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Study Report Two

THE EMERGENCE OF COMMUNIST CHINA AS A NUCLEAR POWER (U)
(STUDY PACIFICA, FINAL REPORT)

Written for the Department of Defense in response to ARPA Task Order T-23, dated November 8, 1961 (effective July 1, 1961) under OSD Contract No. SD-50, dated March 15, 1958

The views expressed herein do not necessarily those of the Department of Defense

INTERNATIONAL STUDIES DIVISION
INSTITUTE FOR DEFENSE ANALYSES
1666 Connecticut Avenue, N W.
Washington 25, D. C

September 30, 1962

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In addition to these consultants, whose cooperation and technical assistance in their specialized fields were invaluable, Study PACIFICA profited from the knowledge and skill of a number of other specialists--official and unofficial, at home and abroad--who contributed greatly to this study.

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LETTER OF TRANSMITTAL

Institute for Defense Analysis
1666 Connecticut Avenue, N. W.
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January 16, 1963

The Honorable Henry S. Rowen
Deputy Assistant Secretary for
International Security Affairs
Department of Defense
Washington 25, D. C.

Dear Mr. Rowen:

I have the honor to transmit to you the final report of Study PACIFICA, on "The Emergence of Communist China as a Nuclear Power." This report was written by the International Studies Division of this Institute for the Department of Defense in response to Advanced Research Projects Agency Task Order T-23, issued November 8, 1961 (effective July 1, 1961), which established Project now Study PACIFICA under Office, Secretary of Defense Contract No. SD-50, dated March 15, 1958. Brig. Gen. Sidney F. Giffin, USAF (Ret.), is the Study Leader.

Study PACIFICA includes, in addition to this final report, a number of supporting papers. These are listed in Appendix B to this report. Some of them are being transmitted as separate documents. It should be noted that the report takes account of developments through August 1962.

Sincerely yours,

James E. King, Jr.
Director
International Studies Division

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SUMMARY

The aim of this final report of Study PACIFICA is to assess the significance for the United States of the emergence of Communist China as a nuclear power, and to suggest steps that might be taken to minimize the adverse impact of this development.

PRINCIPAL CONCLUSIONS. Detailed conclusions and recommendations are presented in Chapter VI (pp. 199-216). In broad summary:

1. Even given the benefit of reasonable doubts, Communist China can present no more than a regional nuclear threat for a number of years. Early threats will be more psychological and political than military.

2. Adverse psychological reactions among non-Communist states, particularly in Asia, to initial Chinese nuclear testing can be reduced and even counteracted--

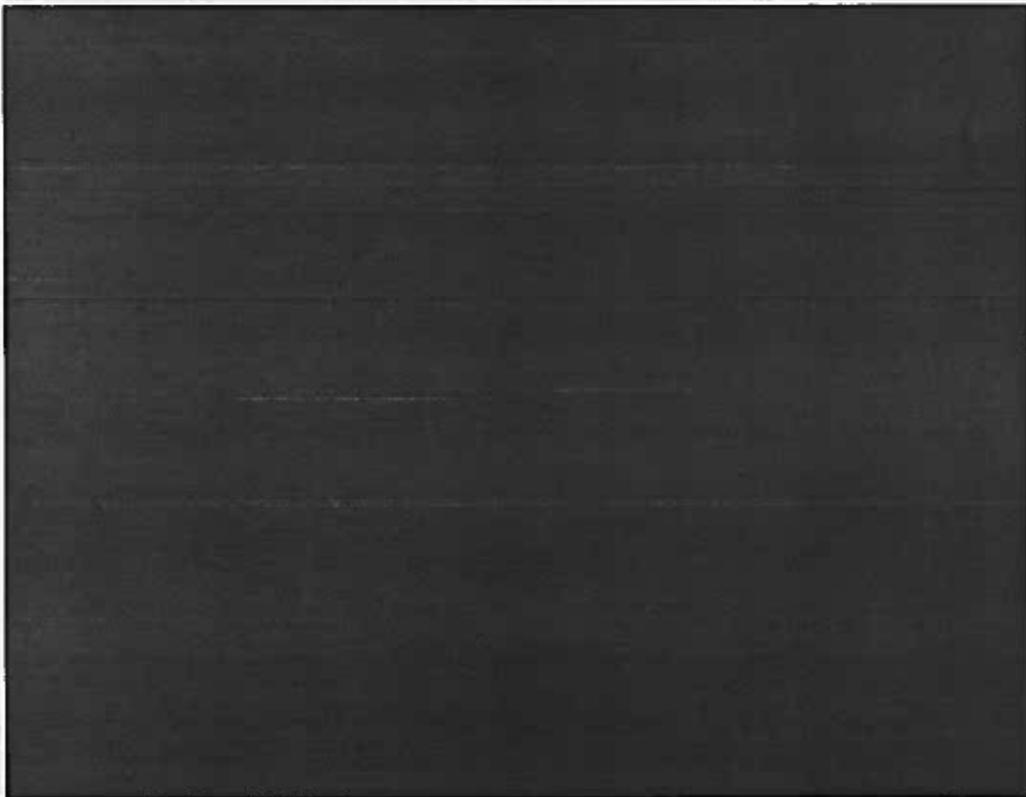
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while favorable reactions can be reinforced--by an image of US firmness against aggression in Asia (but also elsewhere) during the period remaining before the first Communist Chinese nuclear detonation. The US reaction at the time, if calm and concerted, can also do much toward ameliorating adverse psychological and political effects.

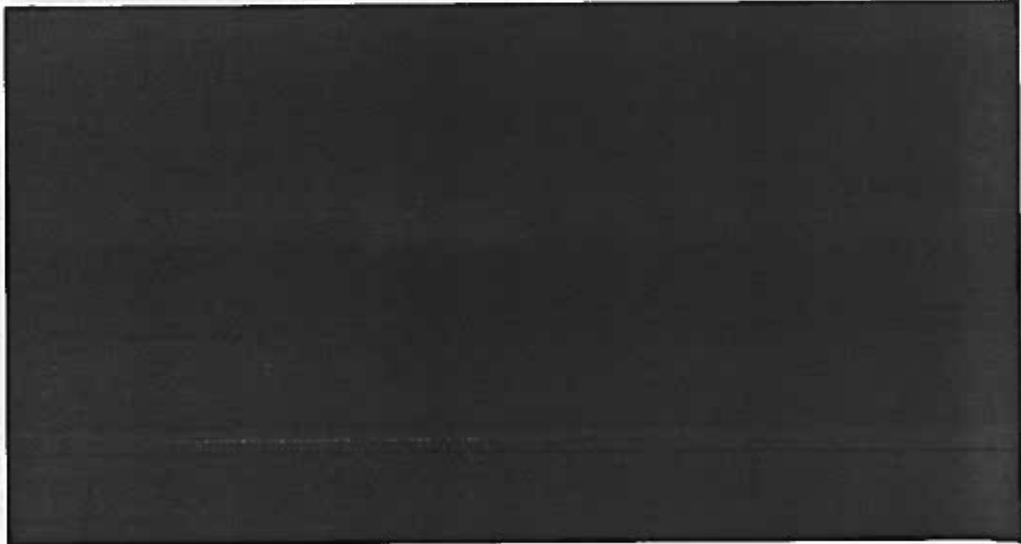
3. With a redirection of missions and some improvement of posture, US elements required in any event for the Western Pacific/Far East area can be constituted as a locally visible nuclear deterrent force. Such a force



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4. China's new ability to escalate hostilities through nuclear operations will require that the United States make a conscious choice between initiating nuclear operations or accepting the significant risks of Chinese escalation. If the United States decides not to use nuclear weapons it will have to be prepared for the possibility of Communist Chinese first use--even though such first use can undoubtedly be deterred with some degree of confidence. Further to minimize risks, critical vulnerabilities in the local US military posture should be reduced; concentration of forces and resources deployed forward to local crisis areas should be adjusted to avoid creating highly attractive nuclear targets; and the ability

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One other assumption on the political environment is less axiomatic. The discussion generally assumes that, at least in the short- and mid-term periods, Sino-Soviet relations will remain in approximately their present state: a strained, highly imperfect alliance. In recent years the differences between China and the Soviet Union have broken into the open. There are numerous evidences of rivalry for influence in the uncommitted and newly independent nations (e.g., Algeria and Syria), competition within the world Communist movement, and ungenerous economic and military dealings by the Soviet Union with its partner. There is evidently also mutual disenchantment on the part of the political leadership of both countries, and genuine differences in outlook on policy and strategy; these often acrimonious personal and doctrinal clashes are symptoms, or even tactics, in a deeper struggle for control of communism and of Asia. Yet amidst all these strains the alliance continues, held together by mutual interest as well as shared ideology. Its dissolution would be a severe blow to both countries and to the international position of the Communist movement.

The two extreme states of Sino-Soviet relations possible are complete solidarity and an open break along Stalin-Tito lines. A genuine and full reconciliation could be realized only through mutual concessions that neither side has shown any

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willingness to make. Effective solidarity could hardly come about save by Soviet dominance, in which event the West would be presented once again with the familiar threat of a single, hostile, nuclear-armed power, supported by a giant Asian satellite.



Some of the implications of these two possible extreme states of Sino-Soviet relations are considered in the mid- and long-term sections of the report.

In the main, however, this report has been prepared upon the hypothesis that Sino-Soviet relations will continue as at present. The primary reason for choosing this hypothesis is, of course, that continuance in the current state of strained relations seems the most likely course for the future. It may also be argued, however, that this is the situation most dangerous to United States interests, because of its ambiguities.

American policy and action cannot be known in advance. The vigor or the weakness of US policy in action will have highly significant and even decisive effects upon China's ability to

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exploit the possession of nuclear weapons. This study generally assumes that US policy is in fact consistent with the interests and with the enormous power of the United States.

Research Methods. General technical liaison for the study was provided by the Office of the Assistant Secretary of Defense for International Security Affairs.

Very considerable assistance and information were received from US Government agencies, including the Department of Defense, the Joint Chiefs of Staff and the three Armed Services, the Department of State, the Central Intelligence Agency, the Atomic Energy Commission, the Bureau of the Census, and the United States Information Agency.

Extensive travel was undertaken by the PACIFICA staff, providing or-the-spot opinions and data from US missions in countries around the Chinese periphery, from all major US military commands and staffs within the Pacific Command, and from key US representatives in Europe.

A distinguished group of specialists and experts assisted the study as consultants (see page 111), and supporting studies were prepared by these consultants as well as by staff members. The study benefits greatly from their advice, but this report represents solely the conclusions of the PACIFICA staff (also listed on page 111).

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Meetings with specialists and experts of the United Kingdom and France in the military services, the ministries of foreign affairs, intelligence organizations, and the academic field were held under the auspices of the Institute of Strategic Studies in London and the Center for Foreign Affairs Studies in Paris.

Of particular importance was the support and assistance received from the Washington intelligence community and the Atomic Energy Commission, with respect not only to Communist Chinese weapon developments but also to the state of the Chinese economy and the state of Sino-Soviet relations. This assistance permitted certain supporting studies to be made that have not been paralleled elsewhere (see Appendix B).

Inasmuch as psychological reactions to the initial Communist Chinese nuclear detonation could be significantly adverse to US interests, a special effort was made to assess the possible reactions of peoples around the periphery of China. Four avenues were followed:

- 1) Access was obtained to information within the Department of State. This included consultation with State Department officials, both in Washington and abroad, as well as responses to the Department's Circular Telegram CG-999, 17 May 1961, in which an estimate was requested of the probable country reaction to the first nuclear detonation in China.

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2) Field trips by the PACIFICA staff, already referred to, obtained additional and later judgments from American officials in these countries as well as views of nongovernmental observers on the scene.

3) The Asia Foundation, of San Francisco, made available estimates of country reactions from its field representatives in each Asian nation.

4) More detailed analysis was accomplished, largely through consultants, of reactions on a country-by-country basis both to an initial explosion and to the subsequent development by Communist China of a significant local nuclear capability.

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CHAPTER II

THE CHINESE NUCLEAR THREAT

The substance of this report begins with an evaluation of the Communist Chinese nuclear threat. The dimensions of that threat over the coming years will be determined largely by the Communist regime's policy toward the outside world, its military requirements in nuclear warfare, its projected nuclear capabilities, and the economic limitations on those capabilities. This chapter examines these factors.

COMMUNIST CHINA'S EXTERNAL POLICY AND BEHAVIOR¹

External Objectives

Communist China undoubtedly sees a future nuclear capability in large part as contributing to the promotion of

1. For a more detailed treatment, see Harold C. Hinton, Communist China's External Policy and Behavior, UNCLASSIFIED, ISD Study Memorandum No. 18 (IDA, Washington, D. C.). This PACIFICA paper will be issued shortly.

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national objectives that it is already pursuing by non-nuclear means.



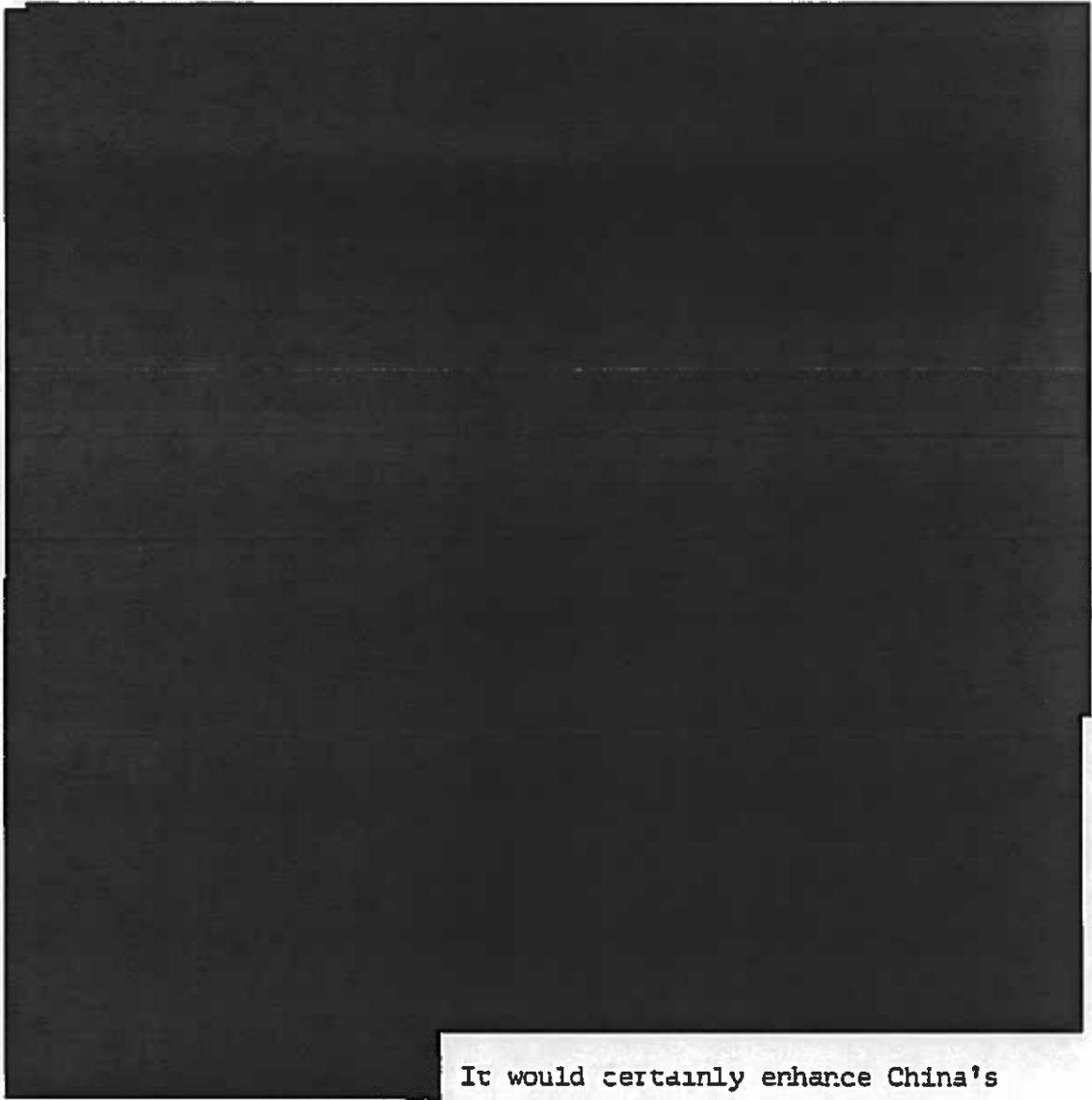
Communist China's long-range objectives center on building China into an industrial, military, and political power of the first rank by the end of the twentieth century. Through this achievement and by other means, China also seeks the enhancement of Chinese prestige and influence throughout the world; [the exclusion of the United States from Asia; Chinese leadership and perhaps territorial expansion in Asia;] co-leadership with the Soviet Union, and perhaps ultimate primacy, in the Communist bloc and the international Communist movement; [and ultimate Communist world domination.

It is clear that the leaders of the People's Republic of China [CPR] regard the United States as their main enemy and obstacle, and that their objectives are inimical to the interests of the United States.]

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Chinese Reasons for Wanting Nuclear Weapons



It would certainly enhance China's
influence on the conduct of the Cold War, including summit

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conferences and arms control negotiations.² With success and the passage of years, it might enable China to assume one day the role of a Class A nuclear power³ along with the United States and the Soviet Union.

The Chinese External Record

The Communist Chinese record in the employment of force is marked on the whole by caution and realism in the face of superior hostile power, an approach probably due, in large part, to the influence of China's competent military professionals. When resorting to force, as in Korea, China has tried, by means of subterfuges and legalisms, to confuse the issue and minimize the chances of large-scale hostile retaliation.

Communist China's record in the employment of its nonviolent instrumentalities, on the other hand, has been marked by a recurrent tendency to overplay its hand, sometimes (as in its dealings

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3. For the purposes of this report, a Class A nuclear power is one that has achieved, or is believed to have achieved, the ability, in a retaliatory strike, to deliver an effective blow against all nuclear powers likely to combine in a hostile coalition. For further discussion, see below, pp. 177, 183.

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with the Soviet Union, India, and Japan) to the point of counter-productivity. This tendency appears to spring from overoptimistic assessment of the psychological balance of forces in the world and in Asia in particular, a euphoria which in turn derives from a combination of Chinese ethnic arrogance and Communist doctrinarism.

In China's foreign policy the degree of military aggressiveness and reliance on violence has varied from one period to another, and may be expected to vary in the future.

The Chinese View of War

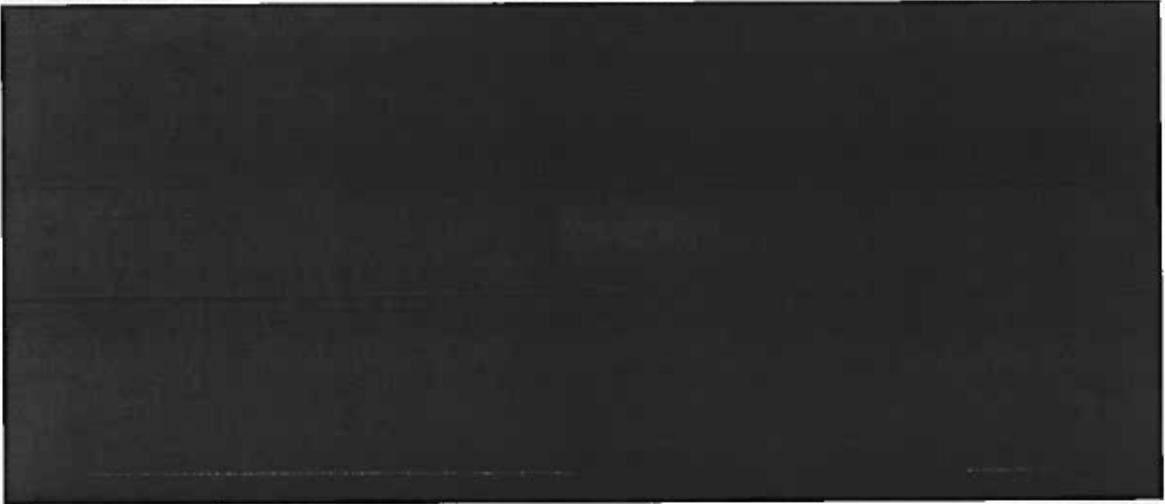
An estimate of the actual uses to which China is likely to put its nuclear capability, when acquired, requires an appreciation of Chinese views of war.

The Chinese leadership apparently likes the outside world to believe that it considers general war to be inevitable and likely to improve China's position relative to the United States and the Soviet Union.



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Communist China in authoritative statements therefore asserts the inevitability not of world war, but of local war, which it says the "imperialists" will wage against "national liberation movements" in colonial areas, against newly independent nations, and perhaps against "socialist" (Communist) countries. The Communist bloc, according to the same statements, cannot deter the West from starting such wars, but it can and must deter their escalation. The bloc also has the obligation to take part in such wars by all necessary means, including overt armed counterintervention. If local wars started by the West are not actively combatted and contained in this way, they may escalate into general war.



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Effects of a Change in Leadership

In the future there might emerge in Communist China a relatively moderate leadership with a somewhat different program including an increase of investment in agriculture and light industry and a reduction of external tensions and risks by methods probably including restraint in the political-psychological employment of the Chinese nuclear capacity. Inasmuch as the emergence of such a regime could occur only with the support of the armed forces, which favor a nuclear capability for China, the effect on China's ultimate nuclear ambitions and on the military employment of the capability when acquired would probably be slight.

CHINESE NUCLEAR WEAPON SYSTEM REQUIREMENTS⁴

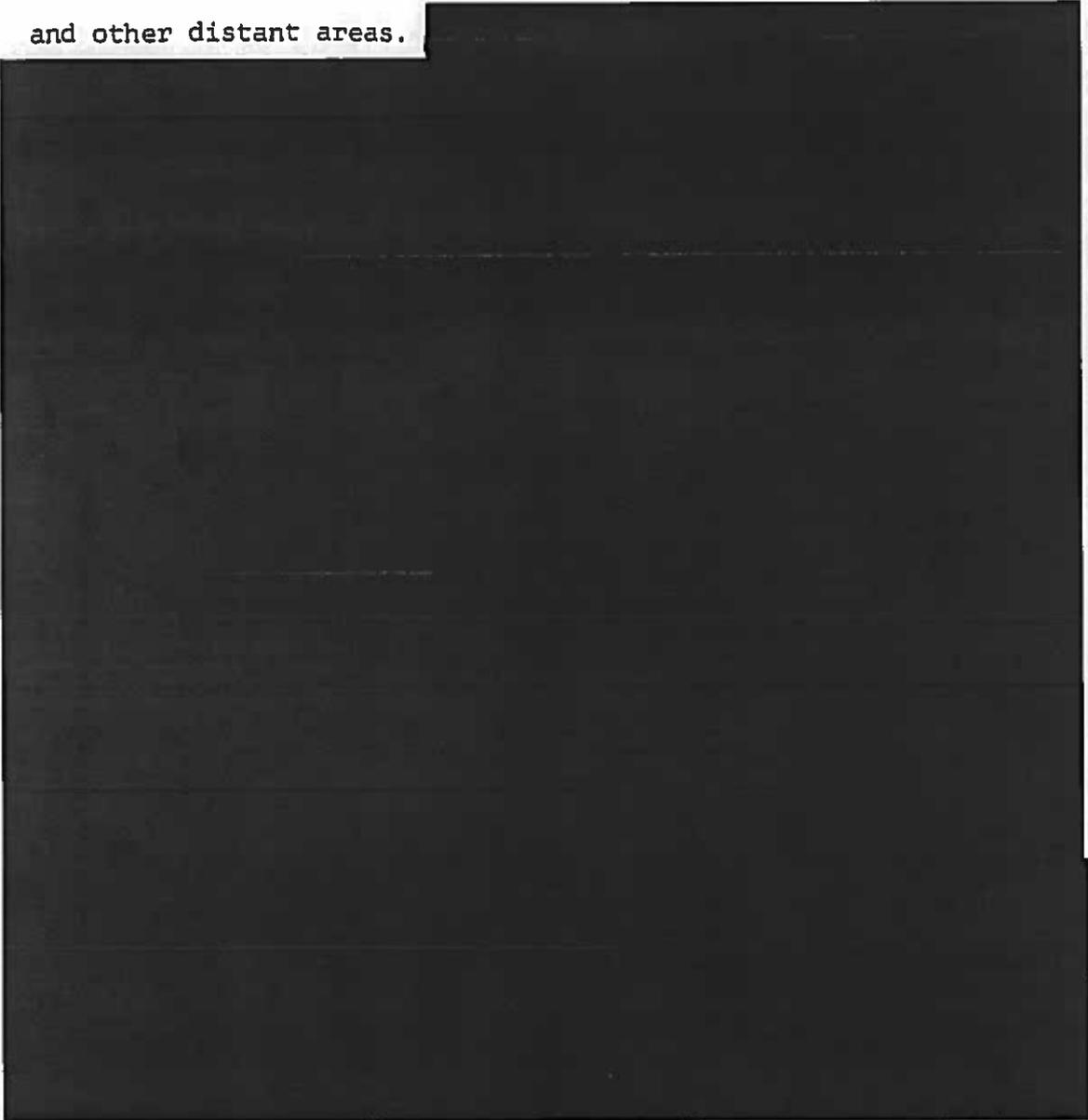
For their purposes, the Communist Chinese require nuclear forces that are useful in the defense of the Chinese mainland; capable of attacking targets in the non-Communist nations: of

4. See Chapter II of Donald B. Keesing, The Communist Chinese Nuclear Threat: Warheads and Delivery Vehicles (U), SECRET-RESTRICTED DATA, ISD Study Memorandum No. 17 (IDA, Washington, D. C.). This PACIFICA paper will be issued shortly.

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Asia; capable of effectively attacking United States forces and military facilities in the Western Pacific and the Far East; and capable, in some future period, of attacking the United States and other distant areas.



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Vehicles with ranges between 1,100 and 3,500 naut.m. could only be interpreted as designed for use against the Soviet Union, but the latter would also be threatened, although less obviously, by longer-range forces nominally designed against the United States. It would be logical therefore for the Chinese to try to jump, in production, directly from the 1,100 naut.m. range to ranges of 5,000 naut.m. or more.

Numbers

Various types of Chinese nuclear operations would require attack on approximately the following number of soft (i.e., not specially protected against nuclear effects) targets:

- 1) Hostilities involving a specific locality such as Korea or Taiwan: 5 to 25.
- 2) A minimum counterforce operation against unprotected US delivery forces on fixed bases in the Western Pacific: 15.
- 3) Attack on all important fixed, soft US military targets in the Western Pacific and Far East (including those just mentioned): 60.

At 4 missiles per target (see discussion of CEP requirements, below) for 15 to 85 targets, the Chinese requirement for attack on the above target system would be 60 to 340 missiles. Forces for use against hardened, dispersed and mobile targets would be additional.

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Survivability

In view of their nuclear inferiority and their exposure to overhead reconnaissance, the Chinese are likely to consider concealment of missiles, however difficult, as mandatory. They will probably carry secrecy to great lengths to prevent targeting of their nuclear capability. Mobility would also be highly desirable to facilitate concealment and add to the flexibility of (and hence economy in) Chinese nuclear striking forces.

Targeting

China and the lands in its vicinity are among the most poorly mapped regions of the world. There is no evidence that the Chinese have succeeded in obtaining geodetic and other data needed for accurate location of targets. With probable inaccuracies at both ends of their trajectories, early Chinese missiles will be militarily useful only against very large, fixed, soft targets, and even then their effectiveness will not be accurately predictable. China will need manned vehicles that can seek their own targets for use against large soft targets when assurance of destruction is necessary, and against hardened, dispersed and point targets, at least until Chinese weapons and supporting systems begin to achieve real sophistication.

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A second targeting problem stems from the need to be able to attack mobile targets in the Western Pacific. Unless and until it acquires an adequate reconnaissance capability, Communist China can only hope to meet this requirement in a minimal manner through the dual use, for reconnaissance and bombardment, of whatever bombers are available.

