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Communist China's Strategic Weapons Program

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Submitted by

DIRECTOR OF CENTRAL INTELLIGENCE

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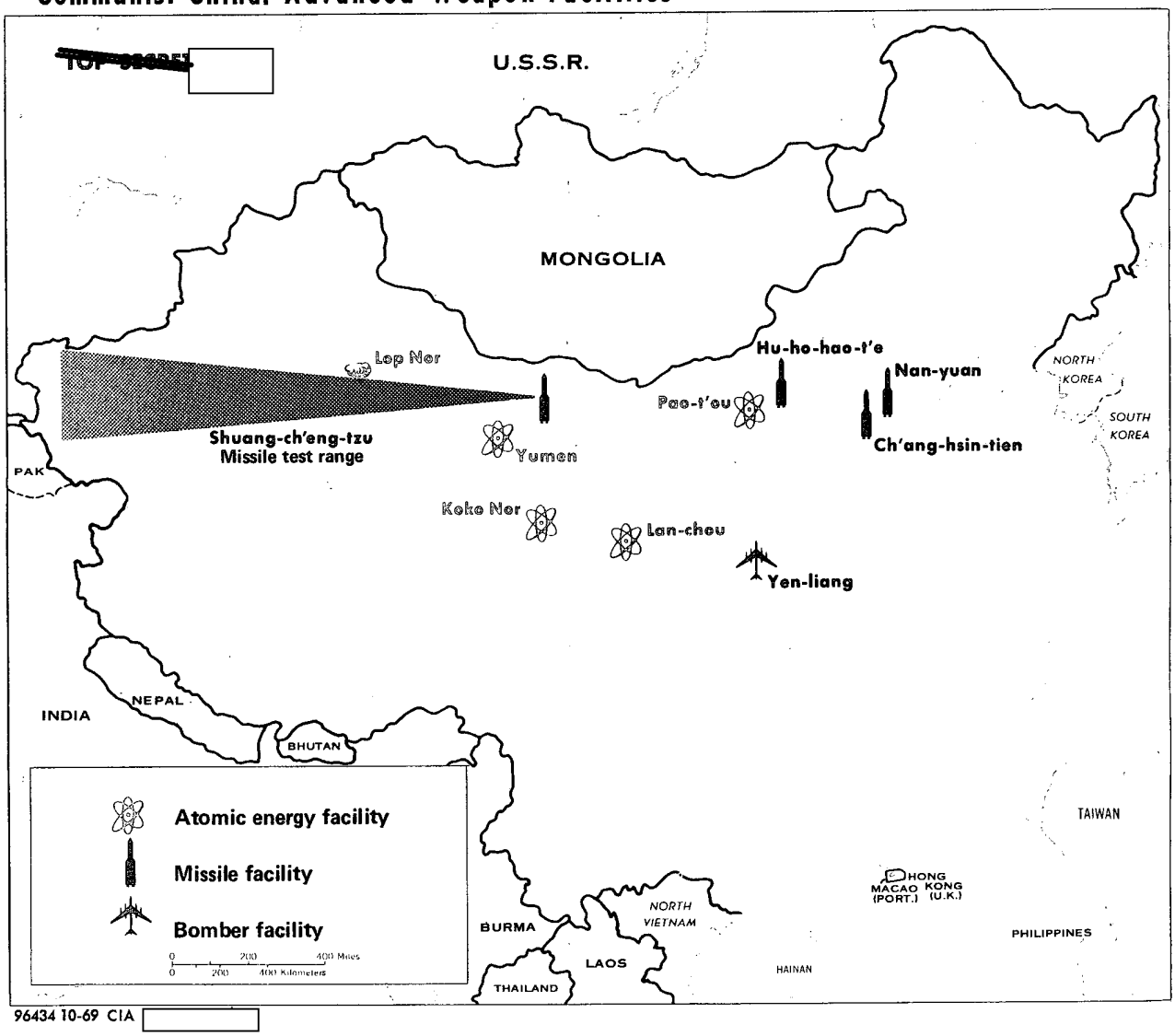

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COMMUNIST CHINA'S STRATEGIC WEAPONS PROGRAM

THE PROBLEM

To assess China's strategic weapons program and to estimate the nature, size, and progress of these programs through the mid-1970's.

CONCLUSIONS

A. China's nuclear test program continues to emphasize the development of high-yield thermonuclear weapons. The Chinese have developed a [redacted] device that could be weaponized for delivery by the TU-16 jet medium bomber, or possibly configured as an intercontinental ballistic missile (ICBM) warhead. They are probably at least two years away from having a thermonuclear weapon in the medium-range ballistic missile (MRBM) weight class, but fission warheads for such missiles could be available now. For the next several years at least, the production of nuclear materials can probably keep pace with or exceed the requirements of testing and the number of strategic missiles and TU-16s the Chinese are likely to be able to deploy.

