DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON 25, D.C.

Op-95/rwb
Ser 31P95
17 February 1960

From: Chief of Naval Operations
To: DISTRIBUTION LIST

Subj: Testimony to the House Science and Astronautics Committee; forwarding of

Ref: (a) CNO ltr ser 3P95 of 28 January 1960

Encl: (1) CNO ltr ser 30P95 of 17 February 1960 with enclosures thereto

1. By reference (a), the Chief of Naval Operations initiated a series of newsletters forwarding selected statements of witnesses testifying before the Congress on space matters. Forwarded as enclosure (1) is the fourteenth and final memorandum in this series.

R. L. KIBBE
By direction

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DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON 25, D.C.

Op-95/rwb
Ser 30P95
17 February 1960

MEMORANDUM FOR THE CHIEF OF NAVAL OPERATIONS

Subj: Testimony before the House Science and Astronautics Committee; forwarding of

Encl: (1) Op-95 Memo for Record dated 16 February 1960
(2) Statement of Honorable Wilber M. Brucker, Secretary of the Army
(3) Statement of General Lyman L. Lemnitzer, Chief of Staff, U.S. Army

1. On 16 February 1960, the Honorable Wilber M. Brucker, Secretary of the Army, and General Lyman L. Lemnitzer, Chief of Staff, U.S. Army, appeared before the House Science and Astronautics Committee and presented the statements which are attached as enclosures (2) and (3).

2. Enclosure (1) is a debrief of the testimony by Mr. Brucker, and General Lemnitzer and is forwarded for your information.

3. This memorandum concludes the series of memoranda on the space hearings held in Congress which will be issued by this division.

Very respectfully,

R. L. KIBBE
CAPT, U.S. Navy

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ENCLOSURE (1) TO OP95
SER 31P95 DTD 2-17-60

Op-95/rwb
16 February 1960

MEMORANDUM FOR THE RECORD

Subj: Debrief of Army testimony before the House Science and Astronautics Committee on 16 February 1960

1. Secretary of the Army, W. M. Brucker, read his prepared statement to the Committee, after which, Chairman Brooks remarked, "your statement provides a challenge to those who would write off the Army".

2. Secretary Brucker and General Lemnitzer were both in agreement on their statement that:

a. NIKE-ZEUS was the best anti-missile defense system in view for the next five years at least.

b. That this country should have an air defense missile in addition to ballistic missile.

c. NIKE-ZEUS is vital to the security of the nation. Enjoys the highest priority established by the National Security Council.

d. Funds should be allocated to purchase pre-production items for NIKE-ZEUS systems at earliest possible date.

3. Secretary Brucker stated "that the transfer of the von Braun team removed some of the in-house space capability from the Army. The Army felt that the team should remain intact for benefit of country rather than be split up, therefore, the Army endorsed transfer to NASA.

4. In response to questioning regarding the President's recommendation to abolish the Civilian-Military Liaison Committee and the National Astronautics and Space Council, Secretary Brucker, stated "that some agency, similar to the Atomic Energy Commission should be set up to replace them". Secretary Brucker indicated that the Army is working on a solution to the problem and would have a recommendation in the near future.

ENCLOSURE (1) to Op-95
ser 30P95 of 17 Feb 60

5. Secretary Brucker disclosed that a Committee headed by Dr. Skifter is to review the NIKE-ZEUS program, however, Dr. York though not a member, could veto any recommendation the committee might make.

STATEMENT BY

SECRETARY OF THE ARMY

HONORABLE WILBER M. BRUCKER

BEFORE THE

COMMITTEE ON SCIENCE AND ASTRONAUTICS

HOUSE OF REPRESENTATIVES

16 February 1960

ENCLOSURE (2) to Op-95
ser 30P95 of 17 Feb 60

Mr. Chairman and Gentlemen:

I welcome the opportunity to appear again before the Science and Astronautics Committee of the House of Representatives. The matters which you are considering are of vital importance today and could conceivably become, in another few years, most vital to our over-all position in the world -- even to the security of our nation itself. I particularly appreciate this opportunity to discuss with you the Army's contribution to our national space effort because the nature, scope and potential of this contribution are sometimes not fully understood, even by some who are conversant with space objectives, activities and programs.

