gore

Ambassador of Great Britain

Sir Norman Brock

Sir Evelyn Shuckburgh

Mr. Philip de Zulueta

Hon. Dean Rusk

Hon. George Ball

Hon. David K. E. Bruce

Hon. McGeorge Bundy

Hon. William Tyler

Mr. William C. Burdett, Jr.

Mr. Joseph Sweeney

5:15 - 5:48 pm

(Hon. John McCone)

OFF THE RECORD

(Hon. Ray Cline)

(Hon. Arthur Lundahl)

(Mr. Lewis F. Beck

(Hon. Robert McNamara)

6:00 pm

The President went to the pool.

8:00 pm

The Prime Minister of Great Britain gave a Dinner at the British Embassy in honor of the President.

The President and the Vice President departed the White House at 8 pm and motored to the British Embassy.

8:06 pm

Arrived at the British Embassy and greeted by Prime Minister Harold Macmillan.

(See next page for those attending the dinner in honor of the President, given by Prime Minister Harold Macmillan

LUNDAHL, Hon. Arthur

April 28, 1962

5:15 - 5:48 pm

OFF THE RECORD, attended the last portion of the meeting between the President and Prime Minister Harold Macmillan

LUNDAHL, Arthur C.
Assistant Director for
Photographic Intelligence
CIA

March 27, 1963

11:05 - 11:10 am

One of the winners of the National Civil Service
League Awards

CARTER, General Marshall

Sept. 7, 1962
4:02 - 4:20 pm

OFF THE RECORD

Also:

Ray Cline

Art Lundahl

Hon. Robert McNamara

Hon. Dean Rusk

Hon. McGeorge Bundy

" Michael R. Beschloss
Harper & Row NY 1986

... binary, he contented himself
... the "full indepen-

... City of Newspaper Editors,
... Park life. He recalled that after
... the Soviet Union had
... the Soviet provocations, the United
... Malenkov's offer and
... be willing to join the
... international con-
... Eisenhower's evocation

... every rocket fired
... hunger and are not
... This world in arms is not
... sweat of its laborers, the ge-
... We pay for a single
... We pay for a single
... more than eight
... life at all, in any true sense.
... humanity hanging from a

... Eisenhower's second greatest
... his worst—that some
... the paralyzing cost of an
... the threat with a
... the most urgent rea-
... of now, the world is

... the United Nations and proposed
... States stockpile of atomic weap-
... exceeds by many times the ex-
... of all bombs and all shells that came
... in every theater of war in all the years
... arms race was curbed, the "two
... to "eye each other indefinitely
... joint American-Soviet-British
... UN atomic agency for

This would curb the arms race at an early stage without requiring the on-site inspections that the Soviets had always refused. Eisenhower knew that the United States could afford to reduce its stockpile by several times the Soviet rate and still remain ahead: in his speech, he allowed that the ratio of American to Soviet contributions could be five to one or more. Privately he believed that all one superpower needed to deter the other was a few hundred bombs: the Russians wanted nothing badly enough to risk losing the Kremlin.

But the Soviets feared permitting an eternal American lead; they did not even issue a prompt response to Eisenhower's offer. The frustration of Atoms for Peace made the President more sensitive to the problem of protecting the United States against surprise attack.

Several levels down from what Lenin would have called the "commanding heights" of the American government was a blunt, decisive, impatient, profane Welshman named Trevor Gardner, assistant to the Secretary of the Air Force for research and development. Born in Cardiff in 1915, trained as an engineer, he worked on the Manhattan Project at the California Institute of Technology, became vice president of General Tire and Rubber by age thirty and started his own R-and-D firm, Hycon, before Eisenhower personally invited him to join the new administration.

Pearl Harbor had burned the danger of surprise attack into the national soul. Gardner joined a national security establishment that had been newly alarmed. Albert Wohlstetter and other strategic thinkers at the Rand Corporation in California had lately issued a top-secret warning that a Soviet strike might destroy as much as eighty-five percent of the Strategic Air Command's bomber force. After a disturbing visit with General Curtis LeMay at SAC headquarters in Omaha, Gardner flew to Pasadena, where he saw Lee DuBridge, president of Cal Tech and chairman of the Science Advisory Committee established under Harry Truman to advise Presidents on scientific aspects of national security.

Cocktail in hand, as an aide recalled, Gardner told DuBridge that his panel wasn't worth "a good goddamn. . . . You're abnegating your responsibility to science and the country, sitting on your dead asses in fancy offices in Washington, wasting your time and the taxpayers' money going through a lot of goddamn motions on a lot of low-level,

ality exercises—all in the name of science.” The Committee should do a study on surprise attack and American “ability, or inability, to meet it. The true story, not that shit Washington is feeding the American people.”