CEP, Yield, and Reliability

Accuracy and reliability are further difficult requirements for the Chinese. The neutralization or destruction of the structures and aircraft typically dispersed above ground on an airfield could be accomplished by a single first-generation fission weapon (20-30KT)⁵ only if the device were exploded at optimum airburst height near the exact center of the target. A probable circular error $\sqrt{\text{CEP}}$ of as little as half a nautical mile would reduce the expected disabling damage to only two thirds of the aircraft and structures. Clearly, a ballistic missile with such a small warhead would be an inadequate regional weapon except in very large numbers, or except with unrealistically high reliability and low CEP. A thermonuclear warhead of one-half

5. A kiloton $\sqrt{\text{KT}}$ is equal to the explosive power of one thousand tons of TNT, a megaton $\sqrt{\text{MT}}$ to one million.

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megaton (500 KT), on a missile with one nautical mile CEP and 60 per cent reliability, could be expected to destroy over 90 per cent of a soft air-base target system only if four missiles were programmed per target.

For aircraft-delivered weapons, the Chinese will need to accept the CEP characteristics of the aircraft they have in hand (primarily the IL-28 Beagle unless they get the TU-16 Badger). For lack of modern, maintainable, all-weather equipment they will probably have to rely basically on a visual capability to attack targets inconsistent with their missile technology.

Warheads adaptable in size and weight to both aircraft and missile requirements will be found desirable by the Chinese to avoid separate warhead development programs for each type of delivery system.

Manned Vehicles vs. Missiles

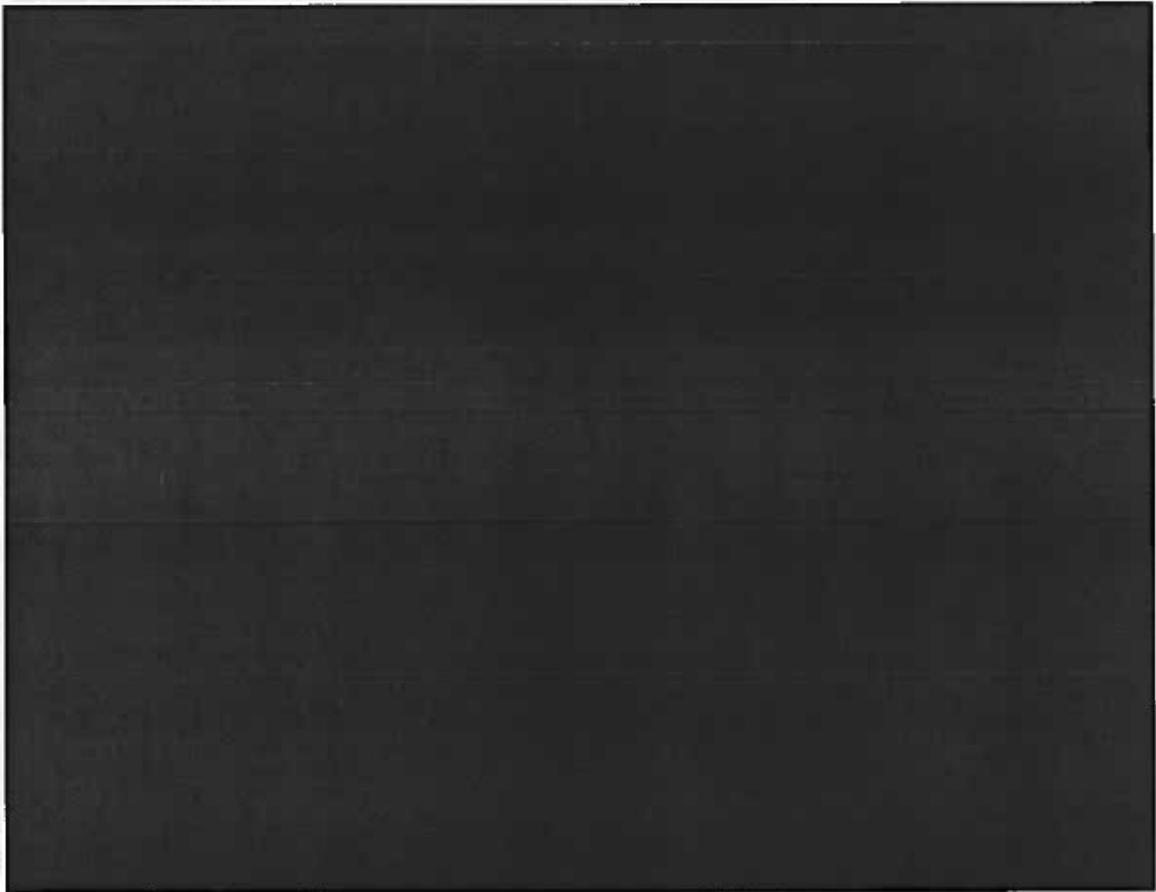
The Chinese will face a serious problem in trying to obtain favorable military results from their possession of regional forces, because of the difficulty of making such forces survivable against a pre-emptive strike. Targeting and other delivery problems will require the retention of a significant number of manned vehicles for many years, even though such vehicles are

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difficult to conceal or otherwise protect, whereas rigorous Chinese requirements for survivability appear to call for mobile ballistic missiles.



The Chinese are unlikely to divert significant resources to developing a sea-based (submarine or surface) missile capability, in view of the long lead time and high costs involved in obtaining such a capability, and its low utility in the face of US seapower.

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Other Requirements

There is clearly no logical limit to the Chinese need for higher-yield warheads, especially warheads for missiles, just as there is no limit to the need to reduce CEPs.

Until the regional and intercontinental requirements outlined above are met, the Chinese are not likely to divert appreciable effort to the development of other nuclear systems, such as low-yield, light-weight, battlefield weapons or antiaircraft, antimissile, and antisubmarine devices.

Space achievements being desirable for the sake of Chinese prestige, a 1,100-naut.m ballistic missile would probably be used to launch the first small Chinese satellite.

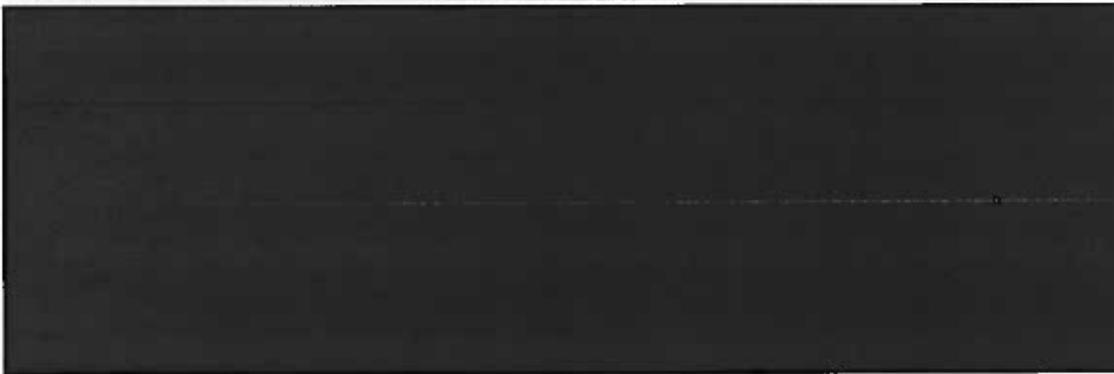
Summary of Early Chinese Requirements

For local and regional uses, the Chinese will have requirements for both ballistic missiles and manned aircraft.

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The manned vehicle capability, to include if feasible a small hunter-killer force, appears necessary to offset targeting inadequacies as well as the lack of accuracy inherent in early Chinese missiles.



PROJECTIONS OF THE CHINESE NUCLEAR THREAT⁶

The following two paragraphs are not releasable to foreign nationals.

Intelligence on Communist Chinese nuclear-warhead and delivery-vehicle programs is limited by the effective secrecy that surrounds Chinese efforts and Soviet assistance to these efforts. Moreover, Chinese programs are as yet in too early a stage to permit dependable long-range extrapolation. But despite the difficulties, numerical projections are necessary in order to

6. See Keesing, Communist Chinese Nuclear Threat: Warheads and Delivery Vehicles, passim.

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illuminate the magnitude of the threat and to permit adequate analysis of consequent military and political problems.

The intelligence permitting an estimate that the Chinese can detonate an initial nuclear device by 1963 (but probably later) derives from evidence largely circumstantial, if plausible. It is assumed that a plutonium-producing Chinese reactor was placed in operation as early as 1961. Although no such reactor has been identified by US intelligence, the Chinese possess uranium ore and probably metallic uranium, have had access to information permitting the construction of a producing reactor, and have made frequent announcements of their intention to produce nuclear weapons.

For the purpose of this study, extrapolation of Chinese nuclear progress is therefore based on the probable Chinese requirements discussed above, technological factors, and the experience of other countries. It is deemed preferable to start with Chinese technological capabilities, under a moderately expansive estimate of future economic development, and then to suggest limitations and delays that would stem from a more constricted economy. This procedure results in a first estimate that may err on the early side, but that therefore minimizes the chance of surprise. Military and political measures adequate to

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meet the threat if it materializes early should be at least adequate if the threat is delayed.

Finally, with respect to the numerical warhead and delivery-vehicle projections of this study, the figures are in fact not critical to the accuracy of the subsequent analysis, to the conclusions, or to the recommendations of this report. Progress could be delayed from the projected schedules by several years, and the figures indicated could be halved, without materially affecting the analysis.

Assumptions

To permit concrete projections, it is assumed: that no further Soviet assistance will be forthcoming on nuclear weapons or delivery systems, but that trade relations between China and the Soviet Union will continue; that the Chinese nuclear weapons program, due to its high priority, has suffered relatively little from the current economic crisis; that the Chinese industrial sector will recover in the mid-1960s from its present state of near-collapse through a partial correction of the agricultural and food situation; that moderate Chinese industrial gains will be scored after this recovery; and that nuclear and missile programs will receive high priority despite competing needs.

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Variants

It is clearly in the power of the Soviet Union to put advanced weapons of Soviet manufacture into Chinese hands, or to assist Chinese production of such weapons. Soviet help might take the form, for example, of supplying China with weapon designs, or with Badger medium bombers, or with short- or medium-range ballistic missiles. The Soviets are likely to be resistant to supplying assistance, as they have been in the past, since they must be sensitive to the disadvantages and possible damage accruing to them from nuclear capabilities not under Soviet control.

If early Soviet help is given, the Chinese would prefer, and would gain most from, the receipt of Soviet-manufactured delivery vehicles. Soviet help to Chinese production would be of more limited appeal in view of Chinese unwillingness to renew dependence, and the restricted capacity of China to absorb further help.

Chinese achievements could of course be slowed to almost any degree by economic troubles and related cutbacks. A discussion of Chinese economic difficulties follows this section.⁷

7. See below, pp 47-54.

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Nuclear Warheads Evidence--Timing of the First Test

One of the most important clues suggesting a priority Chinese nuclear weapons program lies in the fact that the Chinese have themselves, as early as 1958 and as late as September 1962,⁸ stated flatly that they have such a program. All the indications suggest that Soviet aid, although significant in getting China started, has been of niggardly proportions in the nuclear field.

Mining and concentration of uranium ore in China were begun about 1955 with Soviet assistance. None of the ore is believed to have been shipped to the Soviet Union, and several mines remain active.

The following three paragraphs are not releasable to foreign nationals.

Design of a plant to produce metallic uranium from concentrated ore was begun, with Soviet help, in 1956. It is believed that such a plant became operational by early 1961, but attempts to pinpoint the exact site have not succeeded.

All efforts to locate or confirm the existence of China's first plutonium-production reactor or reactors and associated

8. Foreign Minister Chen Yi in Kyodo (Tokyo), 20 September 1962, as cited in Foreign Broadcast Information Service, Daily Report Far East, No 184 (20 September 1962), p. BBB3.

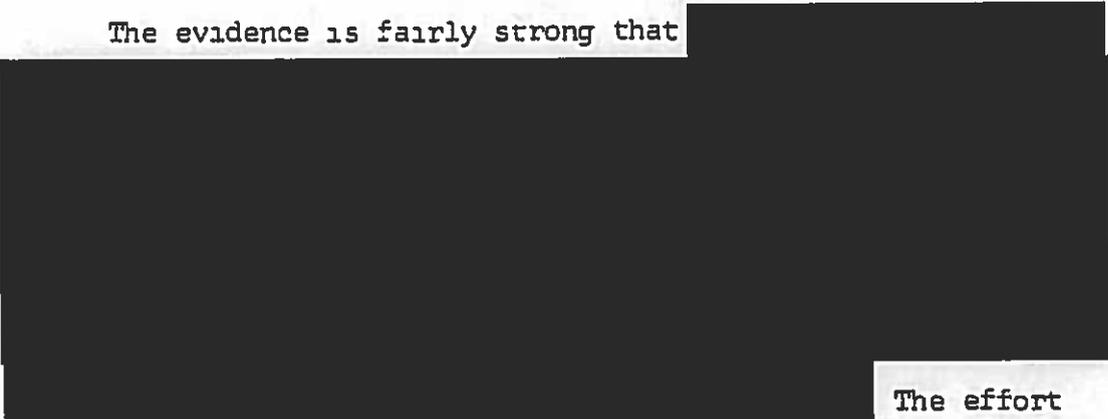
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chemical-separation facilities have thus far failed. Technical considerations lead intelligence experts to believe that a reactor either is now or soon will be in operation.

The evidence is fairly strong that



The effort

is believed to have been halted at the time of the withdrawal of Soviet technicians in 1960.

By comparison with plutonium production, oralloy production requires a more complex facility, with thousands of stages each performing a small amount of uranium-isotope separation. A cascade is an extremely difficult engineering project, requiring inputs from many industries, and imperfections in the cascade can

9. Oralloy, which is uranium with a high proportion of the isotope U-235, and plutonium are the principal fissionable materials from which nuclear weapons can be made.

10. A cascade or gaseous-diffusion plant is a facility for raising the proportion in uranium of the fissionable isotope U-235.

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drastically reduce its efficiency. The Chinese, with their shortage of technical skills, can therefore be expected to rely primarily on plutonium until they significantly improve their industrial and engineering base.

The Soviet withdrawal and the economic difficulties caused by the agricultural crisis have probably slowed the Chinese nuclear-materials program, but it is difficult to say how much in the absence of further information on plutonium production. Chou En-lai, in his September 1961 discussion with Field Marshal Montgomery, is reported to have implied that the nuclear program had been stretched out so that China could meet other pressing needs. At Geneva in early August 1962, CPR Foreign Minister Chen Yi conceded that development of a Chinese atom bomb still required "a lot of time," although he asserted that "considerable" progress had been made.¹¹ A note of pessimism is also detectable in captured documents that suggest that Chinese armed forces have been told not to expect new types of weapons for a few years.

The above statements imply delays compared to timetables based on technical feasibility. Nevertheless, the metallic uranium slugs turned out by China's first uranium metals plant

11. Interview reported in Frankfurter Rundschau, 6 August 1962, as cited in Foreign Broadcast Information Service, Daily Report. Far East, No. 152 (6 August 1962), pp. BBB4-5.

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were presumably intended for use in a large reactor for plutonium production. If the metals output was used in 1961 to start up such a reactor, plutonium production would now be under way, and the product could be separated, fabricated, and ready for use in a test device as early as the first half of 1963. The intelligence community accordingly considers 1963 the earliest feasible date, but recognizes the probability of delays of as long as several years due to the chronic economic crisis.

If the assumptions already cited are in fact correct, the year 1964 would be the most likely time for the first Chinese test, since delays of a year or more are easy to imagine under current Chinese conditions, even in a high-priority program.

There is a strong possibility, especially if the Chinese plutonium program is designed to be large enough to produce an early stockpile, that the first Chinese tests could be in a limited series, or at least that the first test could shortly be followed by a few others.

Warhead Technology and Yields

[The following section is restricted data,
Atomic Energy Act, 1954.]

The prevailing intelligence estimate, that the first deliverable Chinese nuclear weapon will be a crude

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six- to ten-thousand-pound fission bomb based on plutonium implosion, is probably a correct description of the first testable device. But unless the Chinese have been given the TU-16 Badger (medium bomber) in the meantime, they are not likely to make a weapon of such a crude device, for the lack of any delivery vehicle except for their few aged and ineffectual TU-4 Bulls (Soviet-built versions of the US B-29s).

More probable is an attempt to jump directly to a device, of around 2,500 pounds, that can serve as the basis for a bomb of 37-inch diameter suitable to the bomb-bay design of the IL-28 Beagle, the only operational Chinese bomber; as the basis for a warhead suitable for mating with Soviet-type medium-range ballistic missiles; and as a ready-made primary¹² for nuclear tests relating to the design of thermonuclear weapons.

There is a possibility that a plutonium-implosion device of the right weight and diameter could be produced within one to two years after the first Chinese nuclear test and made into a weapon soon after that. Such a 2,500-pound device should yield 15 to 25 kilotons, assuming an economical use of plutonium. Even with use

12. A two-stage thermonuclear weapon includes two fission devices; the one used to trigger the weapon is known as the primary, and the other, surrounding material involved in the fusion reaction, is known as the secondary.

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of uneconomical quantities of plutonium, the maximum yield should remain, at most, 50 to 60 kilotons.

After achieving a 2,500-pound fission device, the Chinese can be expected to pursue a deliverable thermonuclear weapon. For this purpose they will probably conduct a relatively large number of tests, making up for any insufficiencies in their instrumentation by trial-and-error. Part way through the process, after testing various secondary designs with respect to the channeling of pressure and radiation, they can be expected to experiment with devices having some yield from fusion as well as fission. At the same time they will probably conduct additional tests and experiments, in order to reduce the size of their primary from 2,500 to about 500 pounds, and thus to permit fabrication of a missile- and Beagle-deliverable thermonuclear device. In miniaturizing their primaries the Chinese will be somewhat handicapped by the inability, without enriched uranium from a cascade, to obtain stockpile quantities of the tritium indispensable for boosting. With an unboosted 500-pound primary they could expect to obtain, from a 2,500-pound warhead, a yield in the range of 300 to 800 kilotons, or roughly one half megaton--over a megaton if they possess design sophistication up to current American standards.

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The problem of producing a thermonuclear device will be largely one of scientific imagination. The Chinese have first-rate scientists, and they are aided by the knowledge of what other nations have accomplished. At the same time they will be comparatively poor in computer facilities, test instrumentation, and the quality of available engineering and materials, so that optimized designs will probably not be achieved for some time. No nation to date is known to have built a thermonuclear device with an all-plutonium primary and secondary, but France is known to be doing so, and many existing designs are adaptable to an all-plutonium combination. Success by the Chinese intelligence services in obtaining blueprints of a foreign thermonuclear design would save considerably on test experimentation and probably speed the program.

All things considered, a reasonable expectation is Chinese production of a deliverable thermonuclear device five or six years after the first fission test--possibly as early as 1969.¹³ This achievement might be accelerated by a combination of good

13. This is to say that the Chinese may produce a thermonuclear device earlier than part of the intelligence community now suggests--assuming of course that the initial Chinese fission device is in fact detonated as early as 1963 or 1964.

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intelligence and scientific breakthroughs; but the timetable could at least as easily be retarded.

By the 1970s the Chinese should be able to produce multi-megaton warheads, and should get yields above one kiloton per pound for their heaviest devices. China can be expected by that time to get into the production of enriched uranium, including oralloy, and to raise yields markedly, even for small warheads, by the use of boosting.

Stockpile Projections

The following paragraph is restricted data,
Atomic Energy Act, 1954.

In making stockpile projections, the timing of the first test is less important than the size and schedule of projects for producing fissionable materials. By assuming an all-plutonium program, based on a reactor of plausible size (150-200 megawatts), and by further assuming that a second, third, and subsequent reactors of the same design are introduced on a given schedule, it is possible to make definite stockpile projections. Allowance must be made for "down time," plutonium used up in tests, improvement in reactor power levels over time, the time needed in the production process, and the extra time needed (and inferior performance) the first time the

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Chinese go through a production cycle. As a variant, it is possible to assume that a moderate-sized gaseous-diffusion plant will go into operation to produce oralloy starting some time in the late 1960s.

The following table presents a series of sample extrapolations that start with the operation of a first uranium metals plant in early 1961, and the use of the product to activate a reactor in the same year.¹⁴

STOCKPILE IN NOMINAL-YIELD FISSION WARHEAD EQUIVALENT¹⁵

<u>MID-YEAR</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
1964	5	5	4	4	4
1965	21	21	17	17	16
1966	45	43	30	30	24
1967	92	75	50	48	34
1968	163	119	89	72	56
1969	264	177	147	103	90

14. The programs suggested by columns A to E represent fast to slow possibilities for the Chinese, depending on their choice of various combinations of reactors and cascades. For details and a full explanation on each projection, see Keesing, Communist Chinese Nuclear Threat, section on stockpile projections.

15. Two of these units are roughly sufficient for one thermo-nuclear weapon.

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As a generalization, the 20-weapon mark appears likely to be passed sometime in 1965, the 50-weapon mark in 1967, and the 100-weapon mark in 1968 or 1969. As a rough extrapolation, the level of 200 thermonuclear or 400 fission weapons, or some combination, should be reached about 1971.

Delivery Vehicles--Current Production Capabilities

Chinese research and development resources are limited and Chinese relevant experience to date in these fields is even more limited. The Chinese arms industries have had experience, with Soviet instruction and supervision, in producing--or at least assembling--Soviet-designed MIG jet fighters, ocean-going submarines, radars, light transport aircraft and a few other sophisticated weapon systems, but nothing that would be suitable for the combat delivery of nuclear weapons. For the most part the Chinese are still dependent on their Soviet allies for complex parts in each system, and production was greatly disrupted or completely stopped by the withdrawal of Soviet assistance in 1960. The most prominent casualty, in terms of future nuclear delivery capability, was a plant apparently being tooled up for production of the TU-16 Badger (medium bomber) near the city of Sian. Chinese independent production of even the most complex equipment seems to be merely a matter of time, but for lack of

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sufficient technical manpower to go around, the Chinese must concentrate their resources, particularly in research and development, on a very few systems.

Manned Bombers

The present operational bomber forces of Communist China consist of about 450 IL-28 Beagles. All of these aircraft, two-fifths of which are under Navy command, were built years ago in the Soviet Union, and are now obsolescent. Many Chinese bombers are probably becoming maintenance-weary, and the number available is diminished yearly by attrition and cannibalization.

Beagle, a light bomber from the early jet era, has a maximum combat radius with tip tanks of 740 nautical miles; target speed is only 385 knots, and combat ceiling is less than 40,000 feet. The stringent bomb-bay limitations have already been mentioned in connection with nuclear weapons. Range characteristics would permit attack, with difficulty, on all important potential targets in the Pacific Far East, but other characteristics make this aircraft highly vulnerable to sophisticated air defenses and in general an undesirable, if usable, vehicle. The Beagle has radar bombing equipment but there is no significant evidence of training or other preparations for instrument bombing operations. The best hope with Beagle against United States forces would seem to be low-level visual attacks.

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The current estimate is that the Chinese do not possess the technical resources to produce the TU-16 Badger, especially while trying also to produce missiles, despite the fact that facilities for a production complex are already partially built. The Chinese, having apparently abandoned or deferred their production effort, are probably trying to induce the Soviets to sell them Badgers; the Soviets have already delivered a few of these bombers to Indonesia. Compared to Beagle, Badger is a much larger, more complex and versatile aircraft, with a much longer range (combat radius is up to 1,850 nautical miles) and heavier payload (more than 10,000 pounds). Performance is better than Beagle although below the B-47, the United States equivalent. The Soviets have equipped the TU-16 with air-to-surface missiles having ranges of 55 and 100 nautical miles, and these also would be highly desirable to the Chinese.

In view of their need for manned delivery vehicles, it is almost certain that the Chinese will keep Beagles in the inventory as long as they can keep them operational and lack better replacement systems. If the Chinese can obtain some substantial number of Badgers in addition, the result will be a major jump in their attack capabilities and an easing of their nuclear war-head weight limitations, permitting earlier development of multi-megaton weapons.

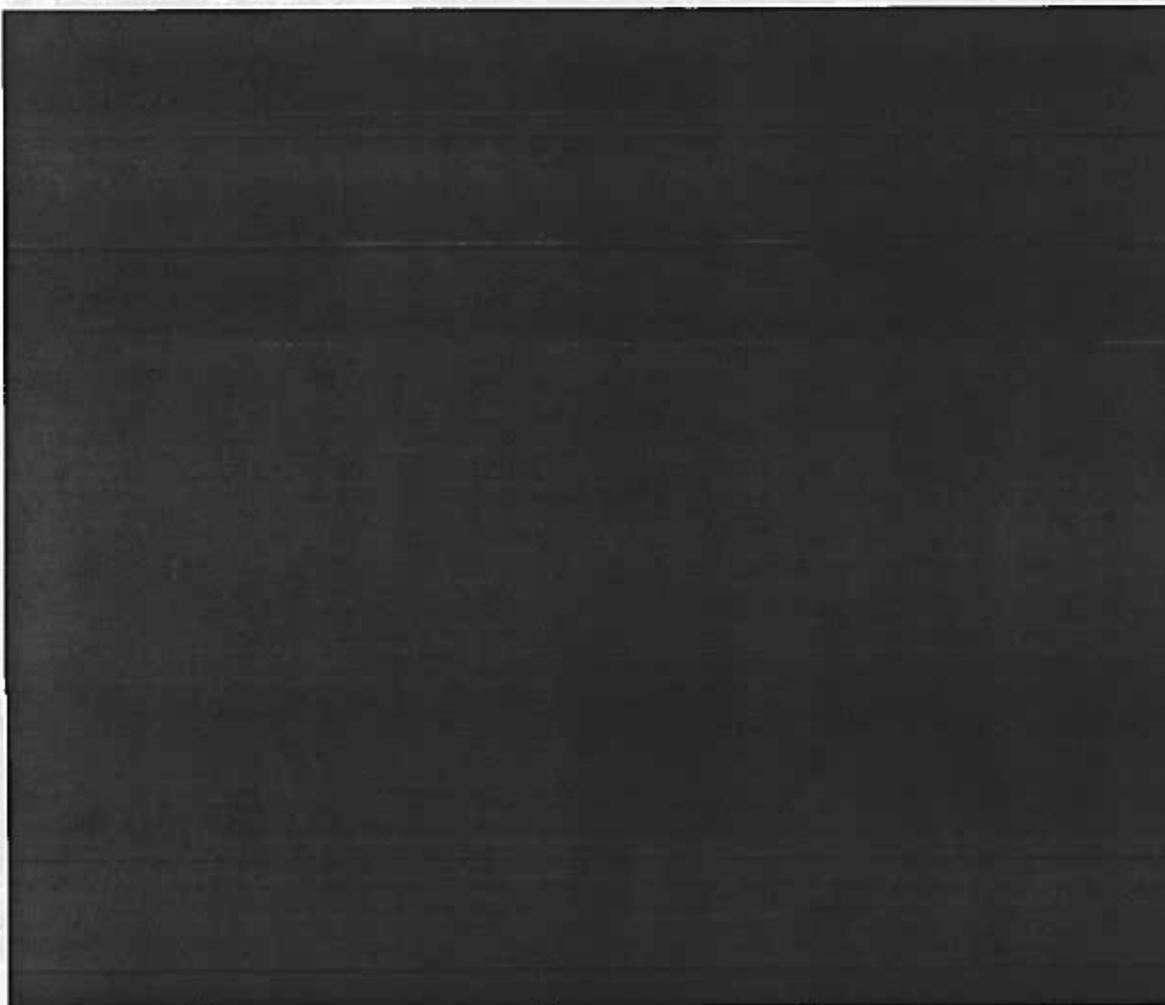
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Ballistic Missiles for Regional Purposes

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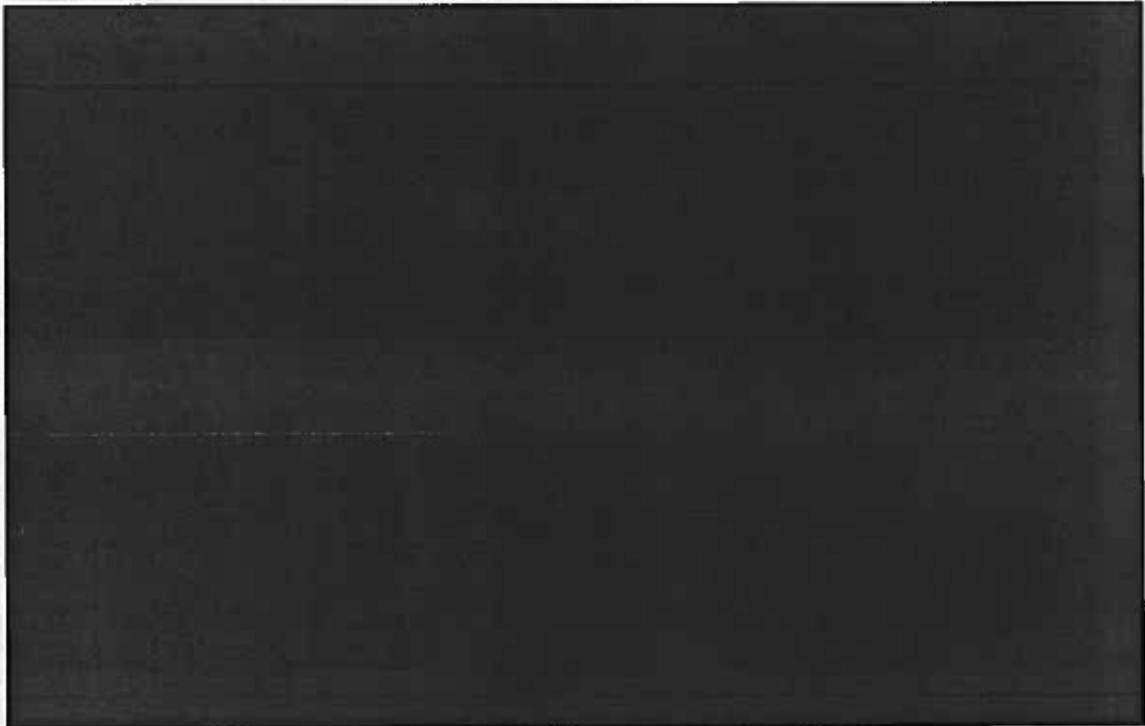


16. A distinctive feature of the location is that it is almost at the geographical center of China and hence in the only area from which missiles cannot be sent much over 1,100 nautical miles to destinations within China.