The other Army witnesses who will be appearing before you over the next three days are:

General Lemnitzer, Chief of Staff of the Army, who is appearing with me today.

Lieutenant General Trudeau, Chief of Research and Development, and Major General Dick, his Director of Special Weapons, scheduled to appear tomorrow, and

Major General Schomberg, Commander of the Army Ordnance Missile Command at Huntsville, Alabama.

This morning I propose to discuss in general terms contributions which the Army has made to the national space program since I appeared before this committee in February 1959, we well as the Army's

policy and views with respect to its continued role and participation in the furtherance of this vital effort. General Lemnitzer is ready to discuss the Army's views on the military use of space and the Army's role and requirements in this area as we see them. The other Army witnesses are ready to provide greater details with respect to all of these matters.

In furthering the over-all military posture and security of the United States, the Army will endeavor to contribute to the objectives set forth in our over-all national policy. As you know, President Eisenhower has stated that our activities in space should be devoted primarily for peaceful purposes for the benefit of all mankind. This policy was ratified by the Congress in the National Aeronautics and Space Act of 1958, and the National Aeronautics and Space Administration was established and charged with the mission of conducting civilian scientific space exploration. At the same time, as the Congress likewise fully realized, our national security requires that we should not fail to exploit to the fullest the improved military capabilities which operations in space promise to provide. We must never lose sight of the fact that it is most difficult, if not impossible, to separate, in a technical sense, peaceful accomplishments from military capabilities in space. It is therefore our responsibility in the military to ensure that we take advantage of every opportunity afforded by space

exploration to strengthen our nation's defenses and at the same time to ensure that the military use of space by any potential enemy does not endanger our national security.

Potential military uses of space on the part of the USSR will tend to increase the dimensions of the Communist threat, without necessarily replacing any element of that threat which presently exists. In fact, such an expansion of the threat might well have an effect comparable to one we foresee resulting from the growing Soviet ICBM capability, in which the combination of this missile strength and the already large conventional forces of the Communist Bloc may well encourage the Soviets to undertake bolder ventures with tactical forces, under the strategic "umbrella" provided by the threat of a "thermonuclear holocaust."

The Army's efforts in space have been and will be directed to the accomplishment of two primary objectives: first, to strive for development of Army capabilities which will permit us better to accomplish our assigned missions of land combat and air defense; and second, to contribute, where we are best qualified, to the over-all advancement of our country's national space program -- both civilian and military.

Largely as a result of the explosive technological and scientific advances since World War II, it became fashionable in some quarters to jump to the unwarranted conclusion that the traditional and conventional

methods of warfare -- and particularly land warfare, the basic mission of the Army -- were being eclipsed and had become obsolete. Fortunately for our national security, neither the Congress nor the other responsible officials of our government have been deluded by any such superficial approach. On the contrary, there is abundant evidence that the ability of the Army to engage successfully in any form of ground combat is more important to the security of the United States than ever before in our history. Despite the glamour of long-range missiles and the boundless challenges presented by the possibilities of space exploration opening before us, we must never lose sight of the fact that man's home and life are on the land, and he is capable of existing outside his natural environment only to the extent that he is able to create an artificial environment for the time being and take it with him. We must never lose sight of the fact that if man does not control the land to which he must return, man cannot exist indefinitely, either at sea, beneath the sea, in the atmosphere our outside the atmosphere. The Army's interests and endeavors are therefore to use space to improve its capabilities to perform its vital mission of land combat and to defend the land from attack from any place, including an attack from the space above the land.

I should now like to review the Army's accomplishments in the year which has passed, to discuss the changes which have occurred during that period and, finally, to outline briefly the Army's plans for the coming

year. In accordance with our national policy to reduce duplication of effort and to obtain the maximum benefit from funds committed to our space program, all of the Army's efforts in the satellite and space vehicle fields have been conducted in an effort of either an integrated Department of Defense military space program directed by the Advanced Research Projects Agency (ARPA) or in support of the Civilian Scientific Space Program directed by NASA. The funds for these efforts have been provided to the Army by either ARPA or NASA from the funds made available to them by the Congress for satellite and space vehicle development. At the same time, the Army has been assigned by the Secretary of Defense responsibility for the development of the NIKE-ZEUS in order to provide an anti-missile defense for the United States. The Army has conducted and funded this rapidly advancing NIKE-ZEUS program from the resources made available to the Army by the Congress.