Cardet made his appeal to the Committee, which went to see the President on Saturday, March 27, 1954. Eisenhower told them that he too was “haunted” by the problem of surprise attack. Among those present was James Killian, president of the Massachusetts Institute of Technology. On the recommendation of DuBridge, the President had him to breakfast at the White House and asked him to chair a secret commission on potential new military and intelligence weapons to protect the nation against surprise attack.

Born in 1904 in North Carolina, Killian had spent his entire adult life at MIT—as an undergraduate in business and engineering, editor of the *Technology Review* and then while climbing the bureaucratic ladder until he became president in 1949. A skillful manager of scientists with their egos and idiosyncrasies, he believed that universities like MIT should muster “the democratic ranks of American scientists into invincible battalions” in the Cold War.

Killian had voted for Eisenhower in 1952 and twice attended the President’s intimate stag dinners at the White House, but this had not prevented him from opposing some aspects of Eisenhower’s defense program on Capitol Hill or sharing the outrage of many American scientists at the excommunication of J. Robert Oppenheimer. He accepted the President’s offer and won a leave of absence from the MIT Corporation.

Killian was concerned that it might not be easy to attract scientists angry at Oppenheimer’s treatment to work for the President who had done the deed, but he found that most “could not fail to respond to a call for help.” By September 1954, he had assembled forty-six experts and staff in the gray nineteenth-century splendor of the Executive Office Building next to the White House.

The Technological Capabilities Panel (or Killian Commission, as members soon called themselves) worked fast and hard, for the President wanted a report on his desk by February. Except for field trips to the CIA, Pentagon, SAC and elsewhere, members worked behind locked doors manned by Air Force guards. During coffee breaks, like children told to back and not touch, secretaries gazed out the windows at the distant figure of the President greeting foreign leaders and knocking out golf balls on the South Lawn.

The most secret unit of Killian’s group was the intelligence panel chaired by Edwin Land. The world knew Din Land best as inventor of the Polaroid Land camera, but he had long been working on classified government projects, including guided missiles, infrared searchlights, anti-aircraft training devices and 3-D film for aerial photography. Dark, reclusive, sensitive, abrupt, Land had always exalted “the art of the fresh, clean look at the old, old knowledge.”

Born in Bridgeport, Connecticut, in 1909, he dropped out of Harvard as a freshman to work on a filter to cut glare in cameras, sunglasses, telescopes. He founded the Polaroid Corporation to sell the filters, hoping that it would prosper enough to support his scientific curiosity. On a wartime trip to the Southwest, Land’s three-year-old daughter Jennifer asked him why snapshots could not be produced right away. He went for a stroll and worked out the basic design of an instant camera in his head. In 1948, his first cameras went on sale at the Jordan Marsh department store in Boston. Twenty-five years later, Land’s interest in Polaroid was worth half a billion dollars.

But money remained only a means. By 1954, working in his nondescript office and laboratory near Polaroid headquarters in Cambridge, he held 164 patents, including detection devices for atomic exposure and cancer and a process for 3-D movies: theatergoers donned Polaroid glasses for the illusion of watching tribesmen in *Bwana Devil* hurling spears, or so it seemed, into the audience. Land was an MIT lecturer and Cambridge friend of Killian, who thought him “an authentic genius.”

His panel knew that the first line of defense against surprise attack was intelligence on the enemy’s military capabilities and intentions. The Soviets held a clear advantage. In any five-and-dime, they could buy maps of American bridges, factories, highways, ports, air bases, missile sites, atomic testing grounds. Soviet agents and diplomats gathered all sorts of American secrets. Some of this espionage was sophisticated, such as the Americans paid to steal classified papers; some was crude, such as the aerial photographer paid seven hundred dollars by a Soviet air attaché to fly over military sites around New York City. The FBI was on the trail, but how much could be concealed in a free society?

In the Soviet Union, even the Moscow telephone book was classified. If American generals did not know the location of vital Soviet in-

Twining privately thought the CIA men were getting "too big for their britches. They did not know how to handle this kind of an operation." He knew that this meeting with the President was not the time or place to voice his objections, but neither he nor LeMay intended to roll over and play dead.

Eisenhower told the group, "Go ahead and get the equipment, but before initiating operations, come in to let me have one last look at the plans."

It was all over in fifteen minutes. Before the meeting adjourned, Foster Dulles said, "Of course, difficulties might arise out of these operations. But we can live through them."