B. The Chinese have recently begun production of medium bombers (TU-16s) at a rate of approximately one unit every two months. We estimate that production could reach a level of about four or five a month and that about 200 TU-16s might be available by mid-1975.

C. The evidence suggests strongly that the Chinese are moving toward MRBM deployment. We believe that any major deployment program will involve the construction of permanent complexes, but we have no evidence that such work has begun. Even if some complexes were started in early 1969, they would not be operational before

about mid-1970. There is some inferential evidence, however, that suggests the existence of a few operational MRBM sites in China at this time. If so, they are probably temporary-type installations intended to provide an interim capability against the USSR.

D. If a vehicle is available for testing within the next few months, IOC could be achieved by late 1972 or early 1973. It is more likely, however, that IOC will be later, perhaps by as much as two or three years. If the earliest possible IOC were achieved, the number of operational launchers might fall somewhere between 10 and 25 in 1975. In the more likely event that IOC is later, achievement of a force this size would slip accordingly.

E. A large complex at Hu-ho-hao-t'e in Inner Mongolia has facilities and equipment adequate for handling solid-propellant rocket motors ranging in size from short-range missiles through the MRBM/IRBM category and probably into the ICBM class. We lack any basis for judging how the Chinese will proceed with a solid-propellant program, but we presently doubt that the Chinese could have either an MRBM or ICBM with solid fuel motors in the field by 1975. Moreover, a concentrated effort in this field would probably force the Chinese to restrict severely the deployment of liquid-propellant missiles.

F. the Chinese have ambitious space goals. It will probably be several years at least before the Chinese can use this facility to its full potential, and the Chinese will probably first attempt more modest space ventures, perhaps using a modified MRBM as a launch vehicle.

G. In general, it is clear that the Chinese continue to press ahead with high priority work on strategic weapon systems. Many uncertainties remain, however, which leave in great doubt the future pace, size, and scope of the program. Unlike the Soviet case, where we have observed numerous programs progress through development to deployment, most of the Chinese effort is not far enough along to provide an adequate historical background for judging China's technical

and industrial capabilities for developing, producing, and deploying weapon systems embodying advanced technologies. [redacted] China's disturbed political situation and the increased animosity in Sino-Soviet relations add further uncertainty about the course of Chinese weapon programs over the next few years.

DISCUSSION

I. GENERAL CONSIDERATIONS

1. A number of developments over the past year attest to China's intent to become a major strategic power. These include continuing work on the development of liquid fuel strategic missiles, solid propellants, and nuclear weapons, and the initiation of jet medium bomber production. For the most part the Chinese program has continued along lines previously observed.

2. There are, however, many uncertainties in our understanding of the scope, pace, and direction of the Chinese advanced weapons program. [redacted]

3. In the missile field, [redacted] Unlike the Soviet case, where we have observed numerous advanced weapon systems progress through development to deployment, most of the Chinese effort is not far enough along to provide an adequate historical background for judging China's technical and industrial capabilities for developing, producing and deploying weapon systems embodying advanced technologies. The Soviets also publish some information on such matters as scientific accomplishments and military strategy and doctrine. This is not the case in China. [redacted] We thus are unable to ascertain important key performance characteristics of missiles being tested or to follow closely the status of the test program. [redacted]

4. The Chinese no doubt have found it difficult to cope with the many complexities involved in advanced weaponry, and they may well find it increasingly difficult to do so as they continue to move beyond the technical limits of help

received from the Soviets during the late 1950's. Technical data and specialized materials and equipment available to them from Western and Japanese sources can only partially overcome the handicap of China's limited scientific and technical resources, which are spread out thinly over a considerable number of programs.

5. As time goes on and more weapons systems reach the testing and deployment stage, there will be demands on high quality, scarce resources which will force upon the Chinese some increasingly difficult decisions. They will have to make some choices among various weapon systems; they will also have to consider whether to deploy early systems in large numbers or to wait for later systems that might appear more credible as a threat and as a deterrent. Other choices confronting the Chinese are the balances to be struck between conventional general purpose and strategic forces, and between intercontinental and regional strategic programs. It is quite possible that the Chinese have not faced up to these problems fully and have not yet defined clearly the composition and size of their force goals.