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Work on this testing program began before the withdrawal of Soviet technicians from China in July-August 1960. It has continued since that time, presumably with Soviet-built missiles. In the absence of any other evidence resolving this paradoxical situation, it must tentatively be supposed that the Soviets have given the Chinese testing and technical training experience with their shorter-range ballistic missiles and have helped build a test site, but probably have made no commitments to supply Soviet missiles for operational Chinese forces.

The Chinese can be expected to have already commenced a program of copying or roughly imitating the design of the

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medium-range ballistic vehicles that they have seen. Therefore, unless the Soviets have somehow managed to tie up all of China's missile personnel on joint projects, or the Chinese are getting or truly expect to get Soviet help in terms of operational missiles, the Chinese are presumably attempting an independent effort to produce missiles. The question is, how long would it take for the Chinese to produce something like the Soviet original? To this a tentative answer of about five years can be assigned, probably starting from 1960, for limited hand production. Two or three additional years would be needed for converting production to a fully-tooled, assembly-line basis. But there are clearly many uncertainties in such an estimate.

The Soviet ballistic missiles that the Chinese have presumably had a chance to study are liquid-propelled and to some degree are either mobile or transportable. These missiles are credited with CEPs of about one nautical mile at 700 naut.m., or one and a half nautical miles at 1,100 naut.m. Guidance is radio-inertial and fairly simple; for ranges up to 1,100 nautical miles there is little re-entry problem. Allowable warheads are on the order of 2,500-3,000 pounds. The Soviet versions are fairly reliable, but the performance characteristics of a future Chinese missile, even if patterned on Soviet missiles, can only be guessed.

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Intercontinental Delivery Vehicles

There is as yet no evidence of a Chinese effort or intention in the direction of intercontinental ballistic missiles or any alternative major intercontinental delivery system. There is also no evidence of work on solid-propellant missiles, although solid fuels would have definite advantages for the Chinese, particularly for intercontinental purposes, and much information on such fuels is unclassified in the United States. In the absence of evidence, it can only be estimated that the Chinese will probably be able, by undertaking a high-priority ICBM program immediately following their presumed medium-range ballistic missile MRBM project, to obtain at least an initial operating capability by the early or mid-1970s, assuming that their economic situation permits. This would be a very expensive and difficult program, requiring new range facilities, ground support equipment, numerous hard-to-produce components, and the solution of serious re-entry problems.

A Numerical Projection

Collation of the available information and estimates on manned bombers and ballistic missiles suggests, most tentatively, the following projection:

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DELIVERY VEHICLES

<u>END OF YEAR</u>	<u>A/C¹⁷</u>	<u>MRBM</u>	<u>ICBM</u>	<u>REMARKS</u>
1964	345			
1965	310			Initial Operational Capability <u>[IOC]</u> with Beagle
1966	280	5		
1967	250	10		IOC with MRBM
1968	225	30		
1969	205	60		1st thermonuclear weapon
1970	185	105		
1971	165	150		
1972	150	200	3(?)	IOC with ICBM (?)

The Communist Chinese obviously could slow down the acquisition of advanced delivery means, compared to this schedule, but they could not easily accelerate their progress unless they receive major assistance from the Soviets or achieve strikingly rapid industrial gains.

17. Assumed to be Beagle. Badgers might either be acquired from the Soviet Union or produced domestically by about 1969. Alternatively, a new fighter bomber, nuclear-capable, might be available by the end of the decade. In such a case the number of aircraft in the early 1970s would not necessarily diminish as shown.

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ECONOMIC LIMITATIONS: THE AGRICULTURAL CRISIS¹⁸

Industrialization in Communist China is concentrated on developing the country's military potential by building up the technical and industrial capacity indispensable for the production of advanced weapons. Within such limits as the scarcity of skilled personnel, nuclear development can take place as an insulated special effort probably up to the level of a few nuclear tests and a token capability. But the achievement of a militarily significant nuclear capability, including means of delivery, requires all-round technical and industrial advance and cannot be separated from industrialization. On the other hand, the military effort is bound to influence the industrialization program.

In the late 1950s, after intensive planned development, China made impressive strides in transforming an economy whose modern industrial sector was far more backward than that of Russia before the 1917 Revolution. Up-to-date equipment and (until 1960) technical advisers were provided by the Soviet Union. After the notorious Great Leap Forward and the commune

18. For a more detailed treatment, see Donald B. Keesing, Economic Limitations on Communist China's Nuclear Achievements, UNCLASSIFIED, ISD Study Memorandum No. 20 (IDA, Washington, D. C.). This PACIFICA paper will be issued shortly.

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experiment, however, the industrialization effort fell into severe difficulties because of the withdrawal of most Soviet aid and, more important, because of a massive agricultural crisis.

In the second half of 1960 the regime embarked on a retreat. Large-scale food purchases were begun from abroad (five and one-half million tons were purchased for delivery in 1961, and over four million tons have been purchased in 1962). Agriculture received higher priority and agricultural organization reverted to a much more decentralized form.

Despite this shift of policy in agriculture and other sectors, the economy (as of 1962) is beset by hunger, unemployment, low morale, shortages of raw materials and finished goods, greatly reduced machinery imports, a low level of activity in industry and construction, and continued agricultural problems. Malnutrition and demoralization appear widespread.

Source of the Agricultural Problem

Analysis suggests strongly that the Chinese agricultural difficulties are due not only to the communes and their mismanagement, compounded somewhat by adverse weather, but also to more intractable and more fundamental causes: insufficiency of inputs relative to the output requirement, and incentive problems

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that are not completely soluble so long as grain deliveries, necessary for rapid industrialization, are forced from the peasantry.

These are long-term problems, so that agricultural difficulties are sure to compound Chinese industrial difficulties for at least another decade. Agricultural needs will compete with other uses of China's industrial capacity.

At its source, the problem is one of land and population. China's population, based on the rudimentary census of 1953 plus reasonable extrapolations, is probably about (or approaching) 700 million. To feed this multitude, China possesses only 270 million arable acres. The significance of this can be seen by an approximate thumbnail comparison with the United States and the Soviet Union.

	Arable Area (million acres)	1960 Food Grain Output (million metric tons)*	Population (millions)
China	270	180	700
United States	465	196	190
Soviet Union	580	125	220

*Potato production is included on the basis of one-quarter actual weight, in accordance with Communist Chinese practice.

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The situation is not quite so bleak as this comparison would suggest, because possibilities for irrigation and double-cropping are considerable and because the Japanese, with, to be sure, better initial possibilities, have achieved more than twice the Chinese output per unit of land. The Japanese achieve this result by careful conservation practices and an application of chemical fertilizer at an annual rate that, in China, would imply some 55 million tons per year as compared with an actual peak use (in China) of 4 million tons. Like other imports, fertilizer imports have fallen off recently, and most of the other inputs, such as animal power, labor, and natural fertilizer, have been reduced by the agricultural crisis. In some regions Communist mismanagement has even caused a deterioration in basic soil and water conditions.

Outlook for the Future

To produce adequate sustenance for 700 million people, about 210 million metric tons of food grain is needed. If, as many experts believe, the population increases to one billion by 1980, some 300 million metric tons would be required. Except for the 1958 crop, China's highest recorded harvest has been only 185 million metric tons. Thus, even with good weather and efficient management the Communist industrialization program will be

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damaged by shortages of food, agricultural raw materials, and agricultural exports. There may be a continuing requirement for food imports, competing for precious foreign exchange. In the long run, however, China should be able--if Communist doctrine is ignored--to work its way out from under its precarious food problem through drastic population control, improved management of agricultural resources, and massive diversion of industrial resources into inputs for agriculture such as chemical fertilizer.

The industrialization program can be expected to recover some of its momentum as crops improve. Probably two years of excellent harvests or three years of moderately good harvests will be needed to repair the damage done to the modern industrial sector of the economy, which already has a considerable reservoir of factories and skilled labor as a legacy of the '50s. After that recovery, ways can probably be found better to insulate industrial advances from the rest of the economy, especially in the industries most closely associated with modern weapons technology. Effective population control would have beneficial effects within as short a time as ten years. Until then, the limitations of food production and grain collection can be expected to delay, but not to stop, industrial and

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technical advance. Only acute famine conditions can be expected to suspend the growth of China's nuclear potential, assuming this growth is pursued with determination. If it is not, the annual advance of industries and technology connected with nuclear capabilities will be accelerated or retarded according to the harvest.

Long-term industrial progress in Communist China, given a degree of prior agricultural and industrial recovery from the present dislocation, will depend first of all on guaranteeing a minimum adequate food supply to the nonagricultural population through forced collections, peasant sales, imports, and continued winnowing out of nonessential personnel from the urban labor force. With a stable and adequate flow of food to the cities, China can base industrialization principally on improving the quality, rather than on increasing the size, of its force of urban workers and technicians, while expanding the available capital plant as rapidly as possible. A combination of new machinery and new skills can then enable a relatively rapid rise in productivity and thus in output, even if urbanization must continue to be held sharply in check. In this way it will probably be possible to insulate Chinese industry to a degree from the dire poverty of the agricultural sector, provided the latter does not again assume critical proportions for the entire society.

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Soviet aid to China, or American aid in the form of large-scale food shipments, would significantly accelerate Chinese achievement of nuclear capabilities. In the absence of such aid, agricultural trouble might cause China to defer production and deployment of new nuclear delivery vehicles in quantity; but the Chinese can be expected to undertake highly selective vehicle-development programs, nuclear-stockpile accumulation and warhead experiment almost regardless of economic troubles. These programs, indispensable to Chinese progress toward increasing nuclear capabilities, cannot be regarded as prohibitively expensive.

Need for Hard Choices

At least for the proximate future, the Chinese Communists, if they are to make China a major nuclear power, must pay a high price in terms of such other important goals as the satisfaction of civilian needs and the improvement of conventional military forces. There are limits, however, to the transferability of skills and resources from advanced weapons programs to the civilian economy.

Within the nuclear warhead and delivery vehicle program, scarcity of resources will compel a choice between neglecting short-run capabilities and setting back the long-run program, and between ballistic missiles and some alternate means of delivery.

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All the hard choices facing the regime will become more restrictive, and the alternatives will become less attractive, at times when the economy is in trouble; conversely, any cause for economic recovery should speed the process of acquiring nuclear capabilities.

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CHAPTER III

THE SHORT RUN AND THE POLITICAL-PSYCHOLOGICAL THREAT

The knowledge that Communist China is testing nuclear weapons will produce, around the world, sharp political and psychological effects.¹ Military implications, at first deriving primarily from the political reaction in the Far East, could be evident from the beginning and certainly will emerge as the time approaches when the People's Republic of China [CPR] can deploy even small and local nuclear operational capabilities. Well before these capabilities develop, they will have been anticipated politically; and nations likely to be directly affected by the eventuality of Chinese offensive nuclear power will probably have begun to behave as though the CPR were already in possession of that power.

This chapter discusses possible reactions within various regions to Communist China's emergence as a nuclear power and the implications of these reactions for US policy. The effects of China's attainment of an initial nuclear capability are examined,

¹ But a protracted delay in Chinese testing will of course moderate such effects.

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in order, for the Communist bloc; for Western Europe, the United Kingdom, and Australasia; and for the "rimland" along the periphery of China.

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Condi-
tions in China and elsewhere, which the United States can affect only marginally, if at all, will also influence the reaction. For example,

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The Special Menace in Nuclear Testing by Communist China

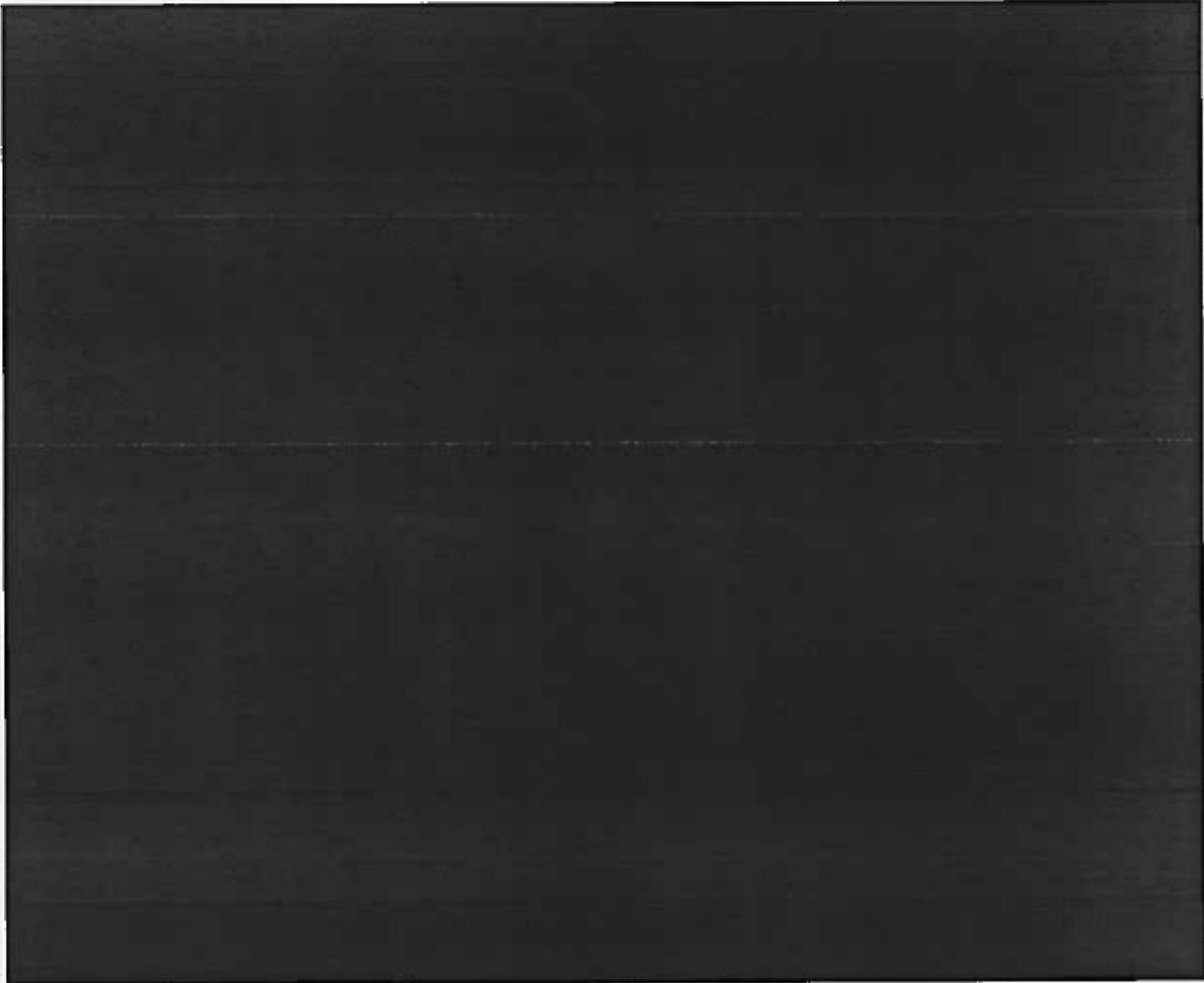
An appropriate question is, why should there be particular alarm at fission testing by Communist China when at least four other states possess nuclear weapons and one, the Soviet Union, has detonated a device having a force of over 50 megatons?

So far as the world in general is concerned, tests are obviously a prelude to the possession of a nuclear armament, and the menace is twofold in what it portends. First,

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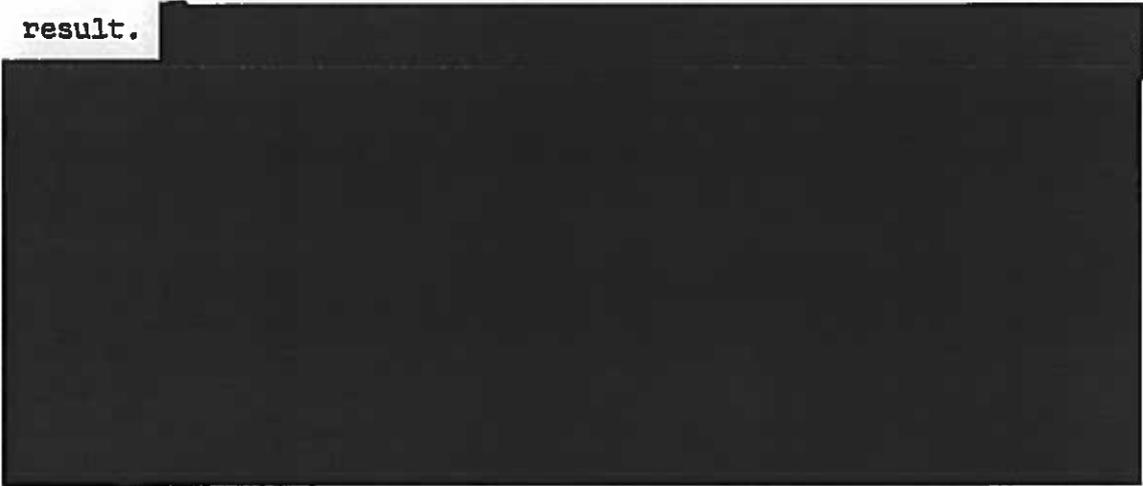


The initial Chinese nuclear tests, however, should create a deep impression on the peoples not only of Asia, but of Africa, the Middle East, and possibly Latin America as well, in part because China will be the first non-white and/or "underdeveloped" nuclear power. Except for the most sophisticated members of their elites--few in all areas--these peoples are generally likely to feel pride in the Chinese achievement, even as they experience new

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flurries of fear concerning testing and fallout. The first test will in many areas seem equivalent to a nuclear operational capability, and will also seem to mean an immediate impairment of the US military position. Communist China's prestige, and hence its influence on local radical movements, will probably be enhanced, and a net gain for radical political organizations is likely to result.



THE COMMUNIST BLOC

Chinese Exploitation of Early Tests

If political conditions are not propitious at the time China is technically able to begin nuclear testing, the regime can be expected to delay tests for maximum political advantage as long as several months. A longer delay than this, for political purposes, seems unlikely.

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Provided China is economically viable at the time of the first nuclear test, and hence able to project the image of great future power, opportunities for Chinese political and psychological exploitation of nuclear tests should prove considerable.

The Chinese situation differs in significant respects from that of the Soviet Union when the latter tested its first nuclear device, in August 1949. Soviet leaders made no announcement of this test until the United States revealed that it had taken place. The world reaction at the time was favorable to the Soviet interest despite the fact that the Soviets themselves made little attempt to enhance the reaction. They were plainly taken by surprise when the United States announced their test.

China knows that the United States will probably detect any nuclear test and also that the United States will announce the fact unless the Chinese themselves do so. They also know that the United States, if the US treatment of the Soviet Union under similar circumstances is any precedent, will not use force to prevent Chinese acquisition of nuclear capabilities.

While it must be anticipated that the Chinese will prepare their tests in secrecy, [REDACTED]

[REDACTED] and that the CPR will anticipate the

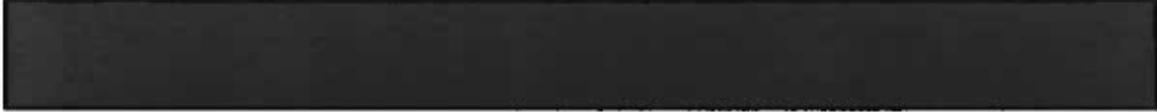
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United States by making its own announcements, relying on other nations for early confirmation.



If nuclear testing is long delayed, missiles from Chinese production could also become available for this purpose. It might prove sufficient to publicize previous Chinese missile testing from Shuang-cheng-tzu.²



2. See above, p. 42.

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Within China, despite some bitterness resulting from the knowledge that the regime has been developing expensive nuclear capabilities during a period of food shortage, pride in the nuclear achievement seems certain to provide a lift for Chinese morale.³ This is likely to be particularly evident among elite groups, with significantly useful results in terms of the redoubled leadership efforts they will exert.



3. Chinese everywhere, including the 14 million overseas and the 11 million on Taiwan, can be expected to feel (if not to show) pride in the Chinese technological accomplishment.

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The Soviet Union

Practical evidence of a lack of fraternal unity within the Communist bloc is unmistakable in Asia. The Soviet Union has shown little interest in reducing pressures on the Communist Chinese regime or in alleviating the travail of the Chinese people during

4. For further discussion of arms control and Communist China, see below, pp. 194-98.

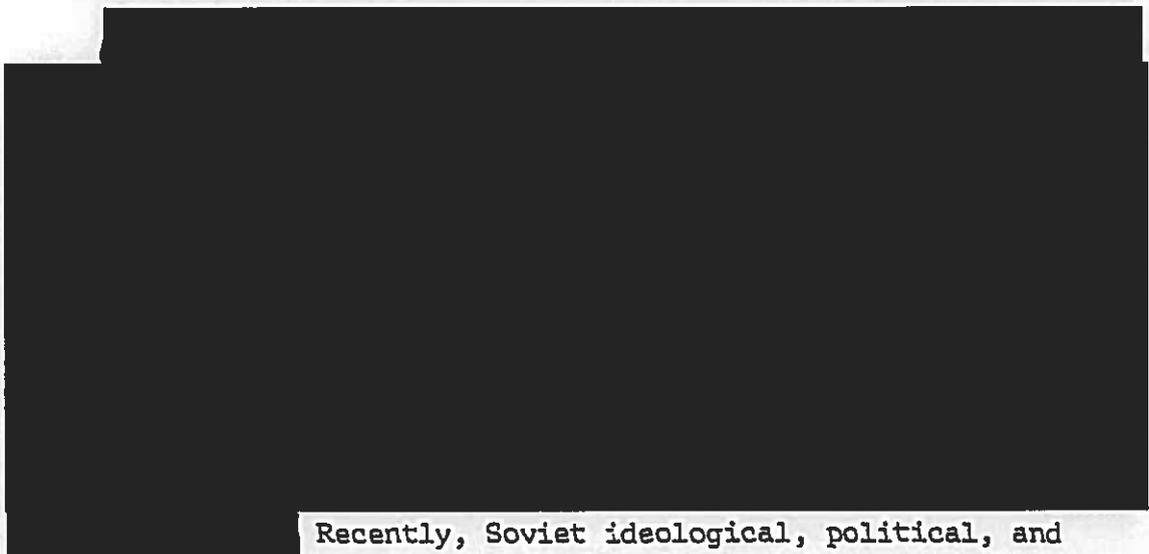
5. For a more detailed treatment, see John R. Thomas, Reactions to a Nuclear Armed Communist China: the Soviet Union (U), SECRET, ISD Study Memorandum No 19 (IDA, Washington, D. C.). This PACIFICA paper will be issued shortly.

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the current agricultural crisis. There has been little reduction in the hard terms of trade which China encounters within the bloc, and no resumption of large-scale assistance. In contrast, the Soviet Union has been conducting massive aid programs in India and Indonesia, interpretable by the Chinese as evidence of Soviet indifference to their problems and hostility to their interests.

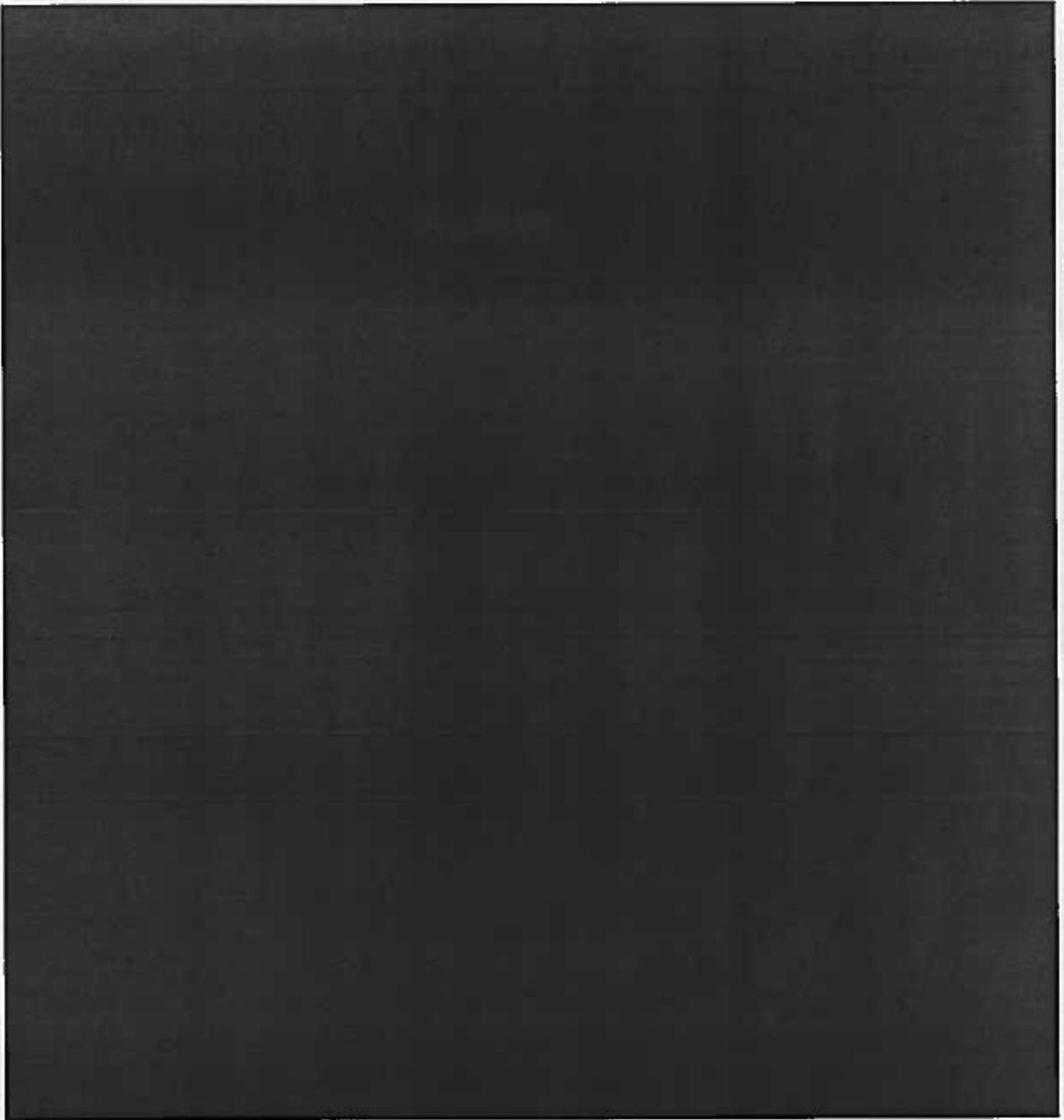


Recently, Soviet ideological, political, and military journals have been conducting an educational program on the realities and dangers of nuclear warfare, with obvious indications that one of the intended consumers is China.