Two hours later, William Knowland, Republican leader of the Senate, was shown into the President's office. For two years, Knowland had made the President's life miserable by promulgating his own hard-shell foreign policy from the Senate floor. Eisenhower once wrote in his diary that in Knowland's case, there seemed to be no final answer to the question, "How stupid can you get?"

After the Russians downed the American plane in early November, Knowland had publicly demanded that the President break diplomatic relations with the Soviet Union: other "innocent" planes would be attacked if Eisenhower did "nothing more than merely send notes to Moscow." Foster Dulles warned the President that reporters would press him "on the Knowland foolishness." If the President wanted to "slap Knowland's ears back," that would be fine with him.

But Eisenhower had to coexist with his Senate leader, so he asked Knowland to the White House for today's heart-to-heart talk. As the Californian entered the room, the President threw the switch activating a secret tape recorder concealed in a large, ugly piece of furniture in the next room. (He once told his Cabinet, "It's a good thing when you're talking to someone you don't trust to get a record made of it. There are some guys I just don't trust in Washington and I want to have myself protected so they can't later report that I said something else.")

Eisenhower brought up the plane incident. He said he knew there were arguments for breaking relations with the Soviet Union. But that was a step toward war: "If you do that, then the next question is, 'Are you ready to attack?' Well, I am *not* ready to attack."

The President hinted that the plane downed in the Far East might

mine," said Robert Amory. He recalled that in 1952, when he became Deputy Director for Intelligence, CIA photointerpretation consisted largely of "a guy named Brown, who'd come in half a week and look at old German photos." Amory wished to build up his operation; he recruited Arthur Lundahl, a University of Chicago geology graduate whose photointerpretation skills were well regarded by his Navy superiors. "If you're going to parachute me into Salerno or something, forget it," Lundahl said. "I'm a scientist." But Lundahl finally agreed and, as Amory recalled, "he mobilized a splendid team."

In December 1954, Lundahl was called to the Director's office. With Bissell standing nearby, Allen Dulles gave him the disconcerting news that he was being relieved of all of his duties. Then the two men showed him plans for the U-2 and told him that he must swiftly build an organization to analyze the expected photographs.

Lundahl leased fifty thousand feet of office space on the upper floors of a Ford repair shop at Fifth and K Streets, northwest of the U.S. Capitol. The neighborhood was so ramshackle that Lundahl thought it an excellent cover: who would imagine that the U.S. government would house a vital national security operation among winos and muggers?

The operation was code-named HTAUTOMAT. Years later, Lundahl chuckled at the memory of Richard Nixon, Foster Dulles and other high officials rolling up in limousines for briefings on U-2 findings and having to step across rats and garbage to make it into the building. Lundahl's downstairs neighbors apparently never knew what was going on: when they saw U-2 couriers rushing in guarded by men with machine guns, they figured that the government must be using the offices to print money.

Lundahl's growing number of analysts used the U-2 photography in conjunction with previous intelligence about the areas under study—maps, statistics, reports from tourists and secret agents, old pictures from ground and air. "It was a whole new ball game," said Amory. "I remember Art telling me that the raw film that came in each time to Westover Air Force Base, if laid down, would cover all four lanes of the Baltimore-Washington Turnpike from beginning to end." During the Second World War, British intelligence had scored a secret triumph by breaking German codes. Now, as the CIA's Ray Cline said, "Photography became to the fifties what codebreaking was to the forties."

Richard Helms found the U-2 material "mindboggling in that it

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Lundahl, Arthur C.

Chief, National Photographic Interpretation Center, CIA. On October 15, Lundahl notified Ray Cline, the CIA deputy director of intelligence of the discovery of missile equipment in Cuba; the following day, he personally briefed President Kennedy and the Executive Committee on the photographic evidence that the Soviet Union was constructing missile sites there.

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Executive Committee (ExComm)

A group of advisers known as the **Executive Committee** of the U.S. National Security Council was created by President Kennedy on October 16, the first day of the crisis (although it was not officially constituted until October 22). The Committee was the key decisionmaking body governing U.S. responses and actions during the crisis period. Statutory members included **Vice President Lyndon Johnson; Secretary of State Dean Rusk; Secretary of Defense Robert McNamara; Chairman of the JCS General Maxwell Taylor; Special Assistant to the President for National Security Affairs McGeorge Bundy; Secretary of the Treasury Douglas Dillon; CIA Director John McCone; Attorney General Robert Kennedy; Undersecretary of State George Ball; Deputy Secretary of Defense Roswell Gilpatric; and Ambassador-at-Large Llewellyn Thompson.** In addition, the ExComm unofficially included Deputy Under Secretary of State U. Alexis Johnson; Assistant Secretary of Defense Paul Nitze; former secretary of State Dean Acheson; private advisers John McCloy and Robert Lovett; U.S. Ambassador to the U.N. Adlai Stevenson; Deputy Director of the USIA Donald Wilson; Assistant Secretary of State for Inter-American Affairs Edwin Martin; and, on the first day of the crisis, former U.S. Ambassador to the Soviet Union Charles Bohlen. President Kennedy chaired the Executive Committee.