6. Certainly the political situation in China during the past several years has not been conducive to orderly planning. There is good evidence that the Cultural Revolution intruded into the highest levels of the defense scientific establishment and into the government ministries responsible for missile and nuclear development, but we have not been able to pinpoint where disruption has occurred or to assess how serious it might have been. Although the wildly frenetic aspects of the Cultural Revolution have subsided, the chances for further negative political impact on advanced weapons programs remain. Finally, any longer term forecast of developments in China should allow for the host of uncertainties that will arise about China's future once Mao departs from the scene.

7. There are good indications that the large-scale Soviet military buildup opposite China and the recent sharp clashes on the border have increased considerably Peking's concern that the Soviets might take some major military action against China. It is highly uncertain what effects, if any, this deepened hostility might have on China's advanced weapons program. Much would depend, of course, on how high the Chinese actually rate the chances of a Soviet attack and on the type of attack they judge most likely. At one extreme Chinese fears might spur them into an emergency effort to deploy whatever they could as quickly as possible. At the other extreme it is conceivable that they might postpone deployment, at least of the sort that would appear particularly provocative to the Soviets, for fear that such deployment would increase the likelihood of a Soviet pre-emptive blow. Or the Chinese might decide that their best course was to improve the mobility and firepower of China's ground forces in an effort to make as unattractive as possible to the Soviets the prospect of a conflict at the conventional level. But these possibilities are pure conjecture, and at this point we can make only the very general judgment that Sino-Soviet antagonism is likely to continue as an important factor in Chinese military planning and strategy.

II. TRENDS AND PROSPECTS

A. The Nuclear Program

Weapon Testing and Development [1]

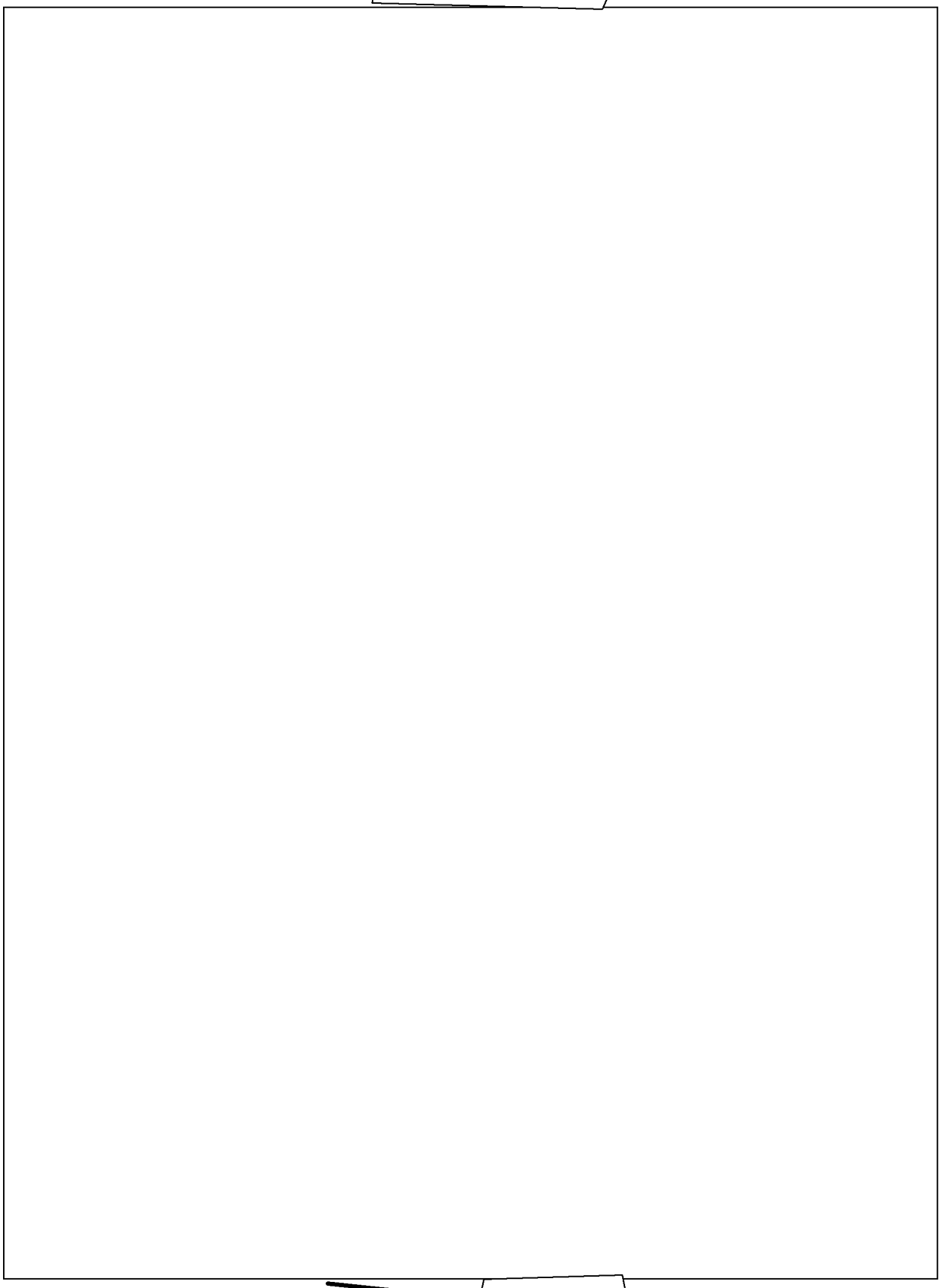
8. China's first underground test (Chic-9) occurred on 22 September. Preliminary analysis of seismic data indicates a location some 70 miles northwest of Lop Nor and a yield of about 25 kilotons. Basic experimentation in the use of plutonium, further work on the development of a primary stage for thermonuclear weapons, or a test of an improved fission warhead are among the possible purposes of the test.