6. Soviet assistance, in terms of the type of facilities built and the timing of the withdrawal, may actually have been designed to limit, or even frustrate, the Chinese program. (See Thomas, The Soviet Union, and Donald B. Keesing, The Communist Chinese Nuclear Threat: Warheads and Delivery Vehicles (U), SECRET-RESTRICTED DATA, ISD Study Memorandum No. 17 /IDA, Washington, D. C. 7.)

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7. For the purposes of this report, a Class A nuclear power is one that has achieved, or is believed to have achieved, the ability, in a retaliatory strike, to deliver an effective blow against all nuclear powers likely to combine in a hostile coalition. For further discussion, see below, pp. 177, 183.

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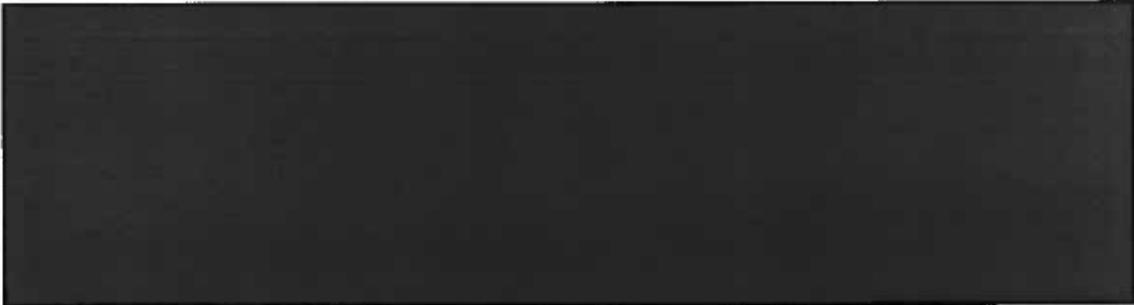
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North Korea and North Vietnam

The reactions of members of the Communist bloc other than the Soviet Union are largely predictable in terms of present bloc relationships.



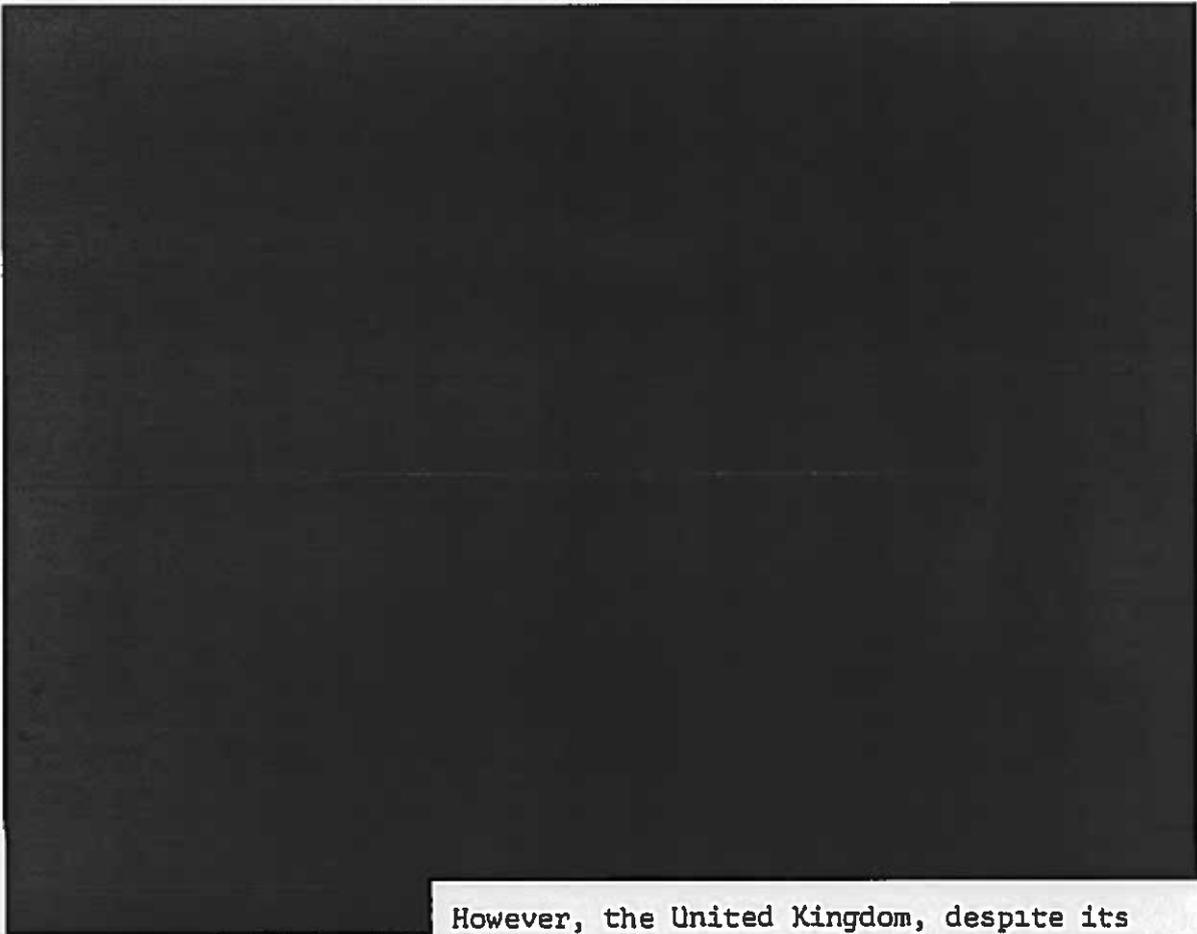
EUROPE AND AUSTRALASIA⁸



8. For greater detail, see the following PACIFICA supporting papers: General "X" and Roderick MacFarquhar, Reactions to a Nuclear-Armed Communist China: Europe and the United Kingdom, UNCLASSIFIED, ISD Study Memorandum No. 12 (IDA, Washington, D. C., 1962); and Arthur Burns, Reactions to a Nuclear-Armed Communist China: Australasia, UNCLASSIFIED, ISD Study Memorandum No. 13 (IDA, Washington, D. C., 1962). This last will be issued shortly.

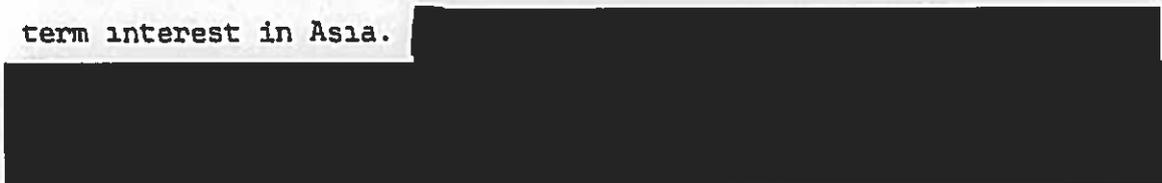
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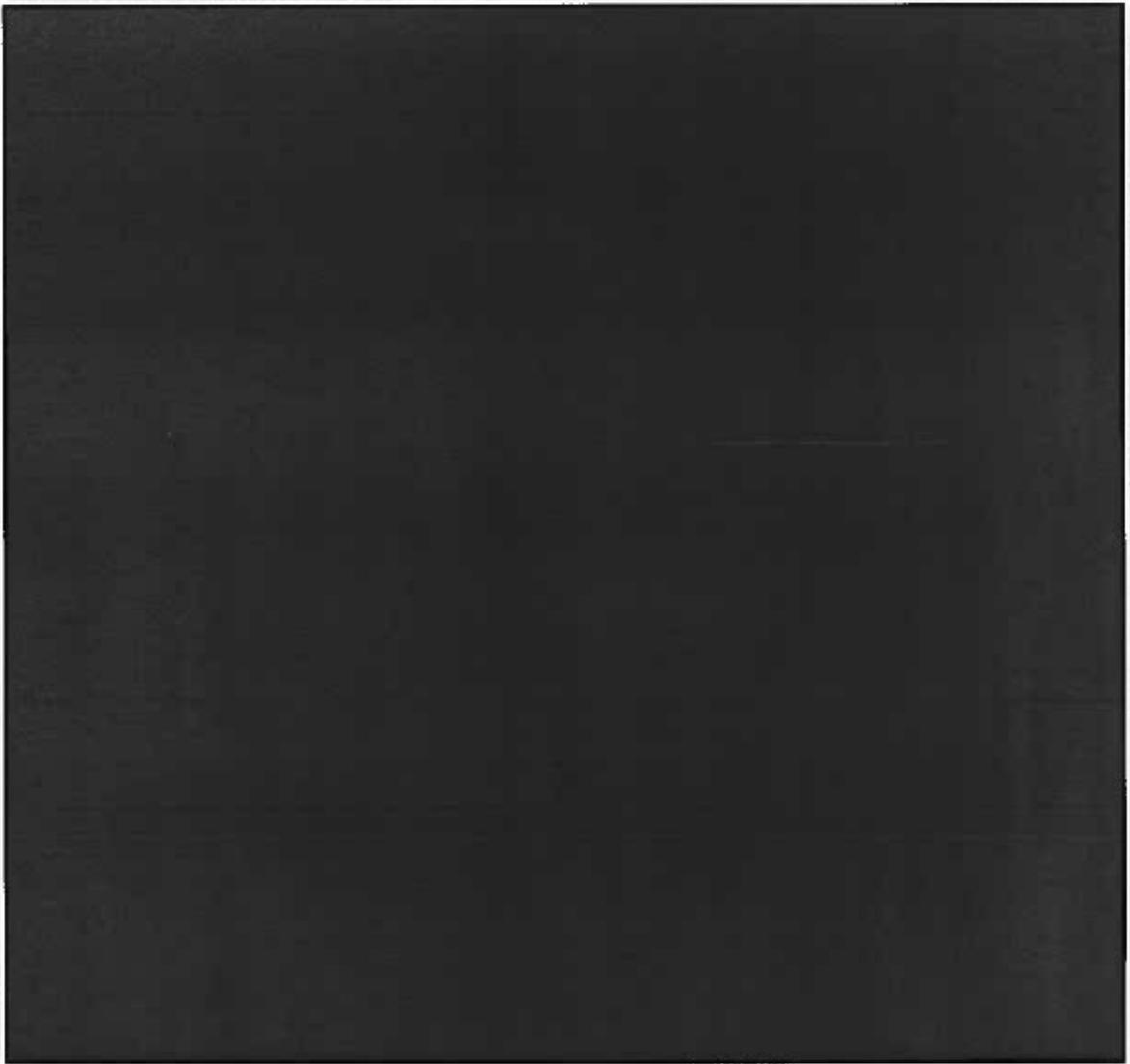
However, the United Kingdom, despite its withdrawal of forces from the area, retains a measure of influence in the Far East and shares the interest of the United States in stabilizing non-Communist areas of Asia.

Under the circumstances, it appears essential that the United Kingdom and the United States should recognize their common long-term interest in Asia.



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THE "RIMLAND"--REACTIONS ALONG THE PERIPHERY OF CHINA

Along with the United States, it is Asia that will be most directly affected by China's emergence as a potential nuclear power. Around the Chinese periphery, allies of the United States--and even

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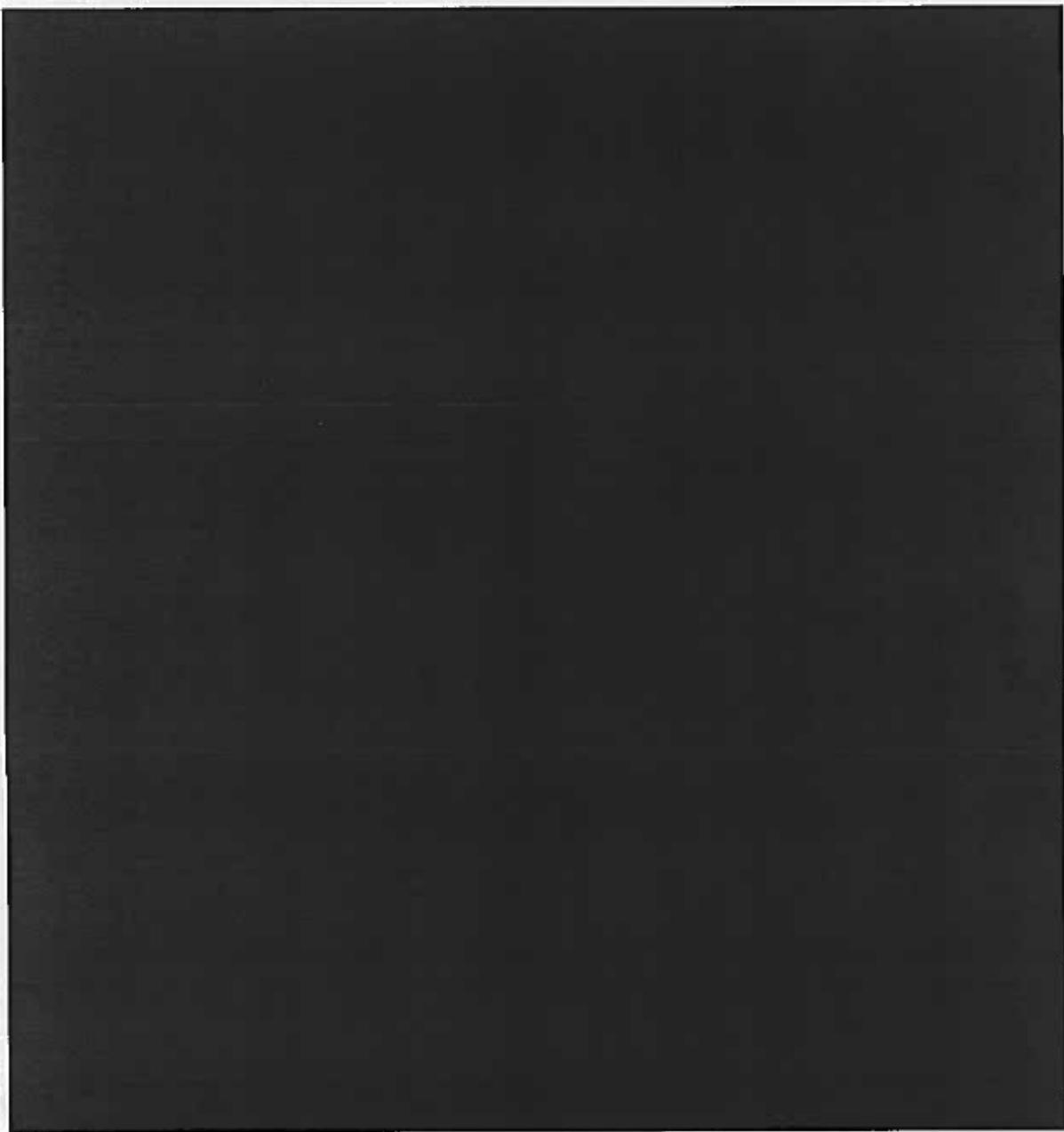
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neutral countries--appear certain to react to Chinese nuclear testing according to their estimate of the American position in the Far East at the time, and in the light of the US reaction to the initial tests. These states are also likely to affect each other, and to some extent the United States as well, by their individual reactions, so that the backlash of psychological and political responses to the initial tests could produce reinforcing and multiplying effects across the Pacific.

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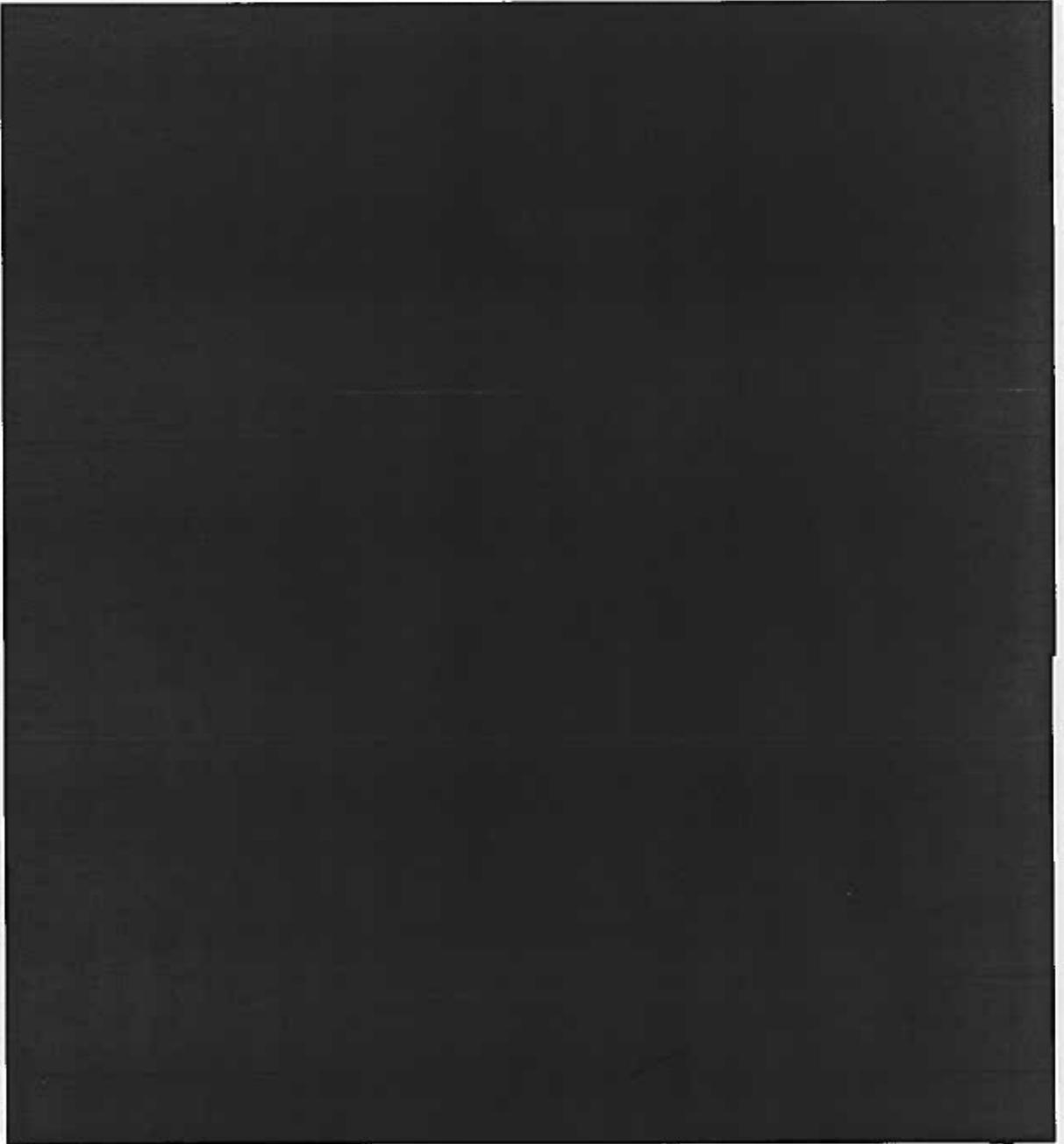


9. For greater detail see Donald B. Keesing and Roger Pineau, Reactions to a Nuclear-Armed Communist China Japan (U), SECRET, ISD Study Memorandum No. 15 (IDA, Washington, D. C.). This PACIFICA paper will be issued shortly.

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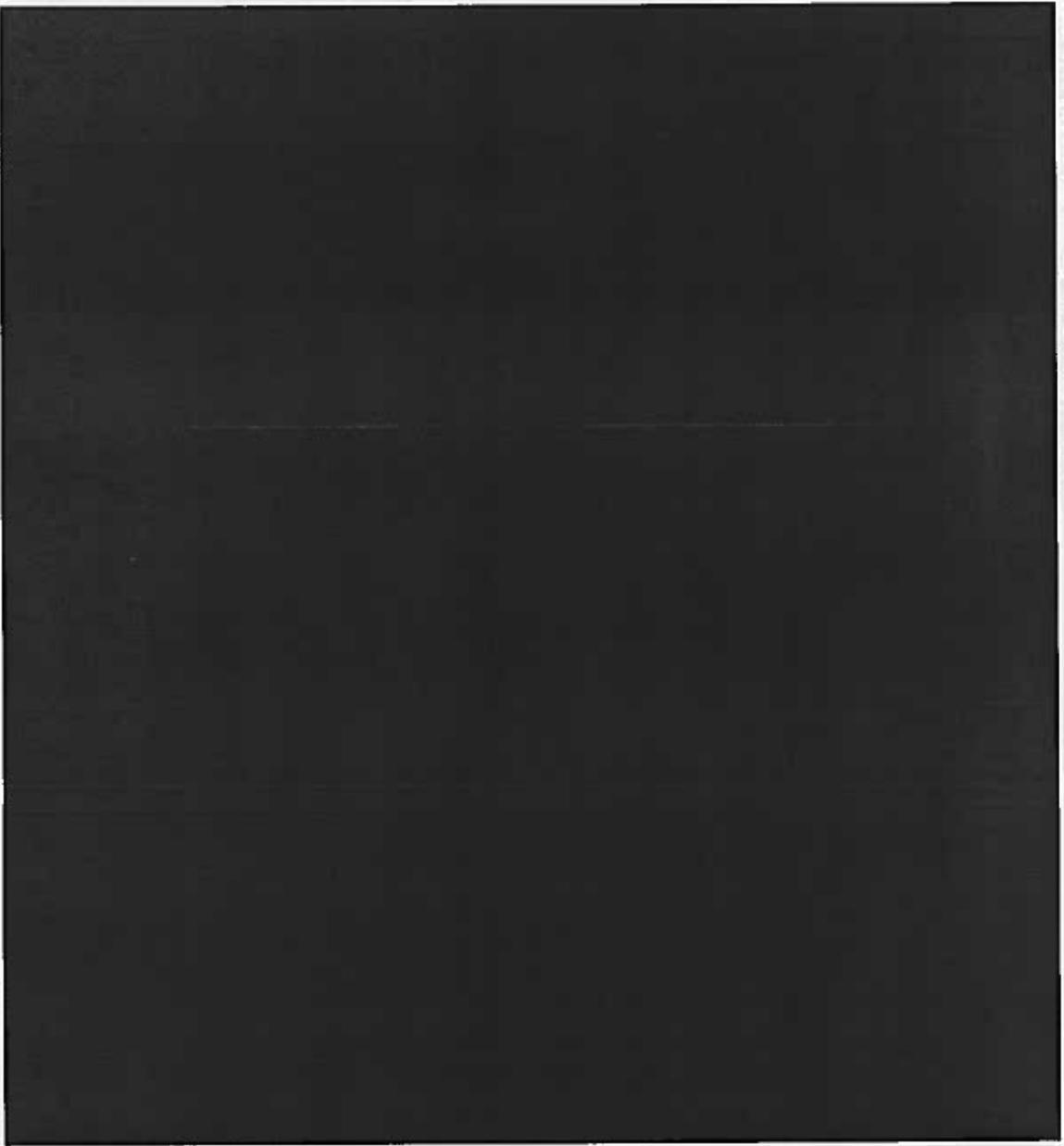
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10. See PACIFICA supporting paper on Japan, Appendix A, "The Japanese Government's 'Gray Public Relations' Campaign."

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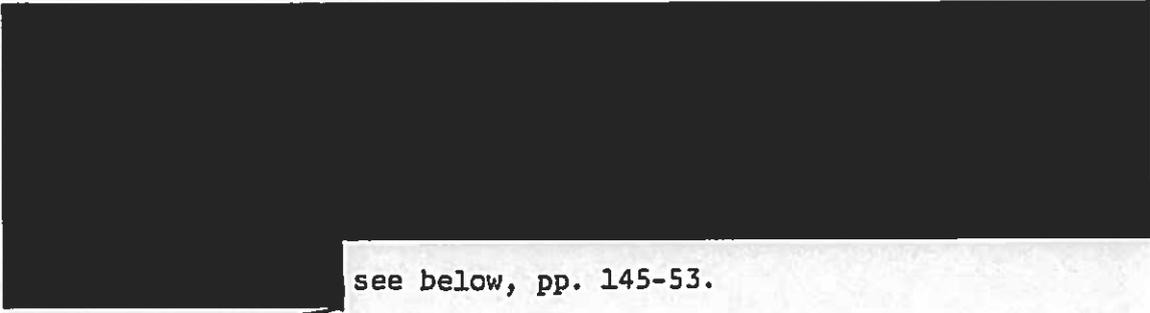
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11. These factors are analyzed in detail in John B. Cary, Military Implications of a Communist Chinese Nuclear Capability (U), SECRET, ISD Study Memorandum No. 14 (IDA, Washington, D. C., 1962), pp. 10-15.

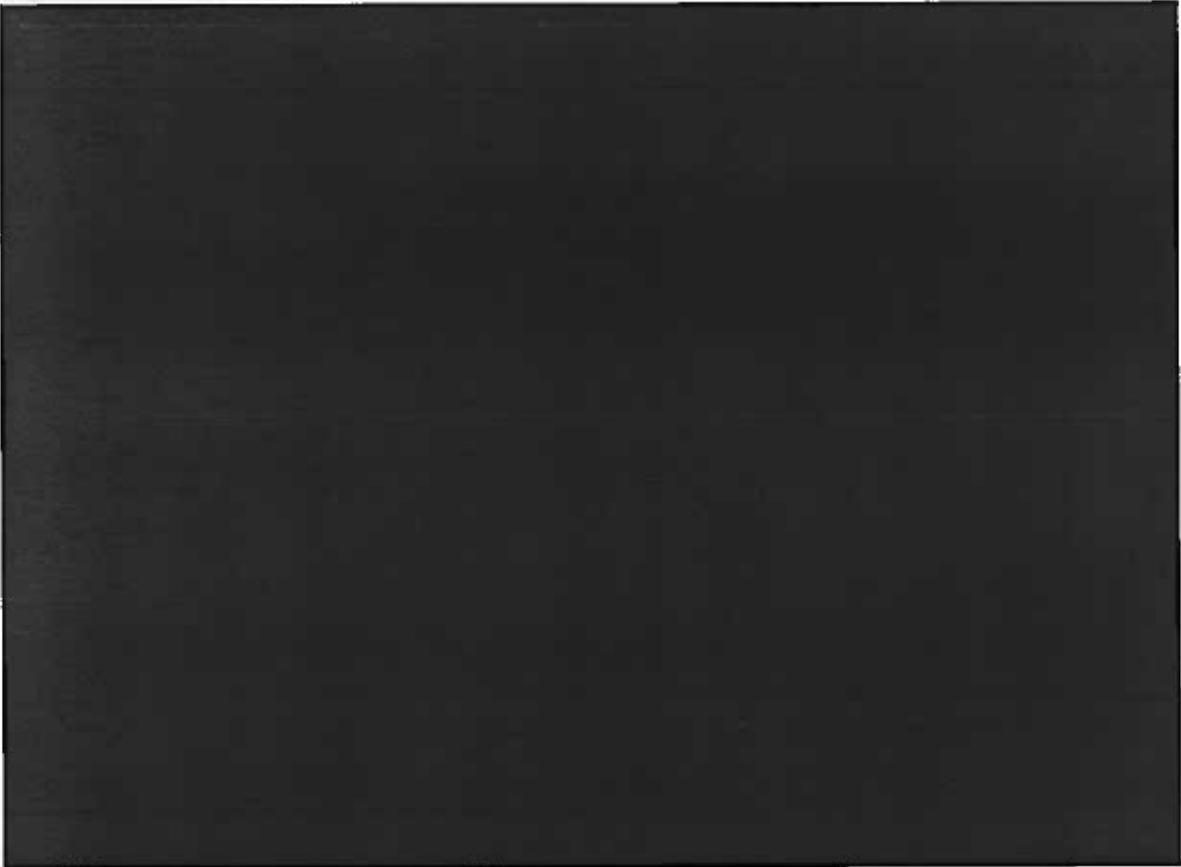
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see below, pp. 145-53.