During the past year the Army, which was the first agency in the Free World to penetrate outer space; to develop large multiple stage missiles; to accomplish the successful return and recovery intact of nose cones from outer space; and the first to orbit an artificial earth satellite, added additional "firsts" to this list of pace-setting accomplishments. On March 3, 1959, the Army, in support of NASA, launched the Free World's first artificial satellite of the sun.

PIONEER IV, and on May 28, 1959, successfully recovered in a JUPITER nose cone two live monkeys, the first primates to have been transported outside the atmosphere approximately 1500 miles through space, and successfully recovered. During the same period our NIKE-ZEUS anti-missile development program has proceeded on schedule, while at the same time achieving improvements in both the missile and its control system which will enable NIKE-ZEUS very substantially to exceed its original design objectives. Still another significant first was, as I am sure you have either heard or seen, achieved on 29 January 1960, when a HAWK air defense missile successfully intercepted and destroyed an HONEST JOHN ballistic missile at White Sands Missile Range. In response to a request from this Committee we have brought with us a film of this firing and a film report on NIKE-ZEUS which we will be ready to show you in executive session after General Lemnitzer and I have completed our statements.

I would be remiss in reporting to you the Army space progress, present status, and future plans if I failed to mention the significant changes in organization which have occurred since last year. You will recall that at this time a year ago ARPA was responsible to the Secretary of Defense for the conduct of all military space research and development within the Department. It accomplished its mission by assigning to the various Services responsibility for the development of particular project

for which they were either uniquely or particularly qualified. In September 1959, the Secretary of Defense assigned to the Air Force responsibility for the development, production and launching of space boosters and for the integration into such systems of such payloads as might be developed by it or other Services. At the same time, the Secretary of Defense indicated his intention, which has since been implemented, of transferring to the Air Force the responsibility for the development of two major satellite programs, the SAMOS (reconnaissance satellite), and the MIDAS (early warning satellite). Subsequently, the DISCOVERER (an engineering development and test satellite) was similarly transferred to the Air Force. The Secretary of Defense also indicated that assignment for development of TRANSIT navigation satellite and the NOTUS interim communications satellite to the Navy and Army, respectively, had been approved, but that the transfer dates would be determined later. These transfers have not yet been implemented, although the Navy is still developing for ARPA the TRANSIT payload and the Army is still developing for ARPA the COURIER communications payload.

Subsequently, on 21 October 1959, the President, as I discussed with you earlier this month, transferred from ARPA to NASA responsibility for the SATURN 1-1/2 million pound thrust booster and decided to transfer from the Army to NASA the Development Operations Division

of the Army Ballistic Missile Agency. We in the Army recognize that these events have reduced significantly our capabilities and responsibilities for developing and launching integrated space vehicle systems, but I should like to emphasize that the Army still retains many and varied capabilities in its seven technical services which are contributing and will continue to contribute most significantly to space developments and progress. At the same time, our efforts in this field complement and benefit our other Army programs since many techniques and hardware items, as, for example, in communications-electronics, have application in both.

The Army's micro-module and electronic component development programs have provided smaller, more reliable and more versatile electronic parts for application in ground and airborne equipment and in satellite communications equipment as well. Here, then, is a case where our efforts have resulted both in benefits to all services in their assigned roles and in benefits to the national space program.

With respect to communications satellites, which I mentioned earlier the Secretary of Defense is actively considering assignment to the Army of responsibility for development, under ARPA direction and funding, of the principal communications satellite systems. This significant program will be directed toward a 24 hour global communications system involving satellites at altitudes of thousands of miles and an extensive

network of ground stations. Existence of such a system will assure reliable, adequate, and rapid communications for critical military operations in any part of the world. The initial system to be tested is called COURIER and will provide a communications link of the delayed-repeater type, much like Project SCORE which directed President Eisenhower's Christmas message in December 1958 from a satellite-borne communications package.