9. Denying intelligence on their nuclear program may have motivated the Chinese to test underground. At the same time, the Chinese may have recognized that certain test data are more readily obtained in an underground test. And of course Peking could always make some propaganda by claiming that they are investigating the peaceful applications of nuclear energy. We think it unlikely, however, that the issue of the partial nuclear test ban was a major consideration in the Chinese decision.

10. Whatever the purpose of the underground test, the development of thermonuclear technology is clearly the dominant feature of the Chinese program and the current objective of the thermonuclear program is to reduce the size and weight of the device.

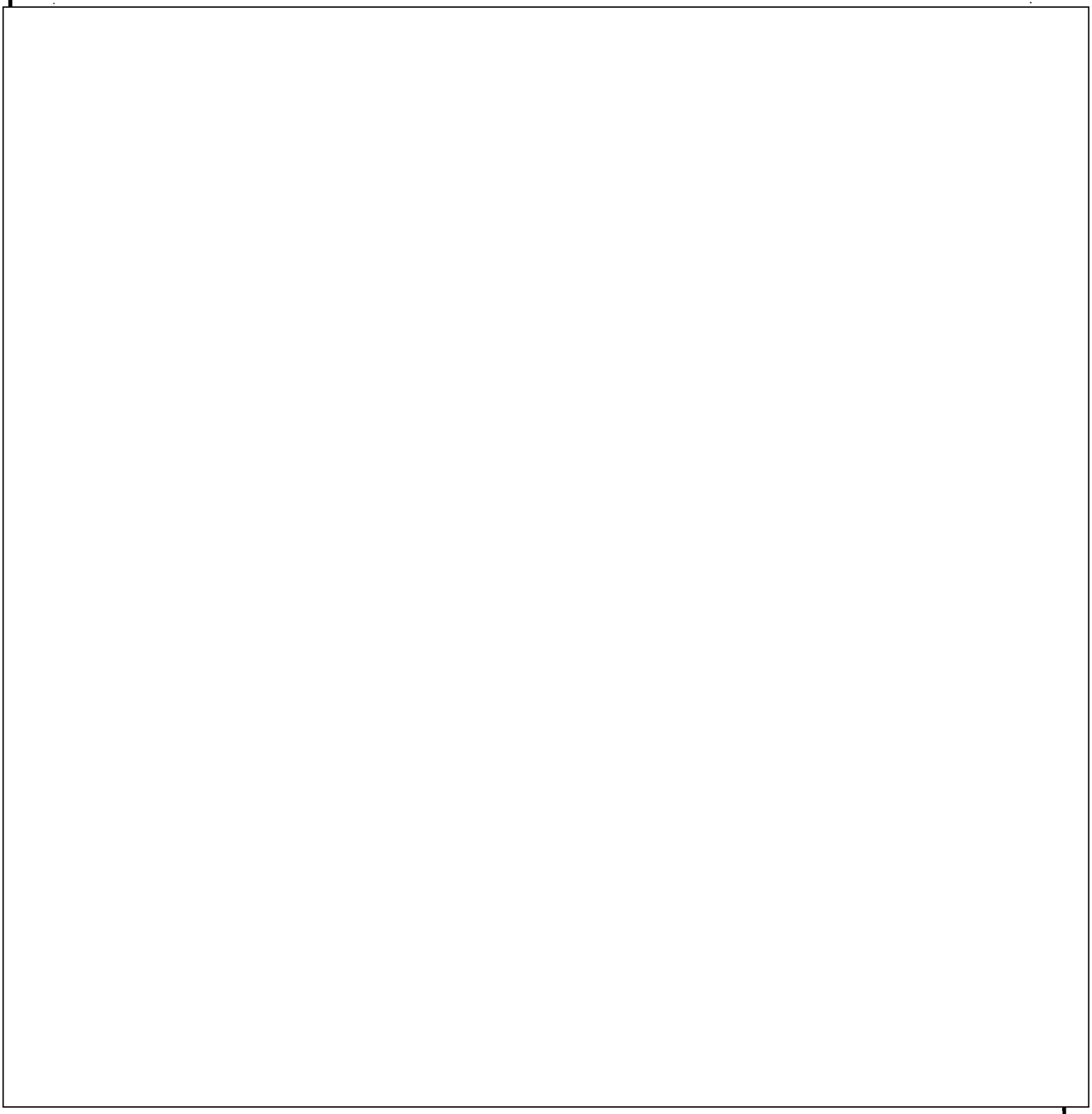
11. Chic-10, a low altitude atmospheric test, occurred at the Lop Nor test site on 29 September, one week after Chic-9. Even before Chic-10, the Chinese had developed a device that could be weaponized for delivery by medium bomber, or possibly configured as an ICBM warhead. Conceivably the Chinese could also carry this device in the IL-28, a short-range and slow light jet bomber.