The Republic of China /Taiwan/¹²

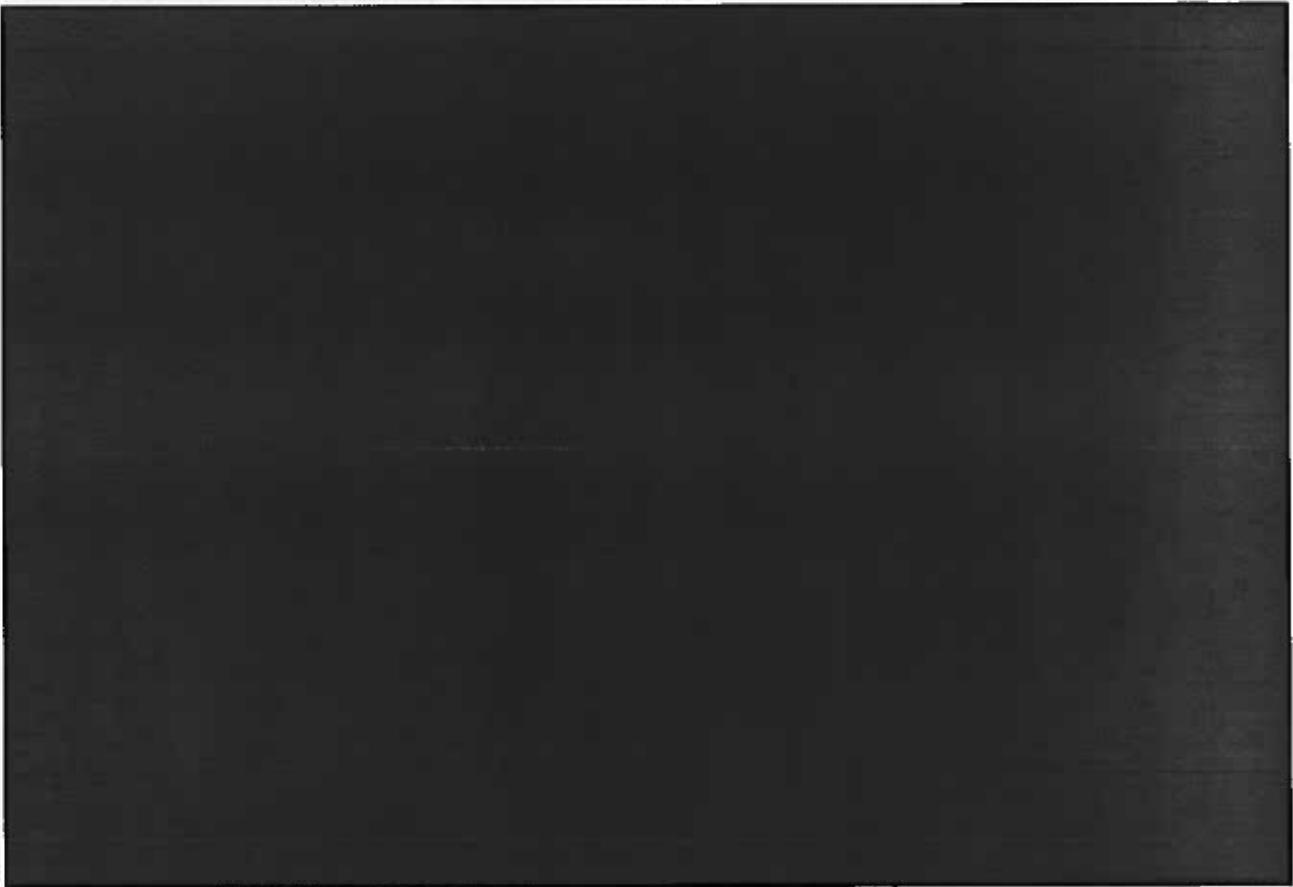


12. For greater detail, see the PACIFICA supporting paper, The Republic of China /Taiwan/, UNCLASSIFIED, by Harold C. Hinton. This is included in IDA/ISD Study Memorandum No. 16, to be issued shortly.

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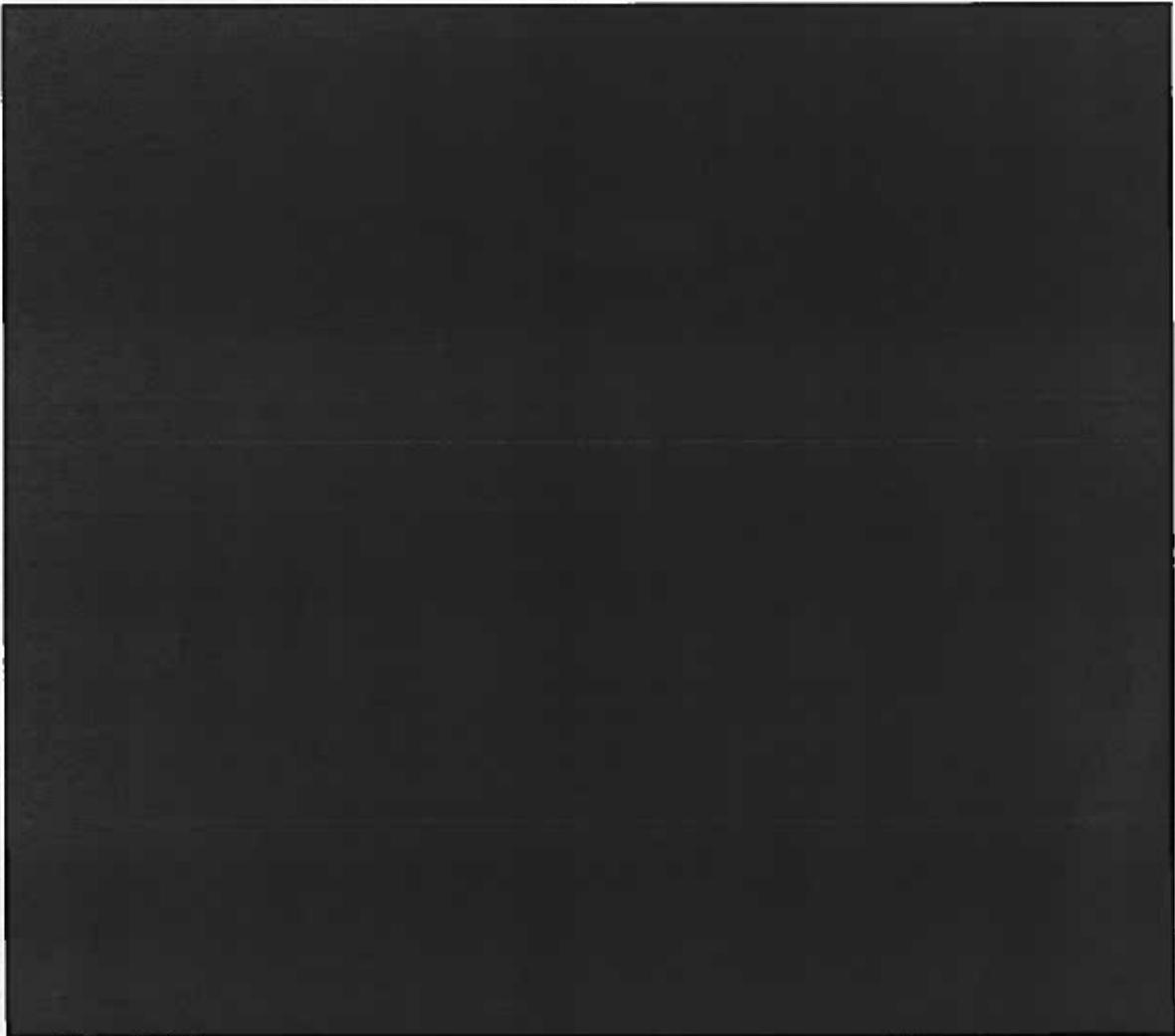
Southeast Asia

Southeast Asia, constituting as it does currently the most tempting area for Communist aggression in the Far East, is likely to be undergoing pressures which will be underlined by the event of the initial Communist Chinese nuclear test.



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Burma's existing tendency to mollify Communist China will probably be confirmed by the event of an initial Chinese nuclear test. Assuming that the trend of affairs elsewhere in Southeast Asia and in South Asia favors Free World interests, Burma should be able to retain internal stability and some semblance of independence in external affairs. [REDACTED]

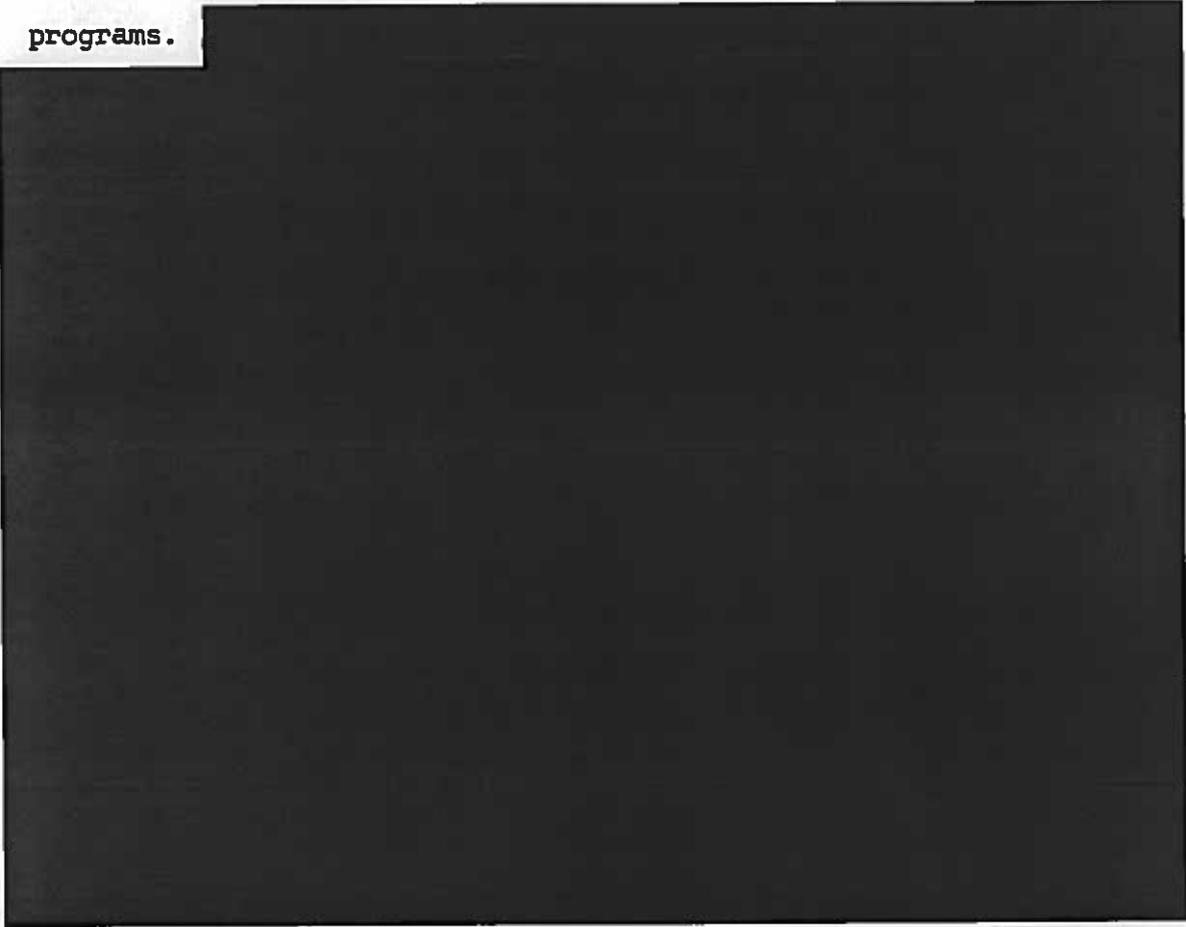
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India and Pakistan

A new dimension will be added to the fear and distrust with which the Indians regard the Chinese as the CPR proceeds with nuclear tests. However, the government of India, whether under Nehru or his successors, will have ample reason to keep Indian attention concentrated on internal economic, social, and political programs.



13. For greater detail, see Loy W. Henderson, Reactions to a Nuclear-Armed China: South Asia (U), CONFIDENTIAL, ISD Study Memorandum No. 12 (IDA, Washington, D.C., 1962).

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An analysis of the present alliance system of the United States, from the viewpoints of military utility and of providing necessary assurance of American support to the allies, is included as Appendix B of the PACIFICA substudy, Military Implications of a Communist Chinese Nuclear Capability, written by John B. Cary and issued as IDA/ISD Study Memorandum No. 14, pp. 149-59. In summary, present alliances appear adequate for these purposes, although Pakistan and possibly Thailand may feel that more formal alliance or closer military collaboration with the United States is necessary.

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The depth and momentum of the influences described above will be intensified or reduced by the surrounding circumstances, many of which can be influenced by the United States. These include:

- a) The nature of the regimes then in power in Asian nations.
- b) Prior success or failure of the Free World, and particularly the United States, in stemming Communist advances in Asia, but also elsewhere.
- c) The nature of the reaction within the United States and, to a lesser extent, within Europe, to Chinese atomic exploits.
- d) The ability of Asian governments and elites to make an accurate assessment of the military and political significance of the Chinese nuclear program, to meet initial Chinese nuclear tests without surprise, and to convey confidence to their peoples.
- e) The actuality of US military superiority over the Communists in Asia, as conveyed by the then-existing US military posture and published programs, especially in the Western Pacific and Far East.

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CHAPTER IV

THE INTERMEDIATE PERIOD

The preceding chapter was concerned with the period between the explosion of Communist China's first nuclear device and the development of a locally effective nuclear capability. The focus was therefore on the political and psychological repercussions of China's first nuclear tests. The mid-term period with which this chapter deals will be characterized by the existence of a Communist Chinese operational nuclear capability, usable locally in the Far East. The climate of change during this period will stem primarily from China's acquisition of a valid nuclear capability, with the resulting change in the military situation leading in turn to the creation of new political problems.

The influences, largely psychological and political, created by China's early nuclear experiments, will continue and may be intensified during the mid-term period. It is possible that these and other influences may have caused significant alterations in the political environment, particularly in Asia. It is generally assumed, however, in order to analyze the mid-term effects, that

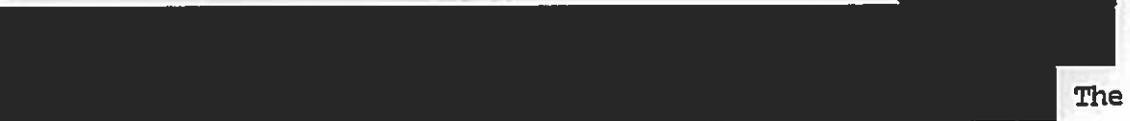
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major shifts adverse to the United States have not occurred, and that the political situation in the Far East remains essentially as at present.

In the present chapter, in contrast to the preceding, the specifically military implications of China as a nuclear power come to the fore. This chapter, therefore, is in some sense the core of the report.

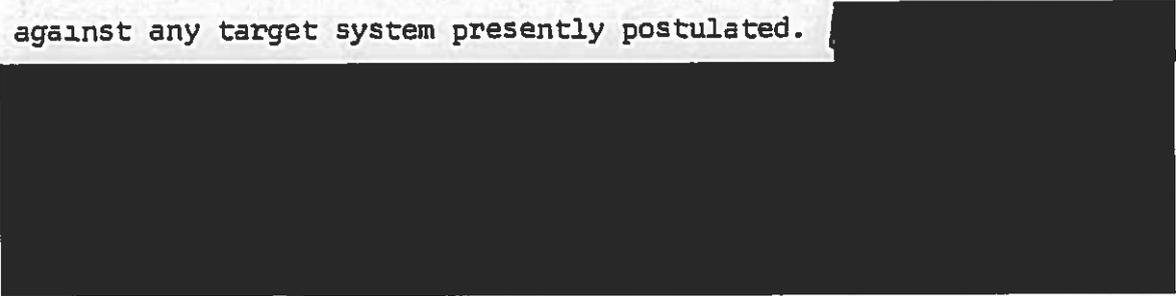
The utility of Chinese nuclear armaments in general war, and the factors that may affect a Soviet decision to engage in either local or general war as a result of Communist Chinese action or other pressures, are first discussed. This is followed by an analysis of the military position of Communist China (and of North Korea and North Vietnam) versus the United States in the Western Pacific and the Far East areas. The utility of Chinese nuclear forces in specific Asian hostilities is then examined in the light of this analysis. The over-all implications of the preceding factors for the position of Communist China itself, and for the United States and its Asian allies, are deduced, and

 The chapter ends with a discussion of the effects of changes in the pattern of Sino-Soviet relations on the conclusions reached in the foregoing analysis.

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In discussion of US military capabilities, no attempt has been made to recommend specific employment. Such an endeavor, which would connote specific war planning, is inappropriate for a study such as this, and in any event would necessarily be based on so many assumptions--largely surmise when projected far into the future--as to have little or no value. Military requirements are therefore discussed in terms of capabilities that will permit a variety of decisions by the United States. More specifically, discussion of US nuclear forces is based on the clear realization that, if employed at all, they need not be used to their full capacity nor against any target system presently postulated.



THE SOVIET UNION¹

Utility of Chinese Nuclear Armament in General War

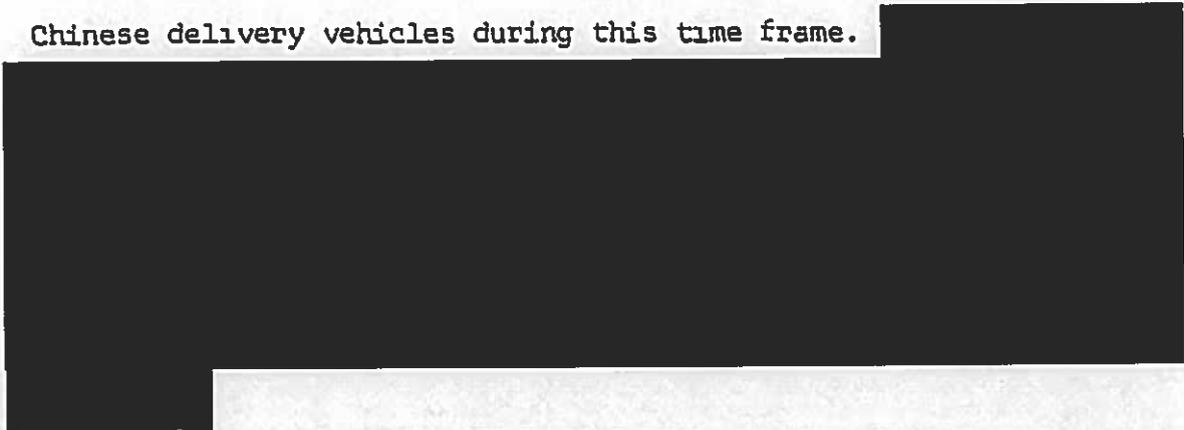
Almost irrespective of the number of nuclear weapons one assumes the Chinese will be capable of producing, these can

1. The implications of Chinese nuclear armaments for general war and Soviet military action are also discussed in John B. Cary, Military Implications of a Communist Chinese Nuclear Capability (U), SECRET, ISD Study Memorandum No. 14 (IDA, Washington, D.C., 1962), Chapter III, pp. 29-40. 89

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constitute only a marginal increment to the nuclear power otherwise available to the Communist bloc. The Soviet Union already can deliver a massive attack against the United States and can simultaneously strike all militarily important targets in the Western Pacific and the Far East that may be within range of Chinese delivery vehicles during this time frame.



Pressures on the Soviets

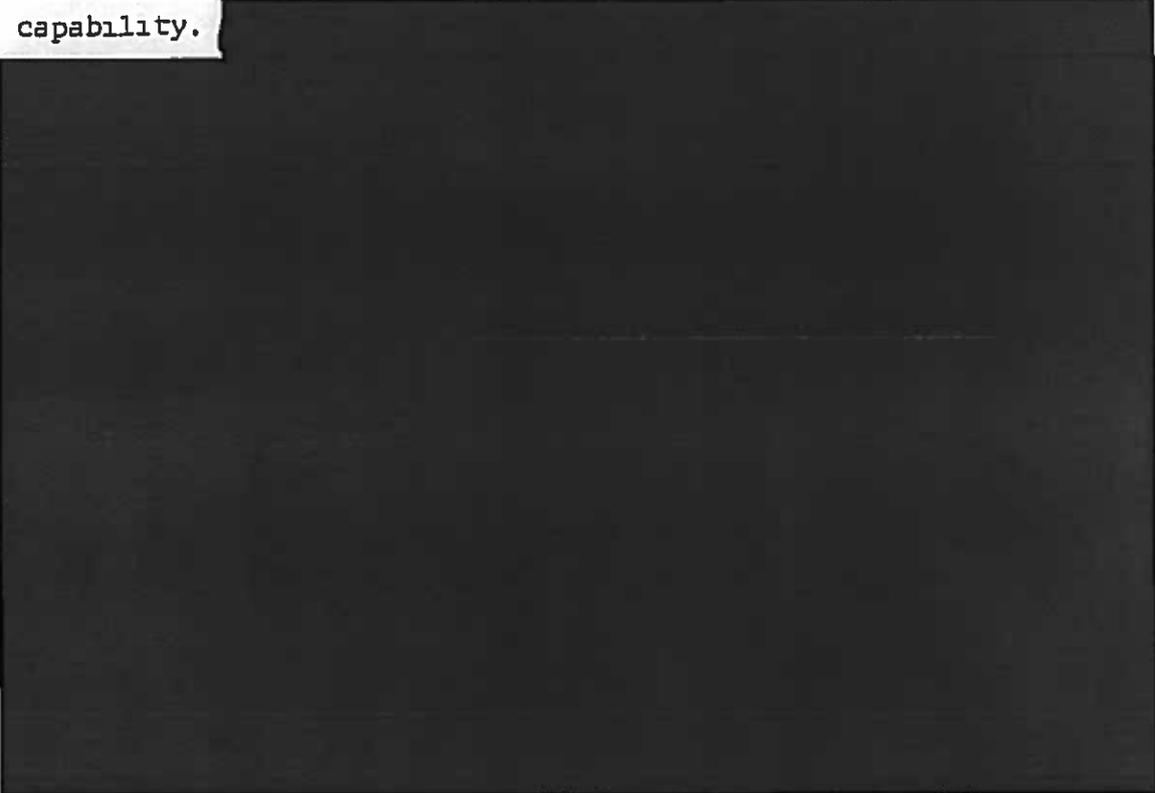
There are strong ideological and political pressures on the Soviet Union to support any Communist military or paramilitary operations which may occur in Asia. Bloc leadership, cohesion and prestige will be involved, as will be the loyalties and future effectiveness of Communist parties worldwide. Further, the Sino-Soviet alliance creates strong ideological reasons for the Soviet Union to succor a China in military difficulty.² These pressures

2. The wording of the Sino-Soviet treaty of alliance, however, also permits the Soviets to deny, on legalistic grounds, its applicability under almost any circumstances.

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may be increased through the acquisition by China of a nuclear capability.



Soviet Assistance in Local War

Unless local hostilities are initiated by China over the objections of the Soviet Union, some degree of Soviet support of China must be anticipated. This support will almost surely include political and psychological support, and the provision of critical military supplies and advice. Direct Soviet military intervention might be involved, probably by "volunteers."

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There are severe limitations, however, on the amount of effective military assistance that Soviet forces can provide.³ Certain specialized military functions such as submarine warfare and air transport, and possibly an increment of offensive air power, could be of great utility to the Chinese. But generally speaking, Soviet military intervention would be limited by the same logistic factors that severely limit Chinese offensive capabilities, and Soviet forces could only substitute for Chinese forces. Thus, real Soviet assistance, effective from the Chinese viewpoint, is most likely to require first and foremost Soviet strategic cover for Chinese local operations during this intermediate-term phase.

Pressures for General War

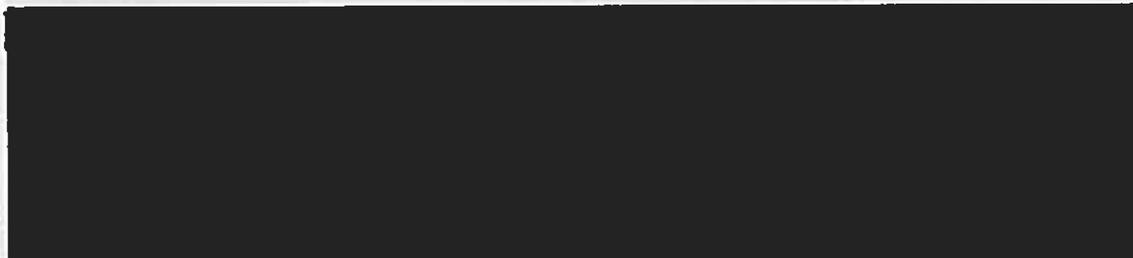
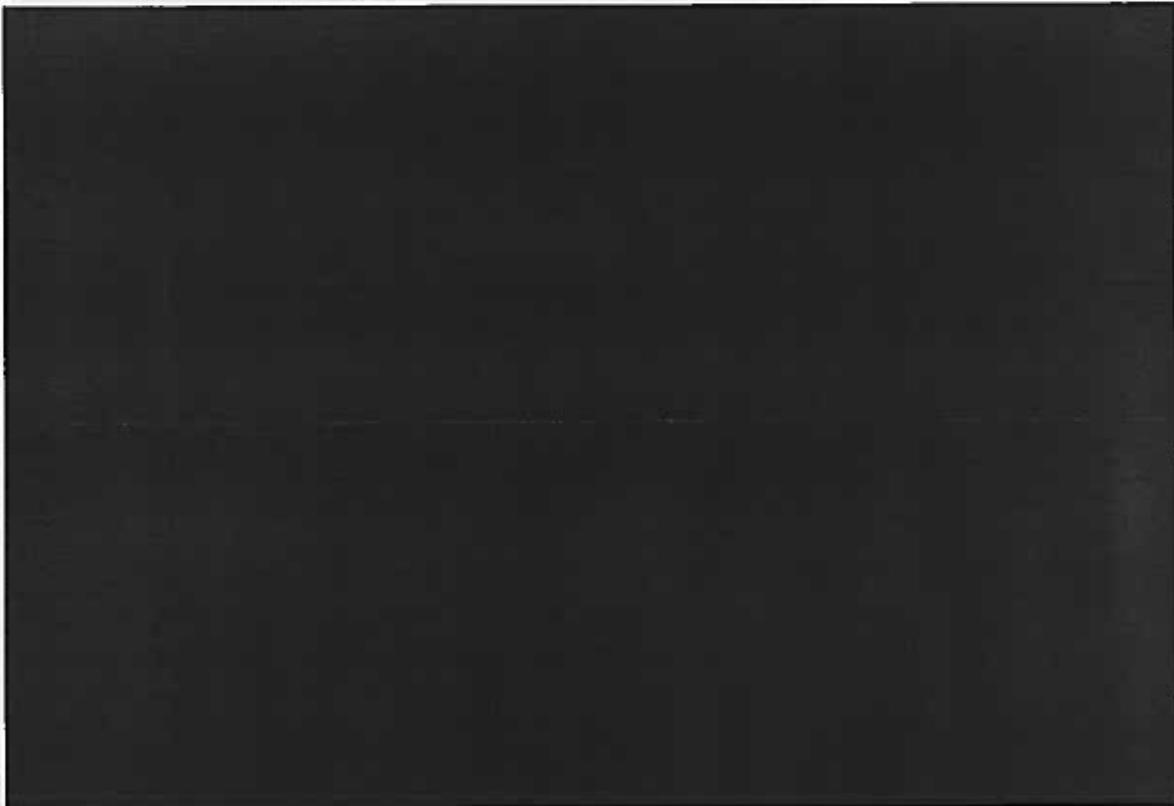


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For a detailed discussion of Soviet views on the primacy of the survival of the Soviet Union, see John R. Thomas, Reactions to a Nuclear-Armed Communist China: the Soviet Union, SECRET, ISD Study Memorandum No. 19 (IDA, Washington, D.C.). This PACIFICA paper will be issued shortly.