The Army will accept this new task, if assigned, with enthusiasm and confidence.

In addition to the communications satellite program, the Army Signal Corps is conducting other satellite programs for ARPA and for NASA.

This represents the contribution, and the potential for still further contribution, by only one of the seven Army Technical Services. All of these Army Technical Services have the "in-house" scientific and technological capability and the widespread contact with American industry to represent, in the aggregate, an organized and coordinated Army resource which can be rapidly oriented toward the accomplishment of almost any project or program in the national interest.

Extensive Army capabilities also exist in the diverse fields of propulsion; mapping, geodesy and selenodesy; ground-based engineering and logistic support systems; nuclear power systems; transportation; medicine; and many other related areas of competence.

During the coming year we plan to press forward at the maximum practical rate, consistent with available funds, the space and anti-missile defense projects which I have already mentioned. In particular, we will continue to press vigorously the development of the vital NIKE-ZEUS anti-missile missile. I support wholeheartedly and with reservation previous testimony before this committee that we must make every effort to provide a defensive capability against both the ICBM and offensive space systems. I am happy to note that the Air Force indicated to you that it has concluded that it will be possible to provide effective defensive measures against some offensive systems through the use of defensive military space systems. As you know, the Army has long been convinced that the NIKE-ZEUS will provide an effective defense against intercontinental ballistic missiles. You can be sure that the Army will bend every effort in the coming year to press development of the NIKE-ZEUS with the urgency it deserves and the top national priority for development which it enjoys.

In addition, the Army, until the von Braun team's transfer actually takes place on 1 July 1960, will continue to conduct for the National Aeronautics and Space Administration satellite firings and the MERCURY READSTONE firings which will lead to the Free World's first launching of a man into space. NASA representatives have already described for you their plans for these programs so it is not necessary for me to elaborate on them at this time. We will also continue to press forward the TIROS meterological satellite payload which the Signal Corps is developing for NASA and the COURIER communications satellite development program I have described.

In summary, Mr. Chairman, during the past year the Army has made significant contributions in furtherance of the nation's military and civilian space effort, it is in the process of contributing to the National Aeronautics and Space Agency what is considers to be the outstanding missile and space vehicle development team in the world, and it will continue to press forward vigorously with the extensive capability and competence it possesses to support the national program.

STATEMENT BY

GENERAL LYMAN L. LEMNITZER

CHIEF OF STAFF, U.S. ARMY

BEFORE THE

COMMITTEE ON SCIENCE AND ASTRONAUTICS

HOUSE OF REPRESENTATIVES

16 February 1960

ENCLOSURE (5) to Op-95
ser 50P95 of 17 Feb 60

Mr. Chairman and Gentlemen:

It is a pleasure to meet with your committee again. I welcome this opportunity to discuss with you -- in somewhat broader terms than on the occasion of my recent appearance before your committee -- the very important subject of space, particularly the Army's interest, capabilities, and role in space.

At the outset, I would like to say that I feel that, at least for the time being, we must look upon space as an entirely new medium. It is a medium of untold possibilities -- a vast, relatively unknown area which we are only beginning to explore. New technological discoveries and developments in the field of space are being made almost daily. Accordingly, we should proceed to explore this new medium along rather broad fronts in both the civilian and military areas of interest. We must be sufficiently flexible to recognize quickly and utilize fully those developments made in either area which may have an applicability to the other. Similarly, at this state of our advancement into space, we must retain the maximum degree of flexibility -- recognizing the extent to which the acquisition of unexpected capabilities may suddenly alter our concepts, plans, and programs. Furthermore, the exploration and exploitation of this uniquely vast as well as entirely new environment will demand a substantial contribution in all fields -- including scientific, industrial political, and military.

With these thoughts in mind, I would like to outline briefly my views on the military use of space and the Army role in space, as we see it at this time.