12. After successful testing another year would be required before stockpiling could begin.



13. Thus, if they were to begin deploying MRBMs in the immediate future, fission-type warheads would have to be used. For this purpose they could use an early, inefficient device (Chic-4) or, more likely, the improved devices used as primaries in TN weapons tests. These primaries could be available now in a weaponized version if the Chinese had decided to weaponize such a design without separate testing. On the other hand, if the recent underground test was a successful experiment on an improved fission warhead for MRBMs, it would probably take about a year for the Chinese to begin series production for deployment.

[redacted]



16. There have been no recent changes in our assessment of Chinese capabilities for producing natural uranium, enriched lithium, and deuterium for use in thermonuclear weapons, and we continue to believe that production of these materials in sufficient quantities will present no great problem for the Chinese during the period of this estimate. In sum, for the next several years at least, the production of nuclear materials can probably easily keep pace with or exceed the requirements of testing and the number of strategic missiles and TU-16s the Chinese are likely to be able to deploy.

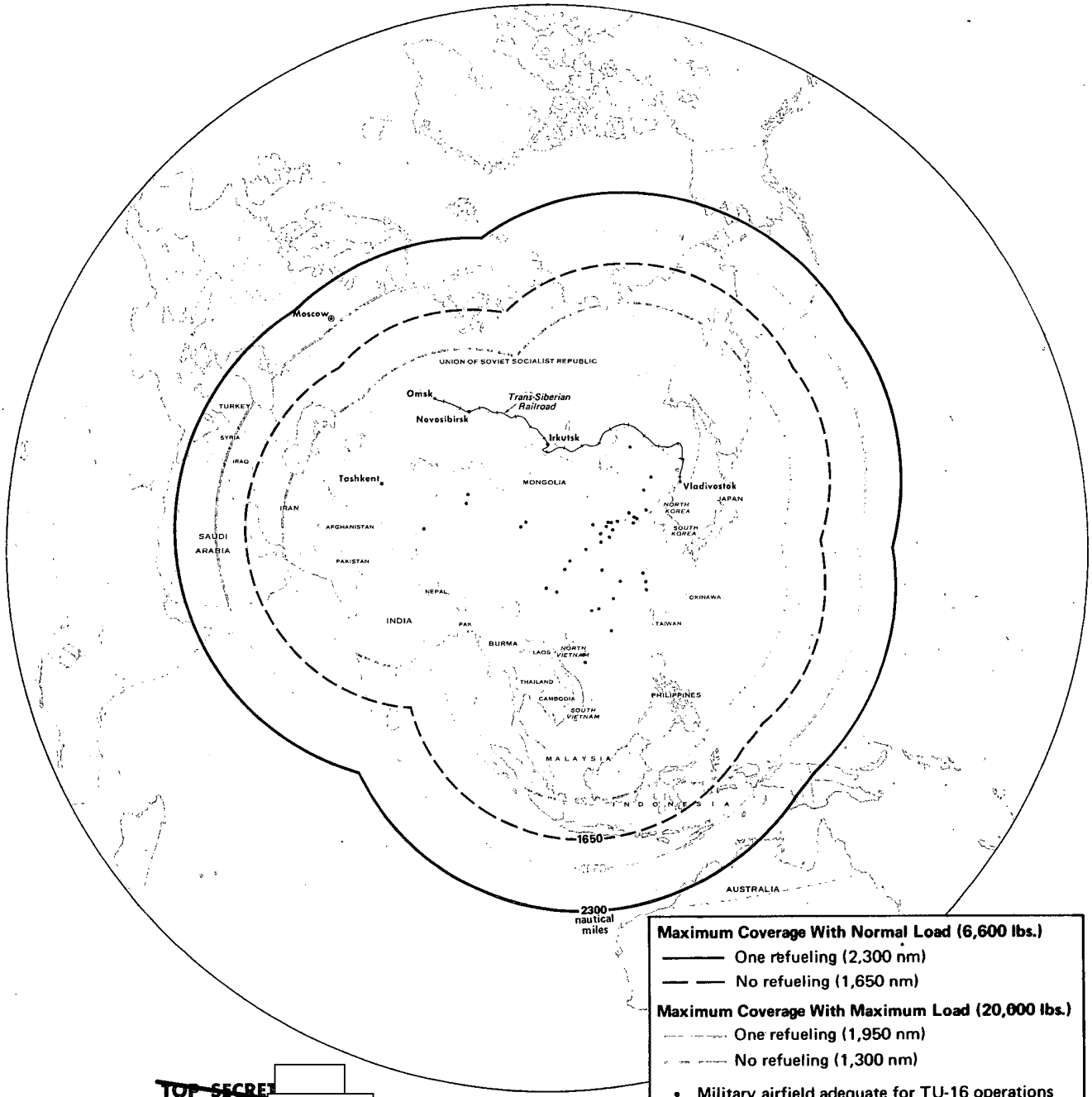
B. Delivery Systems

Medium Bomber Force

17. It now appears far more certain that the Chinese intend serial production of the TU-16-type jet medium bomber which is fully capable of carrying large thermonuclear weapons. since late 1968 the aircraft factory at Yen-hang, near Sian, had turned out four or five TU-16s, a production rate of about one unit every two months. This rate is likely to increase gradually until it eventually reaches a reasonable level for sustained production (about four or five a month). On this basis the Chinese could have about 200 TU-16s by 1975.

18. Operational testing of the first units produced in China will probably be completed by the end of 1969. An operational capability of 5 to 10 aircraft could be achieved by mid-1970. Carrying the TN bomb which we believe the Chinese could now have available, the TU-16 could have an unrefueled combat radius of about 1,650 n.m., sufficient to cover most key Asian targets and US bases on the periphery of China. (See Map, page 11.) These ranges