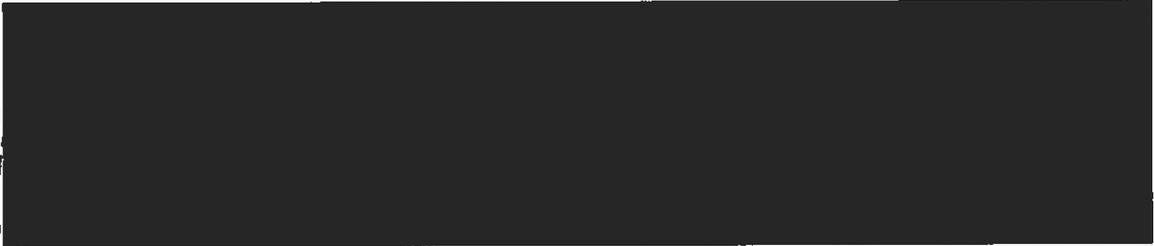
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THE UNITED STATES VERSUS A NUCLEAR-ARMED CHINA⁵

General

US forces in the Western Pacific and Far East constitute essentially a light screening force deployed for immediate response in time of crisis, whether major or minor. Except for quite minor operations these forces are dependent on reinforcement from the United States in a limited war situation. They now have these general tasks:



2) Ground forces in Korea and air and naval forces in Japan, Okinawa, and adjacent waters are continuously in position for immediate response in the event of renewal of hostilities in Korea.

3) Naval forces, a large segment of the Pacific land-based air forces, and the Marine and the Army contingents on Okinawa

5. This subject is also discussed in Cary, Military Implications, Chapter IV, pp. 41-68.

6. The term "air forces" and similar generic terminology is used unless otherwise qualified, to include all land- and ship-based air units of the United States Air Force, Navy, and Marine Corps. The term "ground forces" similarly includes both United States Army and Marine Corps forces.

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maintain a posture of readiness for immediate deployment to any area of local crisis.⁷

4) Air defenses, primarily fixed in nature, are deployed for the defense of US forces and installations.

These US forces in general are concentrated (or are dependent for support) on a relatively few, large-scale bases, all within range of light bombers and medium-range missiles based in China. In addition to these forward forces, the United States maintains on Hawaii and Guam forces which serve as an immediate reserve.

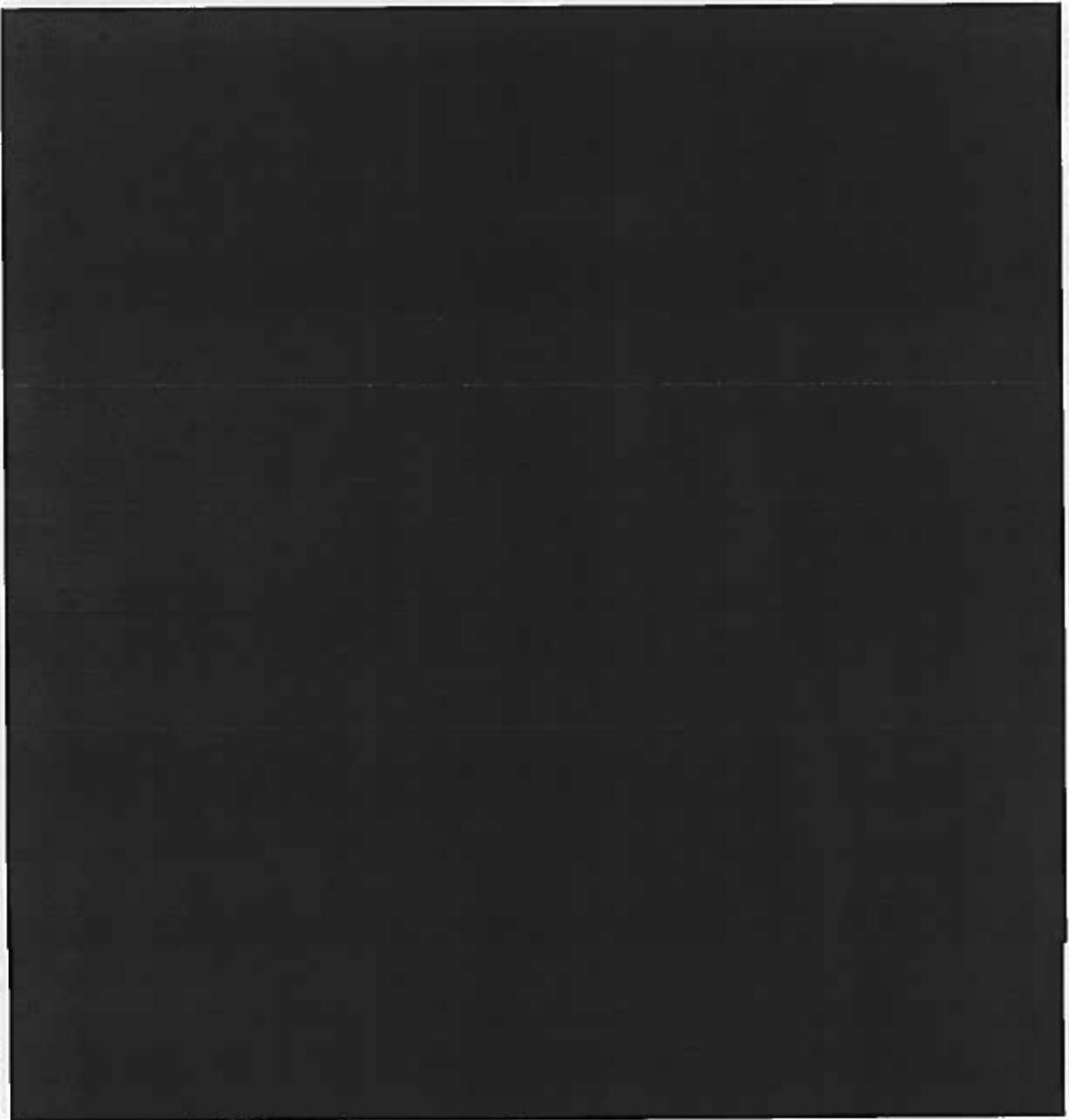
In any contingency short of general war, US forces in the Far East are dependent in varying degrees on allied combat and support capabilities. Present arrangements envisage retention by the United States of command over all US forces regardless of the area of commitment.

Future Capabilities

7. The terms "local war" and "local crisis," are used in this paper to refer to hostilities or incidents limited to a specific locality such as Korea, Taiwan or Vietnam. Broader actions over all or large areas of Asia are termed "regional war."

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5) US ability to respond in a crisis situation should be materially improved through advances in strategic airlift capabilities. through the provision of "roll-on, roll-off" cargo ships,

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by floating depots, and by the provision of STOL [Short Takeoff and Landing] and possibly VTOL [Vertical Takeoff and Landing] aircraft.

Vulnerabilities of US Forces in the Western Pacific and Far East

US forces in the Western Pacific are continuously faced with the threat of a surprise, and massive, nuclear attack by the Soviet Union.



Land-Based Air Forces.

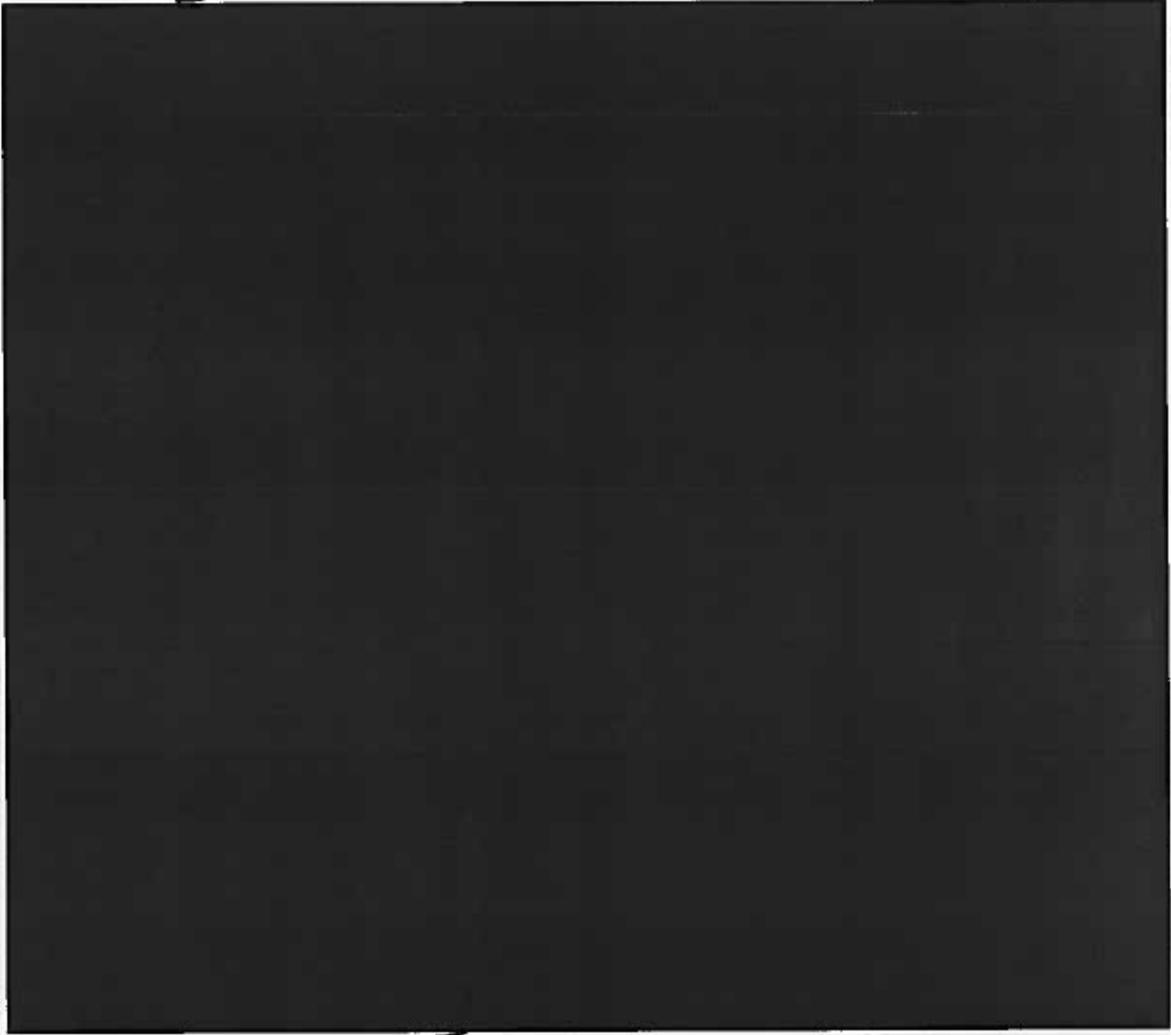


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China's Military Capability

The Chinese nuclear threat has already been described.⁸ Potential Chinese nuclear capabilities must, however, be viewed in conjunction with China's total military capabilities, which have significant limitations.



⁸ See Chapter II, above, pp. 11-54

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The economically competitive nature of major military programs will largely prohibit China from undertaking the development of extensive new military capabilities simultaneously with the development of a nuclear capability. Some modernization of her ground forces, and possibly some qualitative improvement in her air defenses and in her conventional air offensive forces, is anticipated. But China's economy does not appear to permit the additional development of effective naval, amphibious, airborne, or air logistic capabilities.



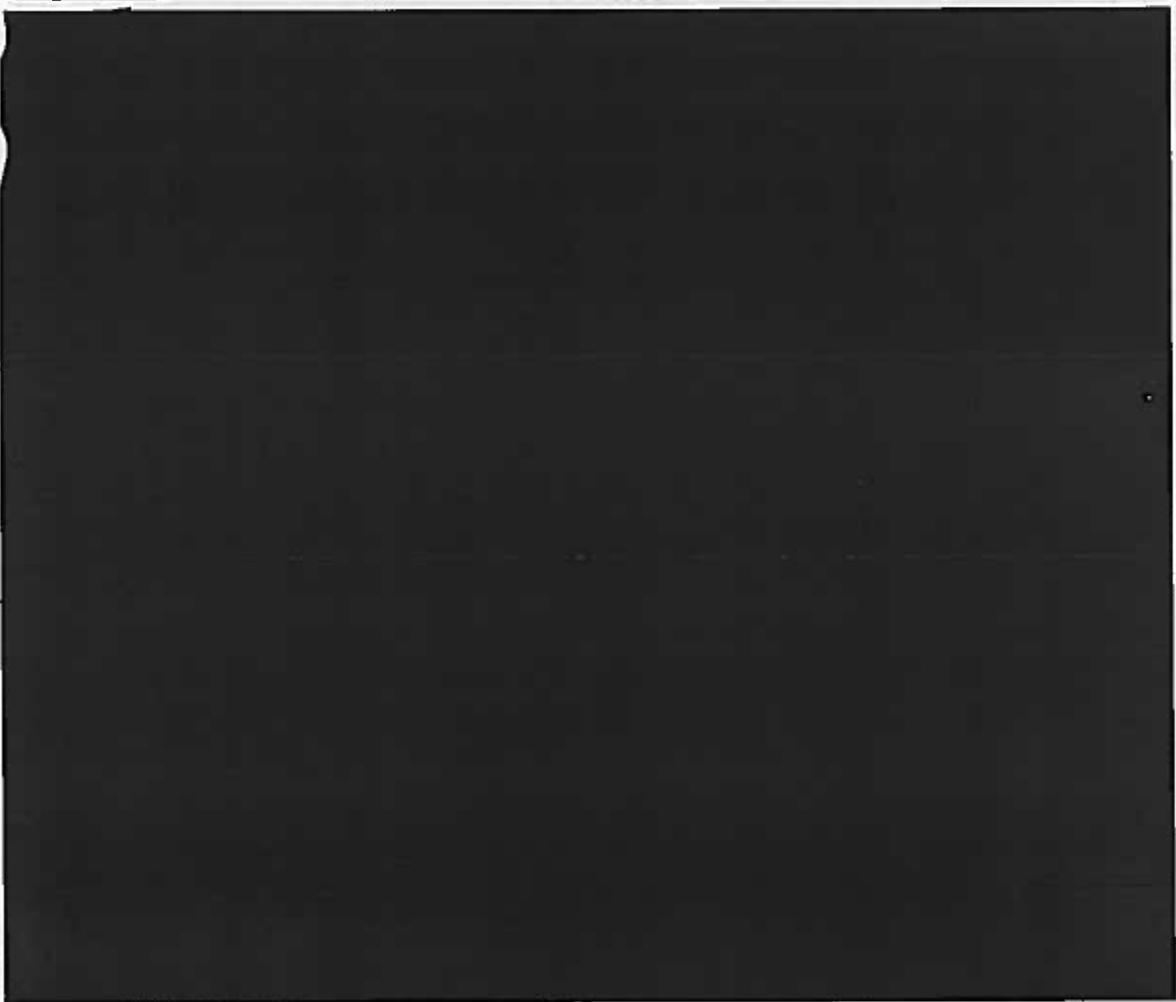
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The projection of Chinese military power beyond the borders of China would cause concentration of troops and materiel and a saturation of inadequate lines of communication, creating additional (and probably critical) vulnerabilities to nuclear attack.

Vulnerabilities of North Vietnam and North Korea



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UTILITY OF A CHINESE NUCLEAR CAPABILITY IN HOSTILITIES IN ASIA¹²

Categories of Hostilities

Military conflicts in East Asia can be conveniently grouped into five general categories. These are defined below (subsequent discussion of the various contingencies will be in the same order).

First category: a war between the United States and the People's Republic of China [CPR] proper.

Second category: open hostilities in areas on the periphery of China involving opposing major organized forces. These areas include Korea, Taiwan and the offshore islands held by the Nationalist Chinese, Vietnam, and Thailand.

Third category: wars in the Indian subcontinent (India, Pakistan, and Nepal).

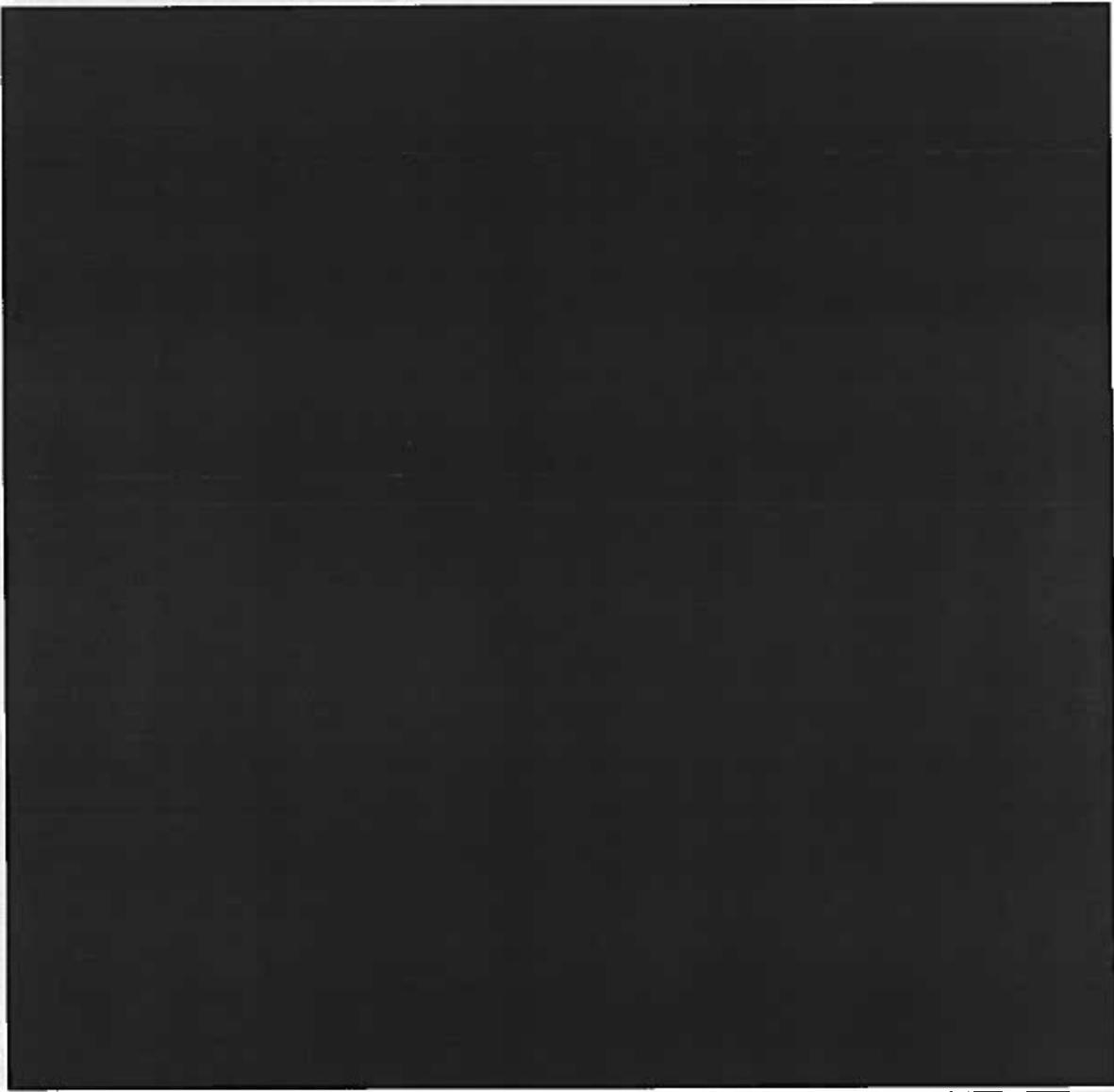
Fourth category: open Chinese aggression against nations unable to provide significant indigenous opposition. These include Burma, Laos, and Cambodia.

¹² For the assumptions on which these analyses are based, and a further discussion, see Cary, Military Implications, Chapter V, passim, but especially pp 69-71.

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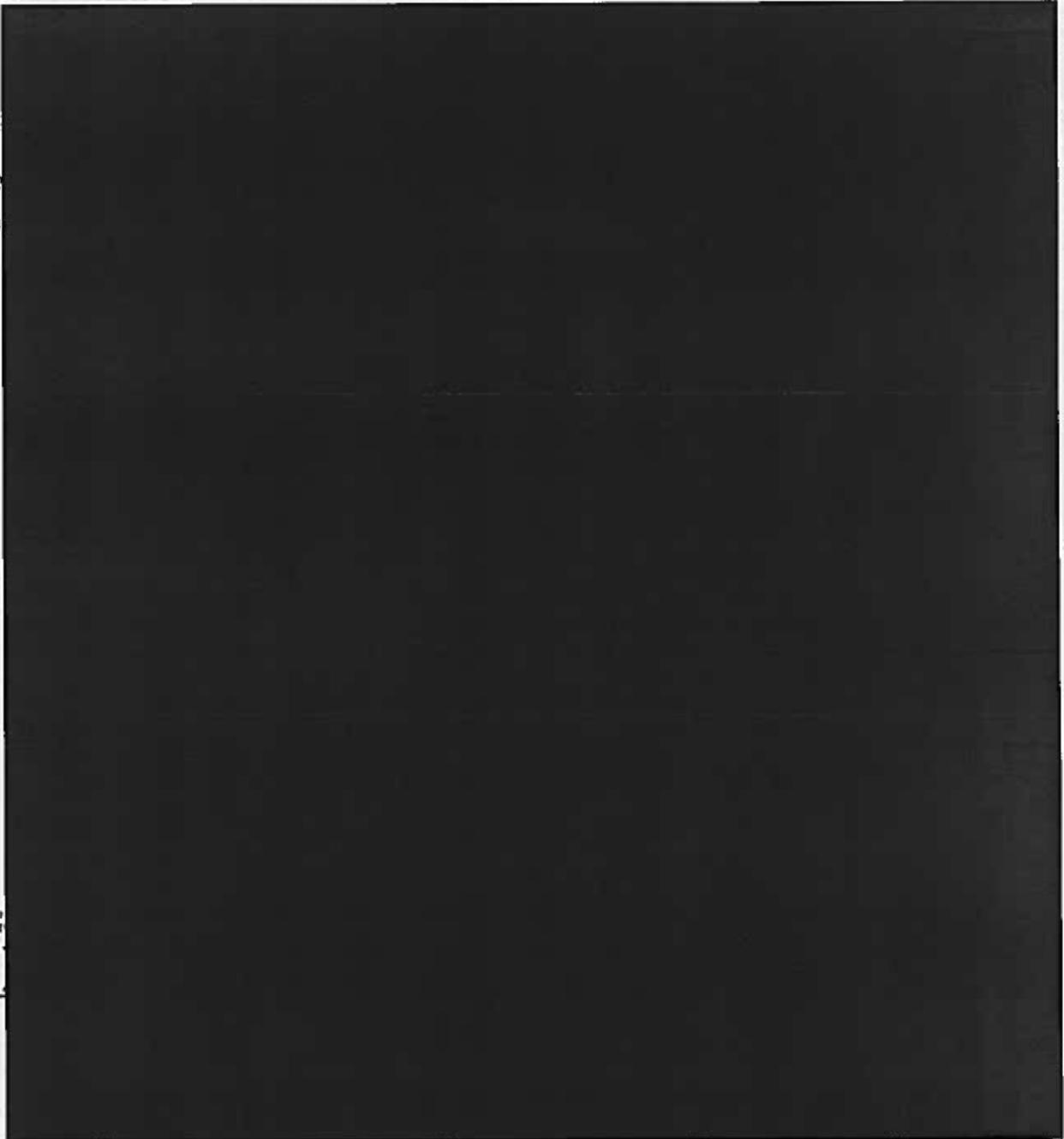
Fifth category: Communist subversion and insurgency in areas vulnerable to this type of conflict. Such activity is particularly likely in regions near the Chinese frontiers, but all of non-Communist Asia may eventually be affected.