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High-level Briefings

In addition to enjoying the confidence of US Presidents Eisenhower, Kennedy, Johnson, and Nixon, Lundahl was called upon to brief many other high-ranking officials from around the world. President Charles de Gaulle of France, Chancellor Konrad Adenauer of West Germany, Prime Minister Harold Macmillan of Great Britain, Prime Minister Pandit Nehru of India, and foreign ministers from many NATO countries were among those Lundahl enlightened on the various aspects of imagery interpretation and the capabilities of various photographic collection systems.

In the 1960s, Lundahl reorganized the Center along group lines that remain essentially the same today. He was also involved in the design, construction, and relocation of the Center into Building 213. In this building began what Lundahl considered to be the most important work of the Center—its efforts toward disarmament and providing timely information to the US military during crisis situations.

Lundahl knew every person in Building 213 by their first names, and he treated all with dignity and respect. He insisted, for example, that the ladies of the char force take their nightly rest period in his office because the chairs and sofas there were far more comfortable than those in their locker room. I found something interesting by accident. I would go to his office after putting the daily NPIC cable to bed and place a copy in his safe for him to read the next morning. I discovered that he would leave a carafe of tea on his desk for the char ladies with a little note: "Ladies, enjoy your rest with a spot of tea." And they, in turn, would write a note thanking him. If there was no tea, he would leave some candy or a package of chewing gum, always with appropriate notes.

An Active Retirement

A severe arthritic condition forced Lundahl into retirement in June 1973. His interest then focused on the application of multisensor technology, photographic interpretation, and photogrammetry to resolve the many economic and environmental

problems besetting our planet. Lundahl maintained contact with all succeeding NPIC directors, and in 1992 he was visited by the current Director, Leo Hazlewood, and presented with a special memento for his contributions to the Center.

In his eulogy of Lundahl, Hazlewood stated, "Throughout his long and celebrated career, Art Lundahl set the standard for imagery professionals in the industrial world. His death deprives us of the wise counsel of this founder of the imagery exploitation discipline. We will all miss him for what he meant to NPIC and to the nation."

Awards and Honors

Lundahl received numerous awards, including President Kennedy's silver commemorative calendar leaf, the National Security Medal, the Agency's Distinguished Intelligence Medal, and the Pioneer in Space Medal. In 1974 Queen Elizabeth conferred on him the Most Excellent Order of the British Empire in the rank of Honorary Knight Commander in recognition of his outstanding scientific and technical services to the crown.

Of all the awards and honors Lundahl received, one he seldom displayed reflects most appropriately his contributions to this nation—a photograph of Allen Dulles and himself and signed by Dulles that reads: "Art Lundahl has done as much to protect the security of this nation as any man I know."

Global Concerns

Lundahl loved to quote Socrates: "Man must rise above the earth—to the top of the atmosphere and beyond, for only then will he fully understand the world in which he lives." Satellite photography, Lundahl said, helps show us how nature tells us in many ways it does not have an inexhaustible capacity to neutralize human contamination. The problems of Earth, he said, remind us that we are in a race with ourselves. He noted we are the richest nation on Earth, blessed with a variety of amazing technological resources.

JAN 03 2001

Mr. Grant Cameron
649 Silverstone Avenue
Winnipeg, Manitoba
CANADA R3T 2V8

Reference: F-2000-02550

Dear Mr. Cameron:

This acknowledges receipt of your 15 December 2000 Freedom of Information Act (FOIA) request concerning the following:

“a general biography on Arthur Lundahl [the] Founder and Director of the CIA’s Photographic Interpretation Center. [You] would like the bio to include the date of Mr. Lundahl’s death”

For identification purposes we have assigned your request the number referenced above.

Enclosed is a document from our database of previously released material which we believe to be responsive to your request.

We hope that we have been of assistance.

Sincerely,



Kathryn I. Dyer
Information and Privacy Coordinator

Enclosure