could be extended if the Chinese add to their inventory of one tanker (received from the USSR in 1959) and continue to produce receiver models. While it is not possible to predict future Chinese deployment patterns with much certainty, Chinese airfield development is already sufficiently advanced so that there should be no problem in keeping pace with TU-16 production. There are, for example, over 20 airfields which are now capable of supporting sustained TU-16 operations.

Communist China: TU-16 Operating Radii



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19. The usefulness of the TU-16 in a strategic role would be increased if the Chinese had a 200-300-mile cruise-type air-to-surface missile. There is no evidence that such a program is either planned or underway, and in view of the difficult technologies involved, we think it unlikely that such a system could be developed during the period of this estimate.

The MRBM Program

20. The Chinese have been developing and testing a missile or missiles in the MRBM class since the early 1960's. On the basis of what we have seen over the past several years at the Shuang-cheng-tzu Missile Test Range (SCTMTR), the basic vehicle appears to have a single stage which uses storable liquid propellants and possibly has an all-inertial guidance system. Such a system would probably be able to carrying a re-entry vehicle weighing about 3,000 pounds to a range of approximately 900-1,000 miles.

21. At various times since 1967, there has been some evidence suggesting that the development stage was nearly complete and that deployment might soon take place. Once again in recent months some evidence suggesting preparations for deployment has appeared.

[redacted]

25. Thus, we are still not in a position to make a confident estimate as to the IOC of China's MRBM. We cannot even exclude the possibility that the system the Chinese have been working with [redacted] may not be deployed at all. For example, there is the possibility that the Chinese will wait for a thermonuclear warhead or an improved missile, possibly one using solid propellants. But this is unlikely, because it would seem unreasonable for the Chinese to have invested so much time and effort in their current MRBM program if they did not intend its deployment. We can only say that the evidence indicates that the Chinese are moving toward deployment.