13. See above. p. 99, footnote.

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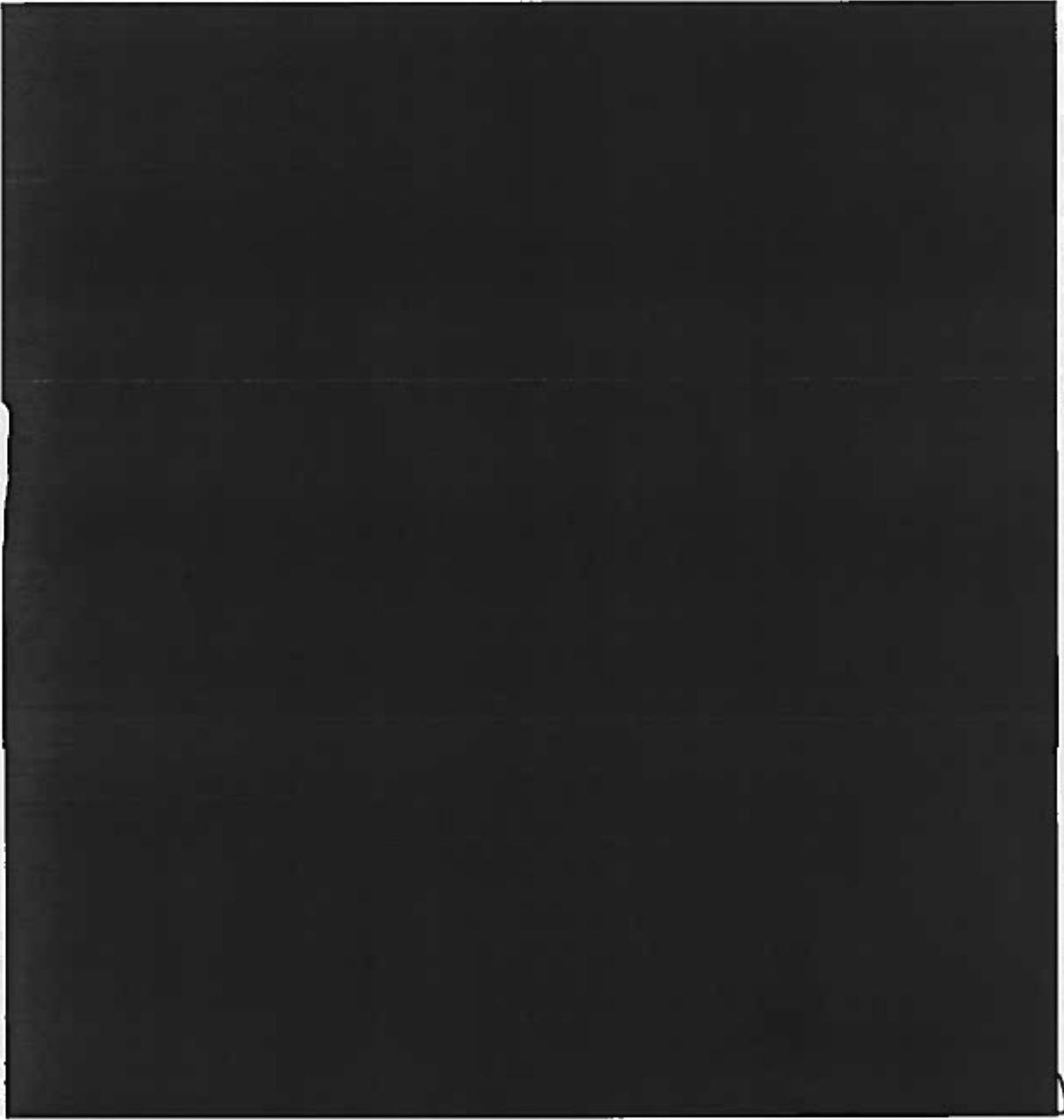


16. If the Chinese should covertly attack Thailand, such an attack would almost certainly continue to include South Vietnam. A key element, therefore, in the security of South Vietnam is the security of Thailand

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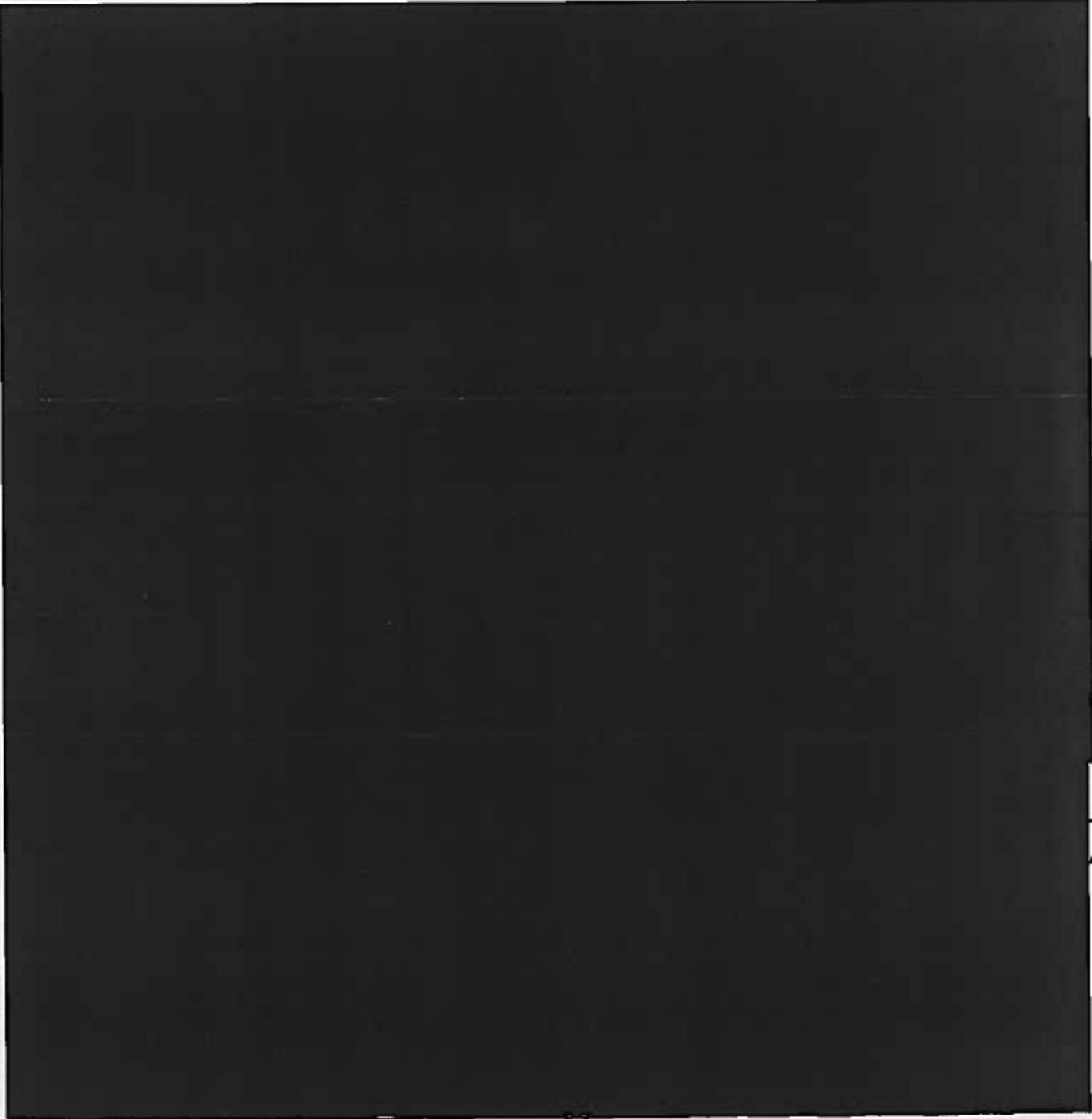
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21. This subject is also discussed in Cary, Military Implications, Chapter IV, pp. 49-56.

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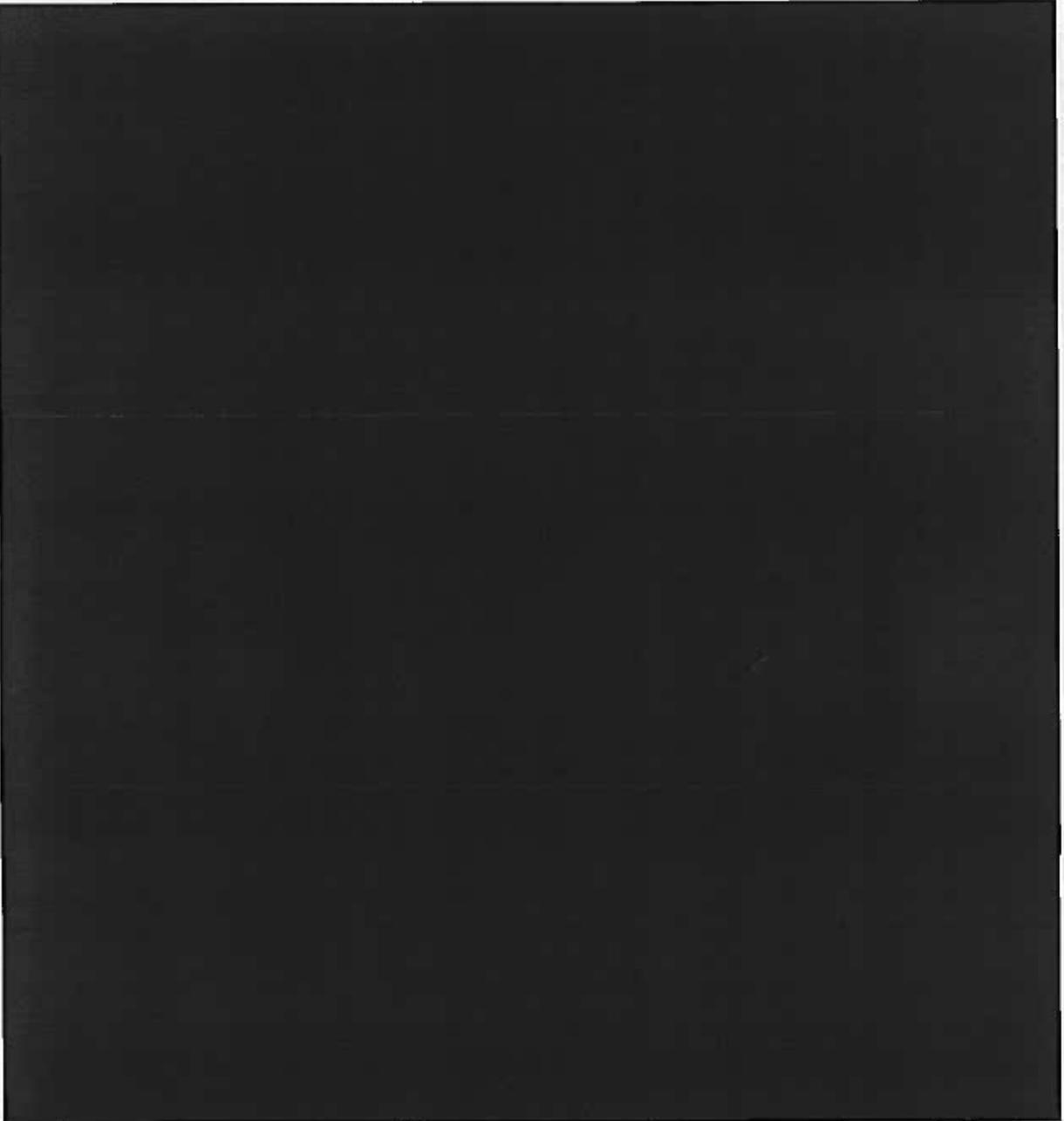
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26. It might be considered that the situations in NATO and the Far East are analagous, and that arguments for and against a NATO regional deterrent apply also to a wholly American regional deterrent in the Pacific-Far East area. This is not regarded as a valid extrapolation. See Cary, Military Implications, Appendix G, pp. 211-17.

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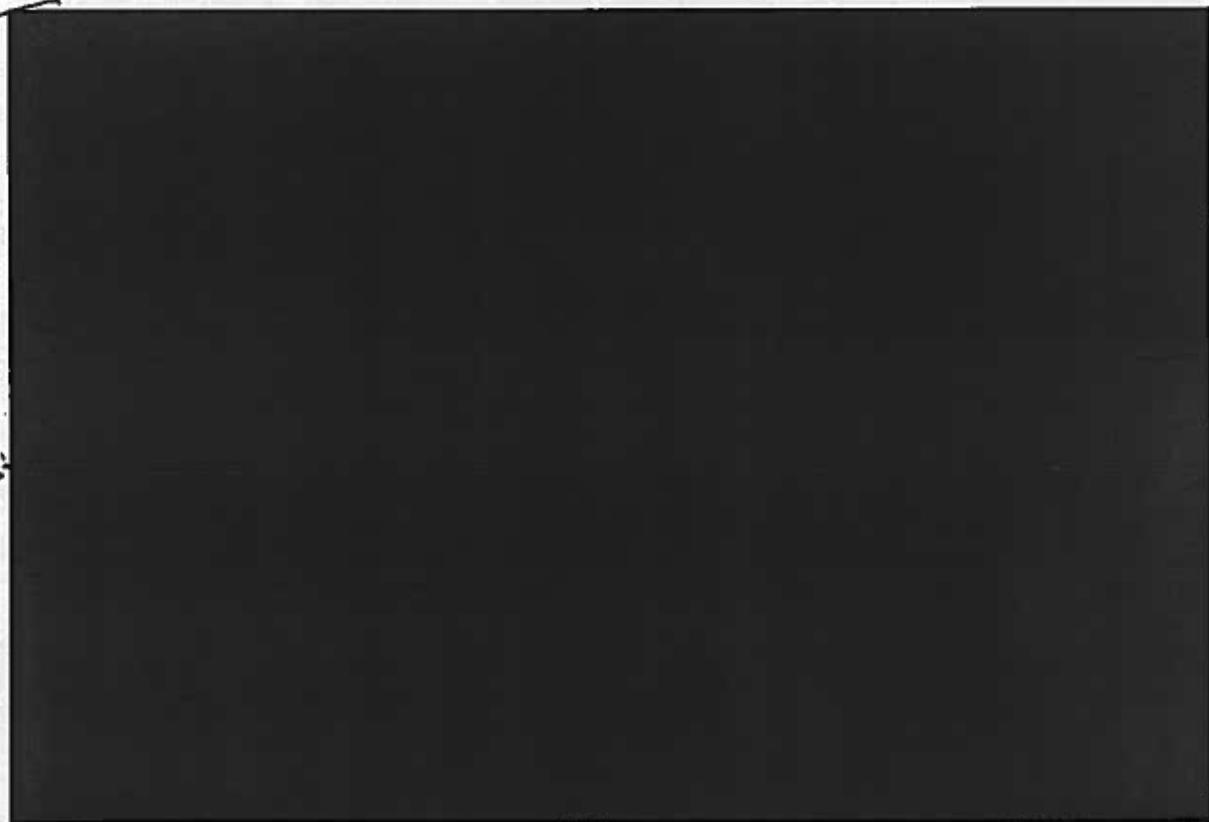
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29. See Cary, Military Implications, Appendix E, Vulnerabilities of Communist China to Nuclear Attack, pp. 187-208.

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POLITICAL CHANGE: SINO-SOVIET RELATIONS

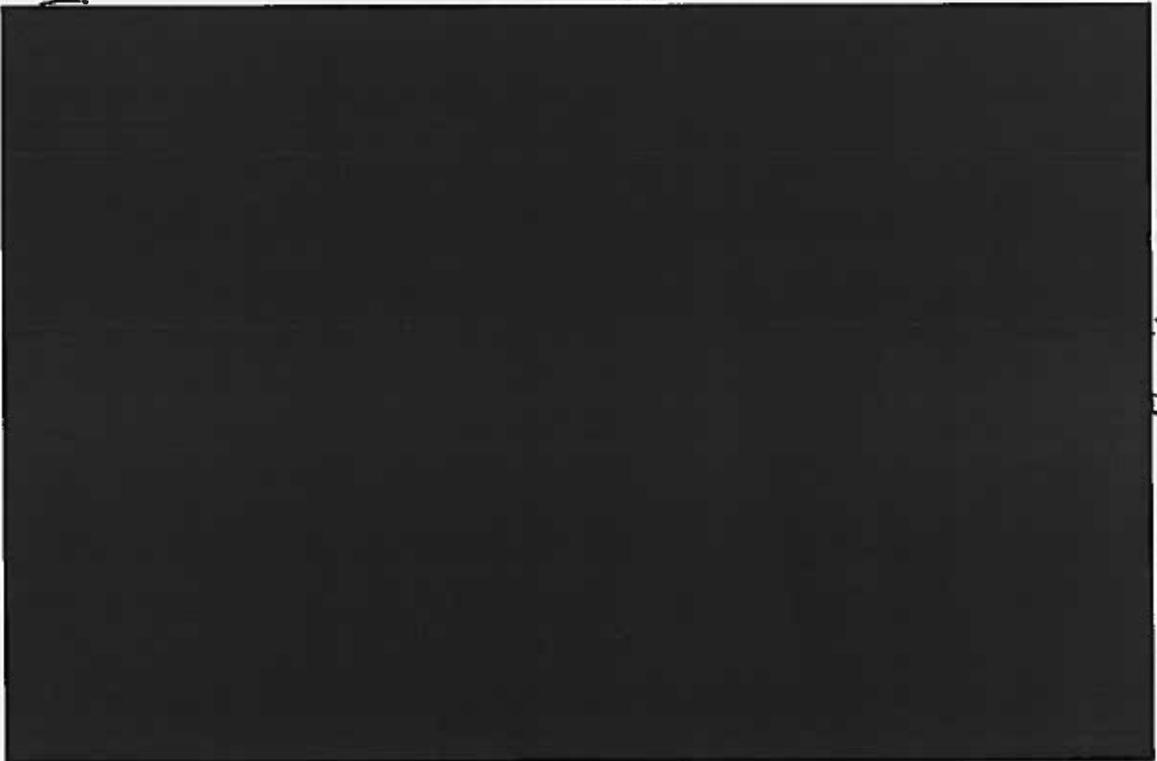
The assumption generally followed in this report is that Communist China and the Soviet Union will remain for many years in an alliance subjected to serious strains. The two less likely possibilities, if China remains Communist-controlled, are a break analogous to that of Stalin and Tito, or a satellization of China by the Soviet Union.

The latter possibility would be highly distasteful to the present Chinese Communist leadership, and presumably would be

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unwelcome to any succeeding leadership. Events could transpire, however, that would force the Communist Chinese to surrender most of their independence in return for the Soviet assistance that alone might keep them in power. Such a development would virtually eliminate the deterrent effect of US regional forces but would also simplify (by concentrating) the nature of the Communist threat, inasmuch as Moscow would then be the sole initiator of important political and military decisions. While a Sino-Soviet monolith might (and probably would) create major new problems for the United States, these would not flow from the acquisition by China of a significant nuclear capability.



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CHAPTER V

THE LONG TERM

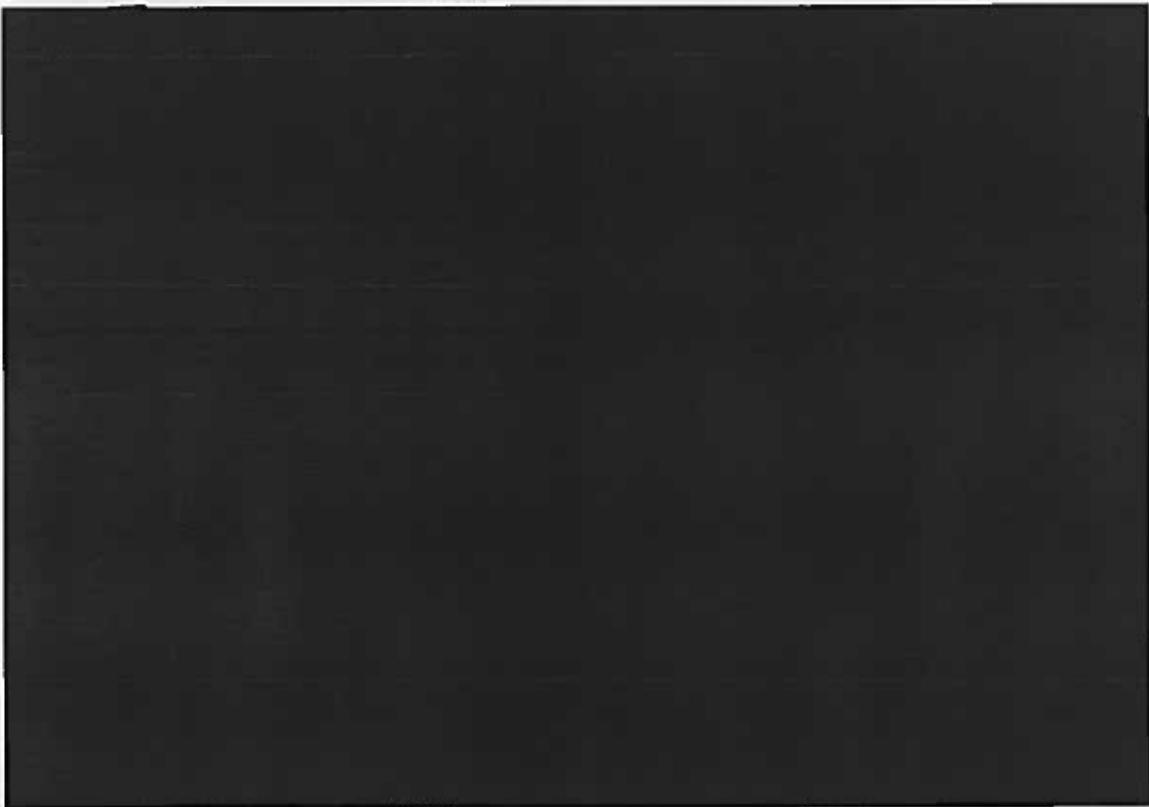
In the preceding chapter the existence of a CPR regional nuclear capability was assumed, and its significance discussed. In this chapter a later possibility is examined, namely: China's emergence as an intercontinental (or strategic) nuclear power. It will be necessary to consider this contingency in two forms. The first, the possession of a significant first strike capability, will make Communist China a "Class B" nuclear power. The second, and less likely contingency, the possession of a second strike capability against all likely hostile nuclear powers, will constitute "Class A" status. The military and the political implications of each of these stages will be analyzed in turn. The chapter concludes with a discussion of the impact of China's acquisition of nuclear weapons on the prospects for arms control and disarmament agreements.

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MILITARY ASPECTS¹

Early Intercontinental Threats



Early Chinese thermonuclear developments will, however, presage the next stage of Chinese nuclear power--the acquisition of long-range delivery vehicles such as intercontinental ballistic

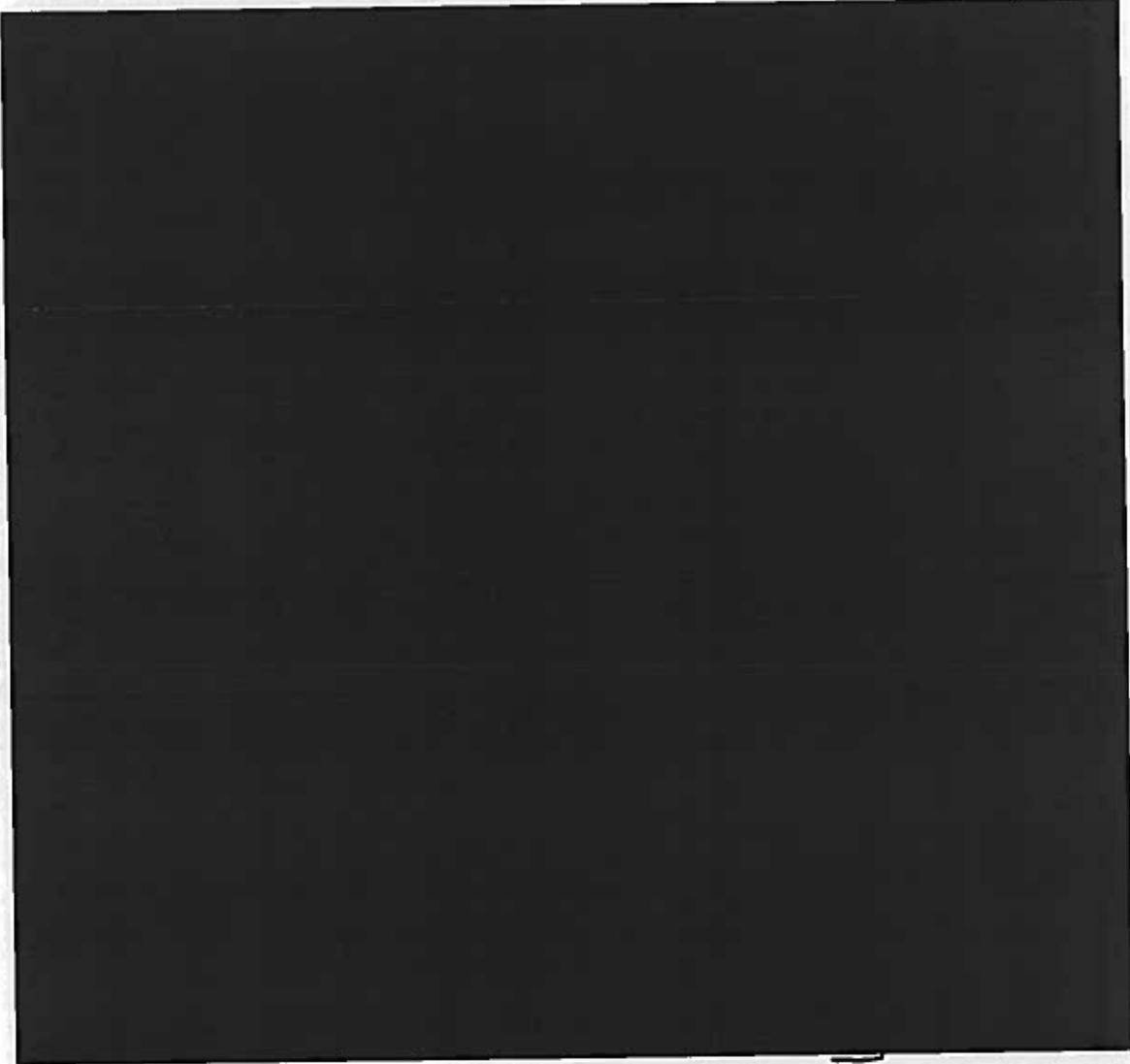
1. This subject is also discussed in John B. Cary, Military Implications of a Communist Chinese Nuclear Capability (U), ~~SECRET~~, ISD Study Memorandum No. 14 (IDA, Washington, D.C., 1962), Chapter VIII, pp. 125-30.

2. See above, p 23.

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missiles (ICBMs). This stage could begin at the earliest in the early or mid-1970s.³



3. See above, pp. 45-46.

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China as a Class A Nuclear Power

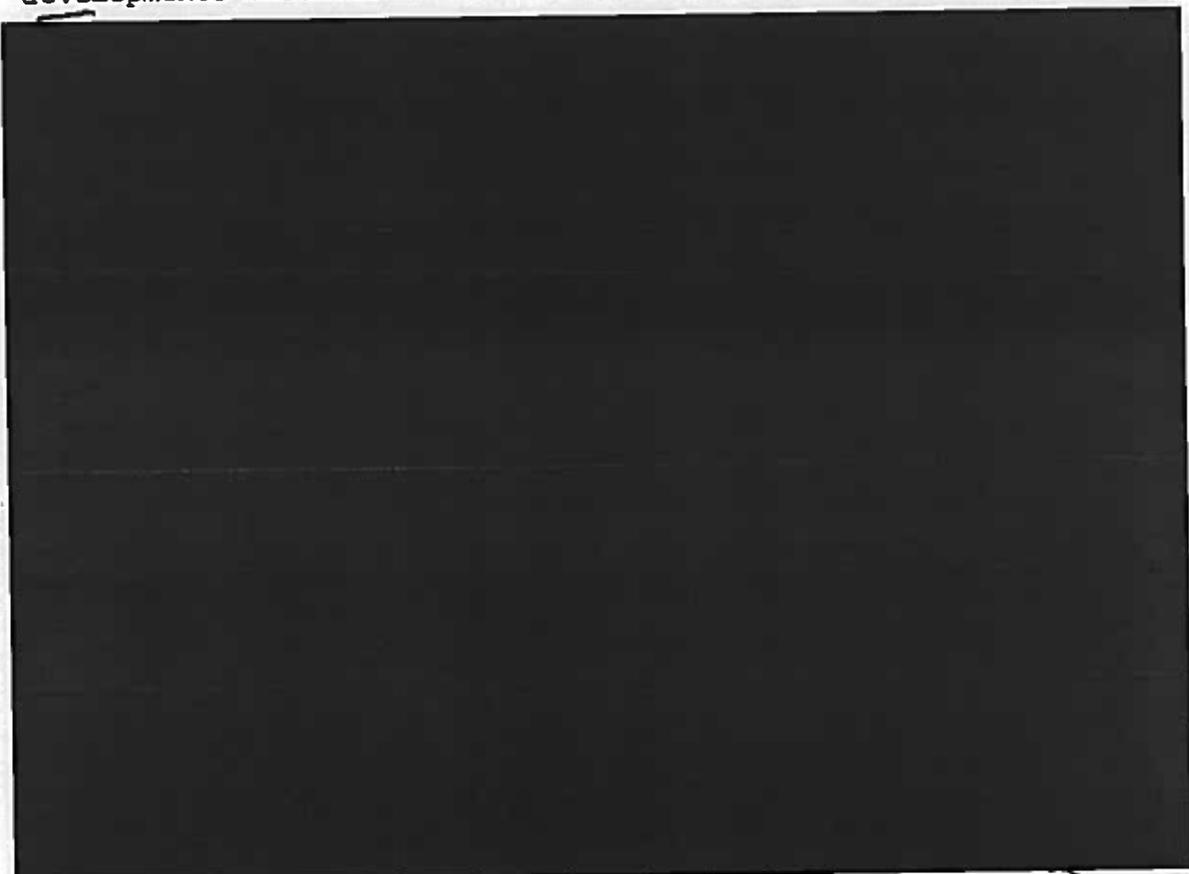
As indicated in Chapter II,⁵ China will not be able to attain Class A nuclear status until it has acquired a fully developed modern economic and industrial base. This will require at least a decade, and probably several decades, of industrial progress. But in the meantime, the technology and military capabilities of the United States and the Soviet Union will not be remaining static. In addition to improved nuclear capabilities, it is entirely possible that scientific and technological developments by these two powers may have outmoded intercontinental nuclear attack as the most effective weapon, through developments in defense against nuclear attack, through military uses of space, or--at least as probable--through concepts and weapons now quite unforeseeable. In the economic and industrial fields, rapid growth may still be insufficient to achieve for China anything approaching parity with the most advanced countries. Finally, intervening events, including wars or arms control measures, could foreclose the possibility of Chinese acquisition of Class A nuclear status.