Although the military use of space may ultimately produce new concepts of combat, for the immediate future, space systems will be principally used to support terrestrial operations. Space systems can complement and extend present earth-based capabilities and techniques. In fact, in some respects they will make very substantial contributions. Offensive and defensive weapon systems in space are further in the future, are not clearly defined, and at this stage are primarily a matter for study and research. The extent to which actual military operations might be conducted in space, to include the landmass of the moon or of other celestrial bodies, is still somewhat conjectural. However, this possibility must be recognized, and the military space program should reflect these longer range considerations. In designing both the immediate and long range aspects of our military space program, we must bear in mind that space, because of its potential for all of the military Services, transcends the exclusive interests of any one of the Services.

The Army plays an important and vital role in all forms of warfare, ranging across the entire spectrum -- general nuclear war -- limited war -- and cold war. Within the context of this role,

the Army's role and interest in space are initially directed towards the application of space to modern terrestrial warfare -- more specifically, its application to the accomplishment of the Army's principal assigned missions in this environment. Stated briefly, these principal missions are:

- to provide and support forces for land combat
- to provide and support forces for air and missile defense
- to provide a number of related services, not only for the Army but in support of the other Armed Services as well -- including intelligence, communications, mapping, and geodesy.

The accomplishment of each of the foregoing Army missions would be greatly facilitated by space systems which we can visualize at the present time. For example:

- land combat forces urgently require surveillance and reconnaissance of hostile territory, which reconnaissance satellite systems should be able to provide.
- air and missile defense forces are vitally concerned with the early detection, identification, and location of hostile aircraft, missiles, or space vehicles, which space surveillance systems could provide.
- communication satellites will greatly increase the security, capacity, and reliability of our vital world-wide Army

Command and Administrative Net, which provides communications service for many agencies in addition to the Army.

- proper performance of the Army's mission of providing mapping and geodetic service to all military Services demands exploitation of space technology, particularly to gain vital and accurate information over extensive areas of the world.

We must visualize that successful performance of the Army's missions in the future -- in an age of expanding space technology -- will require application of additional space techniques and systems, as they are developed. For example, it may well become necessary to extend air and missile defense systems to provide defense against hostile satellites or other space vehicles.

The Army's ultimate role and interest in outer space -- including operations on the land masses of celestial bodies -- will be determined by strategic, tactical, and technological considerations that are still very far in the future. However, it is reasonable to assume that there will be an important role for the Army in this area -- particularly at such time as we may be able to effect human logements on habitable celestial bodies.

As assets to apply against its requirements in the realm of space, the Army has developed unique capabilities. These are largely a natural outgrowth of the Army's pioneering efforts in missiles.

communications-electronics, geodesy, selenodesy, construction, and survival and operations in extreme environments. Even after the planned transfer of a portion of the Army Ballistic Missile Agency to the National Aeronautics and Space Administration, the Army will still have a substantial capability to participate in space activities. The application of this capability in space is not restricted to Army requirements but can continue to contribute -- as it has in the past -- to our over-all national space program.

Secretary Brucker has already discussed the Army's capabilities in missiles and communications-electronics. I would like to expand somewhat upon our capabilities and present work in some of the other fields.

- The Army is especially experienced in geodesy, which is the science of determining the exact position of points on the earth's surface, and the topography, shape, and size of the earth. The Army is also making our first real topographic map of the moon.

- Similarly, the Army has a great deal of experience in constructing missile bases, launching and space tracking sites, and is engaged in developing and operating simulated environment facilities.

- We are involved in important work related to radiation dose and spectrum measurements, shielding requirements, chemical oxygen production, toxicity studies, and other activities relating to the

protection of man from biological, chemical and radiological hazards.

- We are also studying the bio-medical aspects of Army missile programs -- and are engaged in the development of non-perishable food pastes and tablets, the utilization of algae for food production and the development of special clothing, shelters and handling equipment.

- In addition, we are supporting national missile and space programs in managing the movement of personnel and materials, and in developing techniques for handling and moving missiles, space vehicles, and ground support equipment.

In summary, the Army has a vital role and interest in space. It also has the capability to contribute materially to our over-all space program -- in both the military and non-military fields. Based upon its missions and capabilities, the Army is interested in developing communications satellites, mapping and geodesy satellites, a space surveillance system, and an anti-satellite defense system -- as well as an anti-missile system. You may be assured that the Army will continue to provide maximum support for our national space effort.