26. [redacted] it is possible that a few operational sites already exist. If so, these would probably be temporary facilities built on a crash basis in the context of Sino-Soviet tensions, [redacted] For a major deployment program, however, it is likely that the Chinese would construct permanent sites with extensive support facilities in order not to degrade the accuracy and reliability of the system. Moreover, [redacted] and the generally poor road network in China indicate that deployment will be at soft sites near rail lines. [redacted]

[redacted]

27. There still is no good basis for estimating the size of the MRBM force that might be deployed. It continues to seem probable that one Chinese objective would be to provide coverage of important military and civilian targets in non-Communist Asia. Barring radical improvement in relations with the USSR, it is possible that a substantial portion of China's MRBM force will be deployed against Soviet targets.

28. China's limited economic, industrial, and technical base probably cannot support simultaneously a rapid deployment of MRBMs, other oncoming advanced weapon programs, and possibly increased requirements for conventional land armaments. Hence, choices among many production alternatives would have to be made. We thus find no reason for changing our previous estimate that the Chinese might aim first at a relatively modest force on the order of 80-100 MRBMs and that such a program could extend into the mid-1970's.

Missile Submarines

29. China's single G-class submarine has recently undergone extensive work which suggests that it may have been modified for use as a test platform for some Chinese-designed missile.

30. We continue to believe that the Chinese will not look to diesel-powered submarines as a means of threatening the continental US, and they may also feel that a force of this type would not add enough to their strategic regional capability to warrant the cost. There is some information showing that the Chinese are interested in nuclear-powered submarine technology, but even if design work on such a submarine has already begun, the Chinese probably would not be able to have such a submarine operational before the late 1970's at the earliest.

The ICBM Program

31. Work is continuing at the large launch facility (designated Launch Complex B) at the SCTMTR. Construction at this site was started in the late summer of 1965, and a launch position (designated Pad B-1), gantry crane, and associated facilities appeared in early 1967 to be complete and capable of supporting launch operations. There is no convincing evidence that the facility was ever used for firings, however, and in the summer of 1967 work began on another and larger launch position (designated Pad B-2). Somewhat later, extensive modifications of the original Pad B-1 were begun.

32. The entire complex will probably not be completed for a year or so. Most of the work remaining to be done involves Pad B-2 and it is increasingly apparent that this facility will be much larger and more elaborate than would be required

for an ICBM. Thus, we are more confident than before that this facility is primarily intended for a space program, although it could of course be used in support of the ICBM program. (See paragraphs 47-48 for further discussion of China's space program.)

33. It still appears that Pad B-1 could be made ready for use fairly quickly. But this has been the case since early this year, and photographs taken in August still showed some construction clutter and disruption of facilities around it. Thus it would appear that the Chinese are not as yet in any great hurry to get the pad ready for launchings. But it is still possible that flight testing from Pad B-1 could begin within the next few months, assuming of course that test vehicles were available.

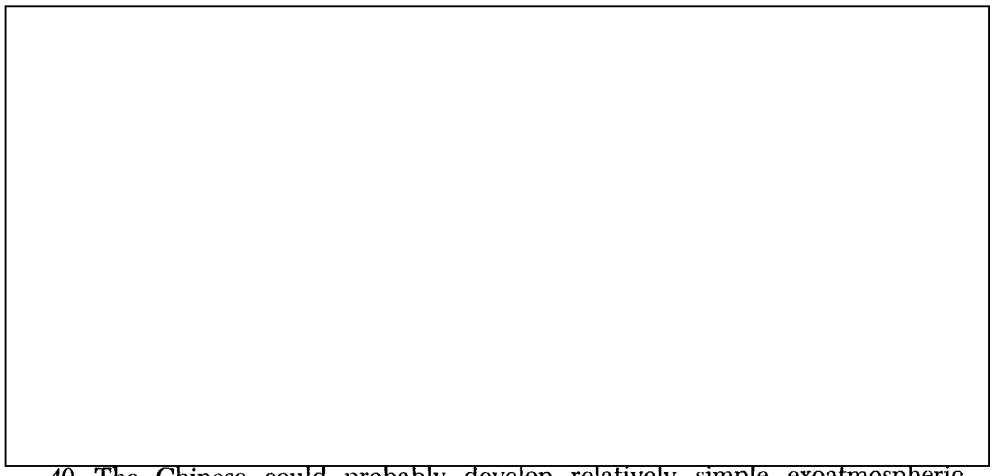
34. Further analysis of the service/umbilical tower added to Pad B-1 in 1968 indicates more strongly that the launch vehicle to be tested at this facility will be a two-stage, storable liquid-propellent system with an overall length of about 100 feet and a booster diameter of about 10 feet. A vehicle of these dimensions could probably carry a 4,000 to 5,500 pound re-entry vehicle to a range of about 6,500 n.m.