5. See above, pp. 45, 47 ff.

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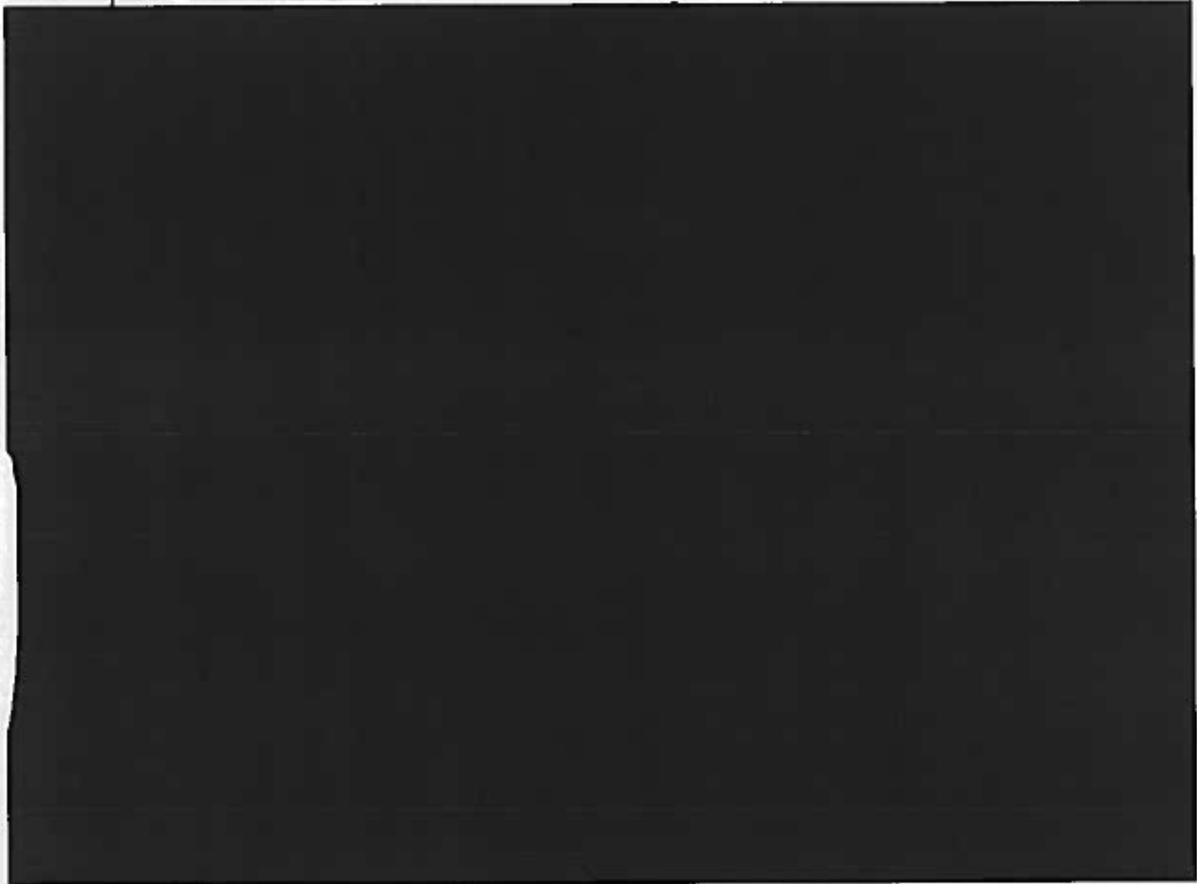
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It is far from certain, therefore, that China will in fact ever approach parity in weaponry with the United States or the Soviet Union. Certainly, if China does so, the process will take a very long time and parity will be attained in an era now unpredictable in its political, military, and technological aspects. But for the purpose of further discussion, it is assumed that China does at some indefinite time in the future attain Class A nuclear capabilities not outmoded by scientific and technological developments elsewhere.



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Class A Capabilities for China

Events of the long term, although unpredictable, are certain to change the world political environment substantially. Projection of the long-term future is necessarily surmise. The discussion here is limited to what appear to be some of the more likely and important implications. In fact, of course, the possibilities are infinite.

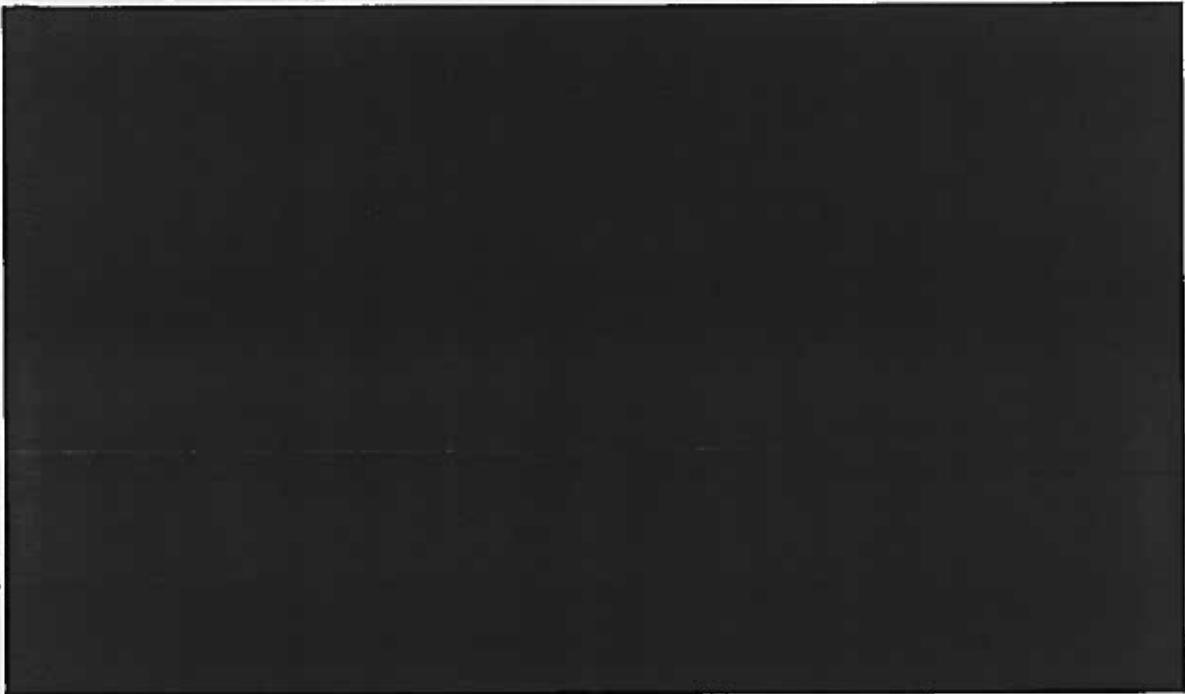
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China's position in the world and its relationship with other powers, including the Soviet Union, will substantially change when China is widely believed to have attained Class A nuclear power, and this will be true almost without regard to the immediately preceding situation. China, conceded the ability to attack effectively in a second strike either or both of the other superpowers, will become militarily independent and wholly capable of pursuing separate policies or even of heading a separate bloc. China might from time to time join with nations hostile to the Soviet Union and might even be disposed to enter into alignments of convenience with the United States--in which China would have to be accepted (if at all) as a fully independent power. Another possibility would be such an intensification of a struggle between China and the Soviet Union for hegemony over the Communist bloc that conquest of the West would be postponed to a later period

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COMMUNIST CHINA AND ARMS CONTROL

It seems evident that no extensive agreement on disarmament or the control of armaments can be placed in effect, particularly when Communist China begins to acquire a nuclear armament, unless China is included. The prospects for achieving agreed arms controls of real significance appears therefore more a long- than an early-term prospect.

It must be anticipated, however, that pressures and inducements for arms control negotiations will be powerfully stimulated by China's emergence as a nuclear power and that negotiations must then include Communist China. The United States can anticipate

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Chinese initiatives of considerable skill in this connection and might itself be well-advised to consider Western initiatives. The subject deserves systematic study.

Though the need to curb the destabilizing effects of Chinese nuclear weapons may prove to be an area of overlapping interest between the United States and the Soviet Union, China is likely to prove a thorny problem at the stage, if it is ever attained, when major arms control agreements can otherwise be negotiated.

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Should Soviet standards of living continue to rise and should there be a relaxation of restraints on the individual in the Soviet Union, the Soviet need for enemies could tend to disappear. In this event--which does not yet appear imminent--the Soviet rulers may conclude that real and effective control of arms, particularly of nuclear arms, would be worth paying for.

In China, on the other hand, as far into the future as can be foreseen, the population will not attain consumer goods remotely approaching its desires or even its needs, and the likelihood is that, as much as any oppressive regime in history, the People's Republic of China will require the continuing image of a homeland beset by enemies. Meantime, the regime can be expected to be intensely suspicious of increased contacts between Chinese and foreigners.⁶

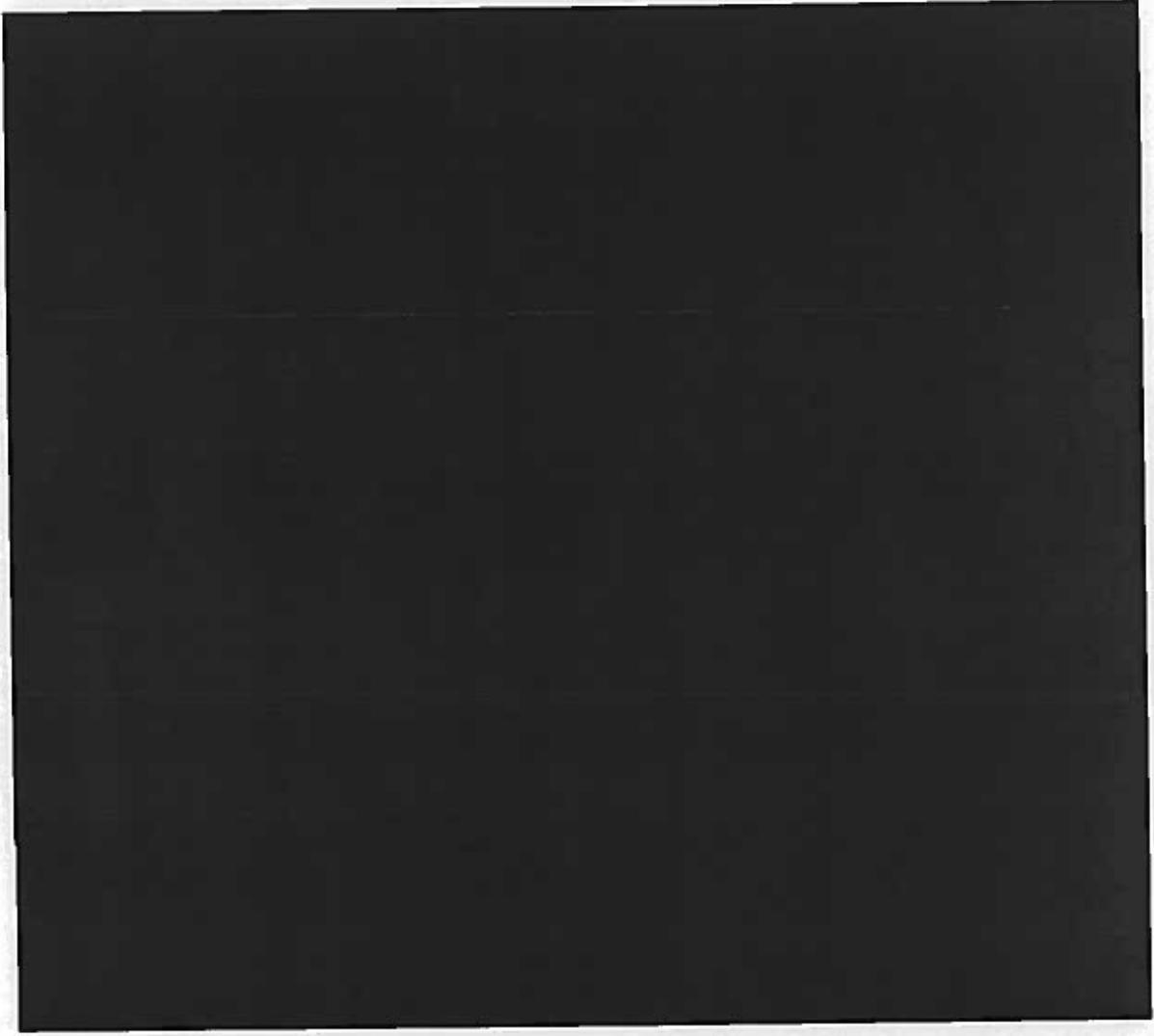
A situation can thus be envisaged in which the Soviet Union may seek, and China oppose, the amelioration of tensions through

6. These influences would be moderated if, as seems possible, China should become permanently dependent for foodstuffs on international trade, and hence on a stable international economic order.

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measures of arms control. Current Sino-Soviet differences on disarmament objectives may foreshadow such a possibility.⁷



7. For a detailed discussion, see John R. Thomas, Reactions to a Nuclear-Armed Communist China: the Soviet Union, ~~SECRET~~, ISD Study Memorandum No. 19 (IDA, Washington, D.C.). This PACIFICA paper will be issued shortly

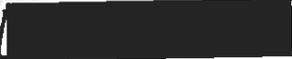
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CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

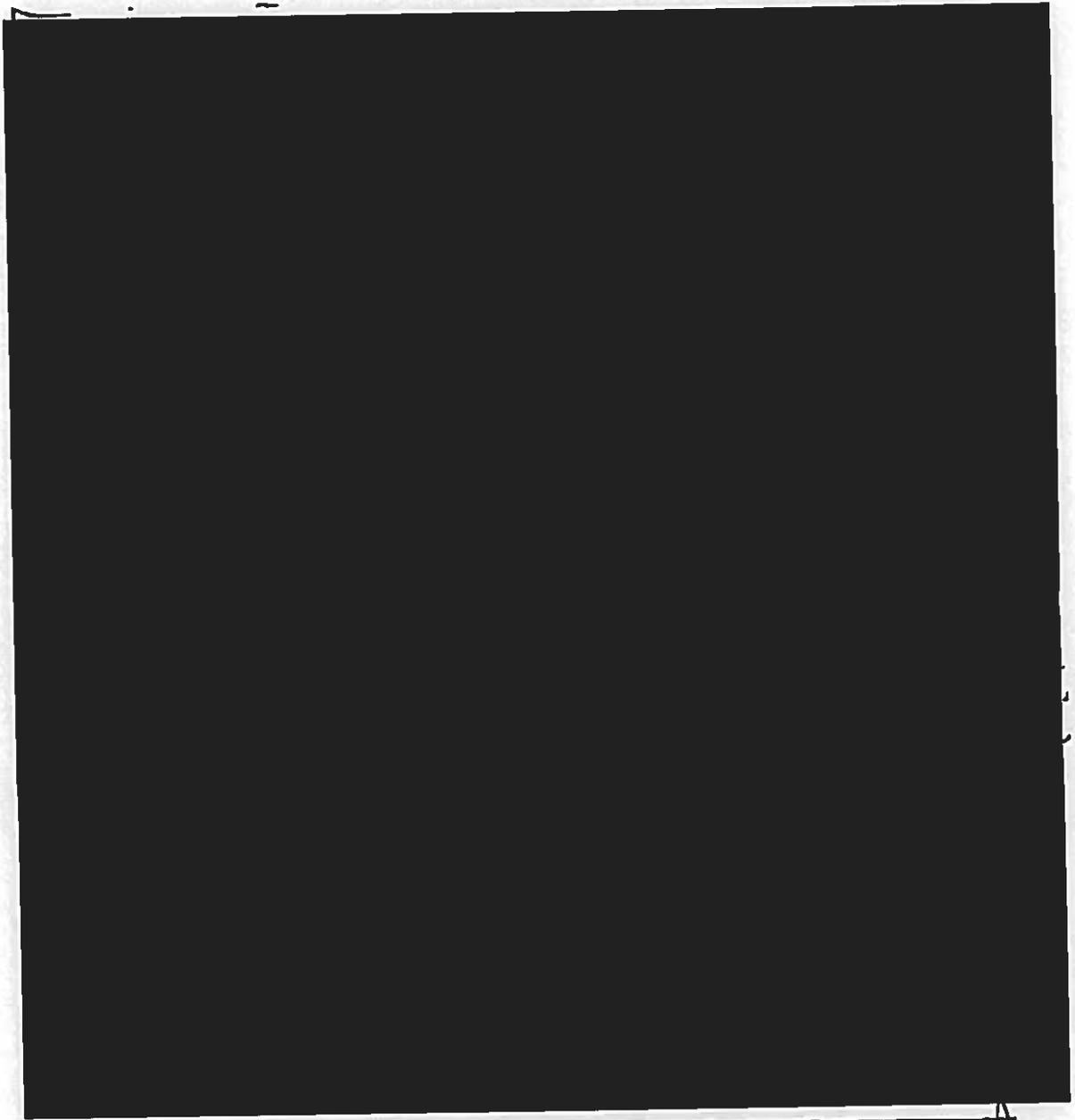
1. The problems that a nuclear-equipped China will pose to the United States will, at least initially, be political rather than military. For at least a decade, both the political and military aspects of the situation should prove 



1. See Chapter III, above, pp. 81-85.

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15. A detailed proposal for such schooling is presented in the PACIFICA Report on the Nuclear Orientation of Asians, dated March 27, 1962, (See Appendix E, below, pp. 235-46.)

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APPENDIX B

STUDY PACIFICA: SUPPORTING PAPERS¹

IMPLICATIONS OF COMMUNIST CHINESE NUCLEAR ACHIEVEMENTS

Part One

The Threat; Impact on Chinese Policy; Military Implications

Donald B. Keesing	<u>The Communist Chinese Nuclear Threat: Warheads and Delivery Vehicles, SECRET-RESTRICTED DATA.</u> ISD Study Memorandum No. 17
Donald B. Keesing	<u>Economic Limitations on Communist China's Nuclear Achievements, ISD Study Memorandum No. 20</u>
Harold C. Hinton	<u>Communist China's External Policy and Behavior, ISD Study Memorandum No. 18</u>
John B. Cary	<u>Military Implications of a Communist Chinese Nuclear Capability, SECRET.</u> ISD Study Memorandum No. 14 (August 1962)

Part Two

Reactions to a Nuclear-Armed Communist China in Specified Areas

Arthur Burns	<u>Australasia.</u> ISD Study Memorandum No. 13
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1. Papers are unclassified unless otherwise indicated. All titles are unclassified.

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John B. Gary	<u>Korea.</u> ISD Study Memorandum No. 16
Tillman Durdin	<u>Southeast Asia</u>
Loy W. Henderson	<u>South Asia</u> , CONFIDENTIAL. ISD Study Memorandum No. 11 (May 1962)
Harold C. Hinton	<u>The Republic of China (Taiwan).</u> ISD Study Memorandum No. 16
Donald B. Keesing and Roger Pineau	<u>Japan</u> , SECRET. ISD Study Memorandum No. 15
Roderick MacFarquhar	<u>The United Kingdom.</u> ISD Study Memorandum No. 12 (September 1962)
John R. Thomas	<u>The Soviet Union</u> , SECRET. ISD Study Memorandum No. 19
General "X"	<u>Europe and NATO.</u> ISD Study Memorandum No. 12

Part Three

Other Reports

PACIFICA Interim Report, SECRET, October 20, 1961, consisting of observations and recommendations following staff field trip in August and September 1961

PACIFICA: Report on the Nuclear Orientation of Asians, SECRET, March 27, 1962

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B) OTHER

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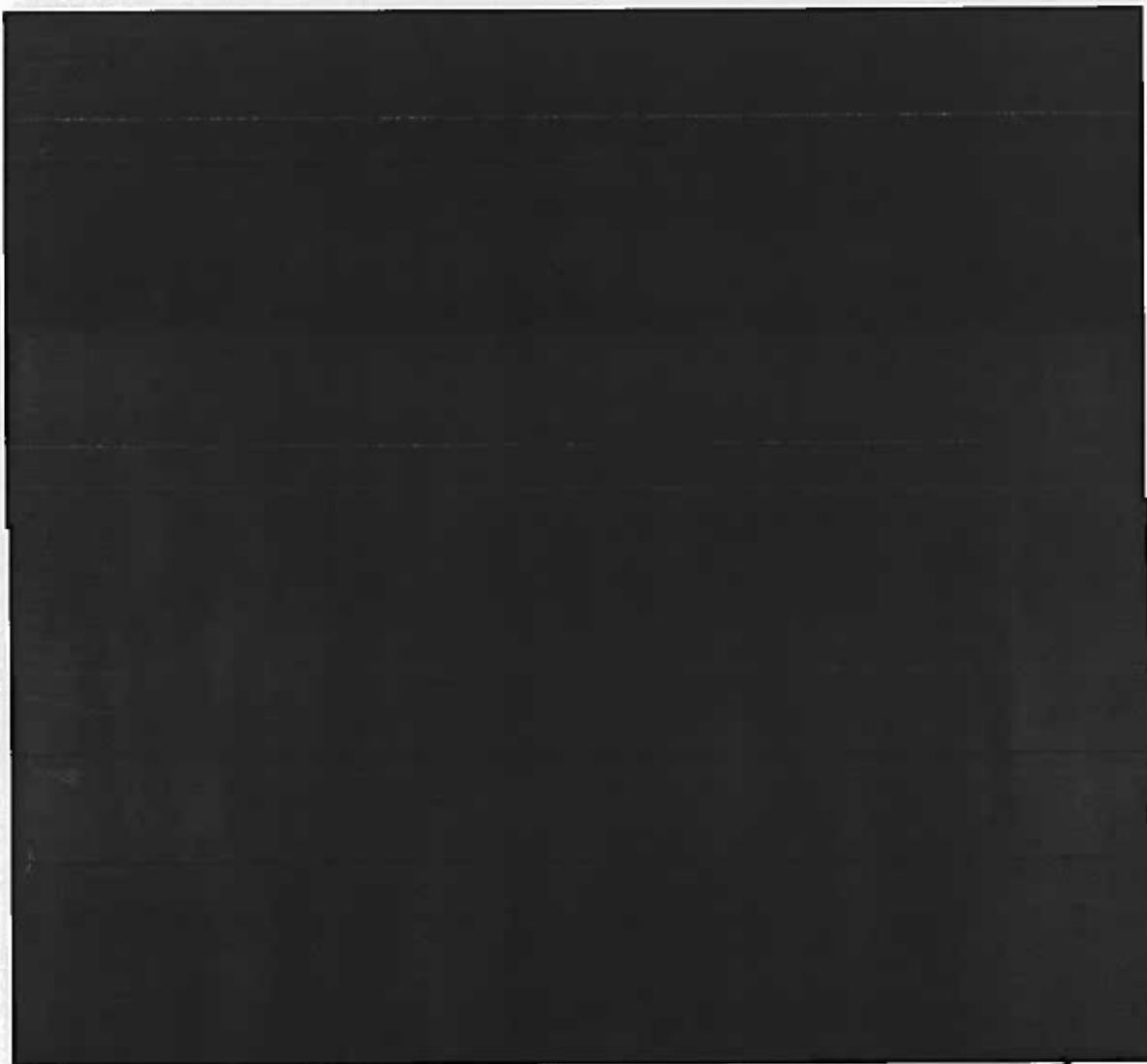
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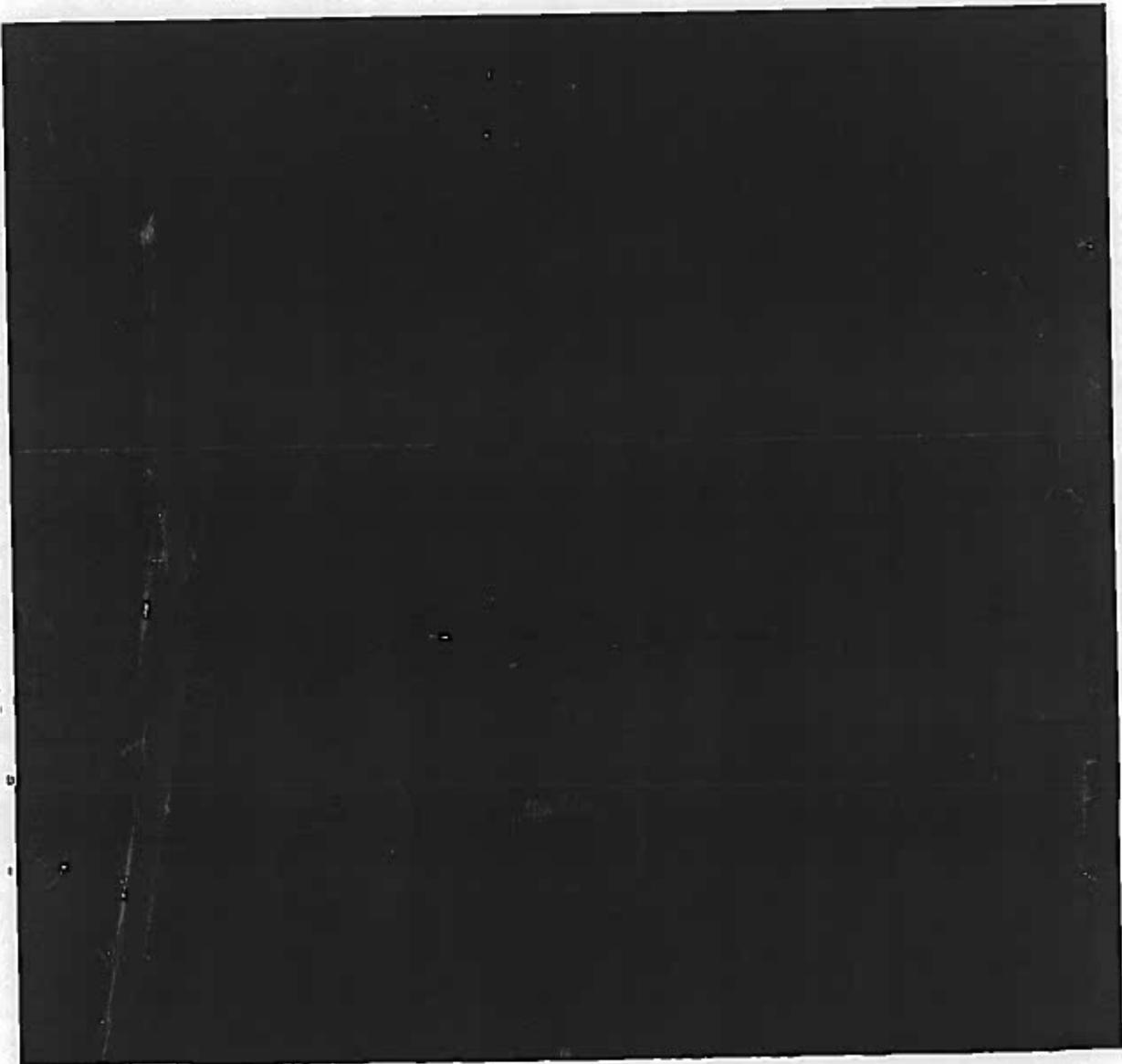
APPENDIX E

EXTRACT FROM PACIFICA: REPORT ON THE
NUCLEAR ORIENTATION OF ASIANS, MARCH 27, 1962



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2. A subsequent report will include a brief vulnerability study, assuming necessary information becomes available, as a requirement in connection with suggesting a force structure. This might be of use in preparing instruction material.

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