35. We hold to the view that from whatever time the Chinese begin testing this vehicle they will require at least three years to achieve IOC. Thus, if flight testing were to begin soon, the earliest possible IOC would be late 1972 or early 1973. As we have pointed out in the past, however, this is a very tight schedule which gives Chinese capabilities much of the benefit of the doubt. Indeed the record of their missile programs seems increasingly to indicate that the Chinese are taking more time to develop their modern weapon systems than we judged likely on the basis of their progress several years ago. Thus, IOC is more likely to be later, perhaps by as much as two or three years if they encounter considerable difficulties.

[redacted]

37. Because of problems of this sort and in view of the pressure on resources imposed by other military requirements, we believe that deployment of China's first ICBM will proceed at a moderate pace and well below any possible maximum. By moderate we mean that if the Chinese achieve the earliest possible IOC of late 1972 or early 1973, the number of operational ICBM launchers in 1975-1976 might fall somewhere between 10 and 25. In the more likely event that IOC is later, achievement of a force of this size would slip accordingly.

[redacted]



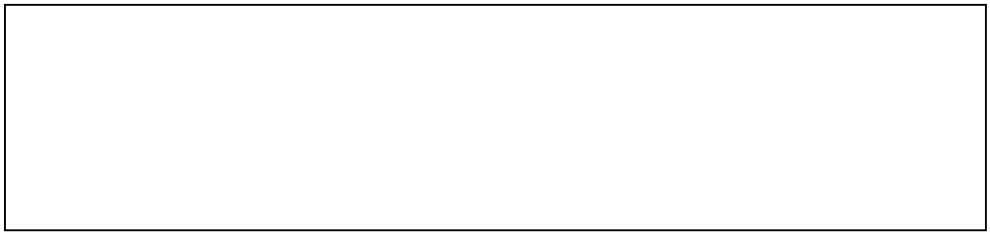
40. The Chinese could probably develop relatively simple exoatmospheric decoys, e.g., balloons, by the time of first deployment. The development of an effective chaff system and of sophisticated, endoatmospheric decoys almost certainly could not be accomplished by 1975. Multiple re-entry vehicles are also unlikely to be available by this time. Though the first generation warhead may have some inherent hardness, we have no basis for making quantitative estimates about the hardness of this or future warheads.

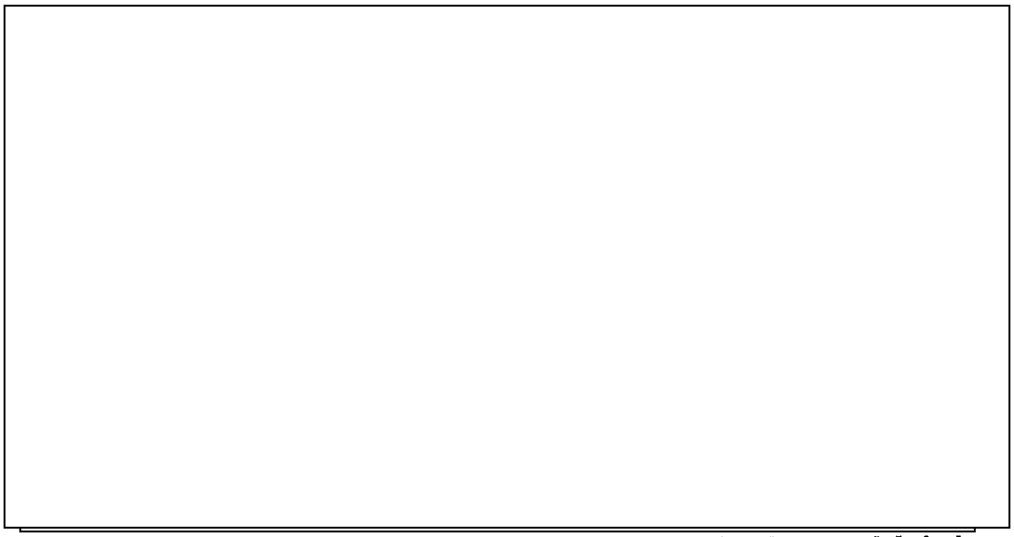
IRBMs

41. There is no evidence that China is attempting to develop an intermediate-range ballistic missile (IRBM) system. We doubt that they will do so, at least until development work is completed on the ICBM.

The Solid Propellent Missile Program

42. There is a good deal of evidence that the Chinese are engaged in the development of solid fuel strategic missiles. Chinese literature in the early 1960's showed a high degree of interest in the problems of composite solid base propellant development. We have good evidence of an import program beginning as early as 1964 which appears directly related to this technology. Most convincing, of course, is the Hu-ho-hao-t'e solid propellant complex itself, the construction of which began in 1964. The static test facility located there appears designed to handle motors of a size suitable for strategic missiles.





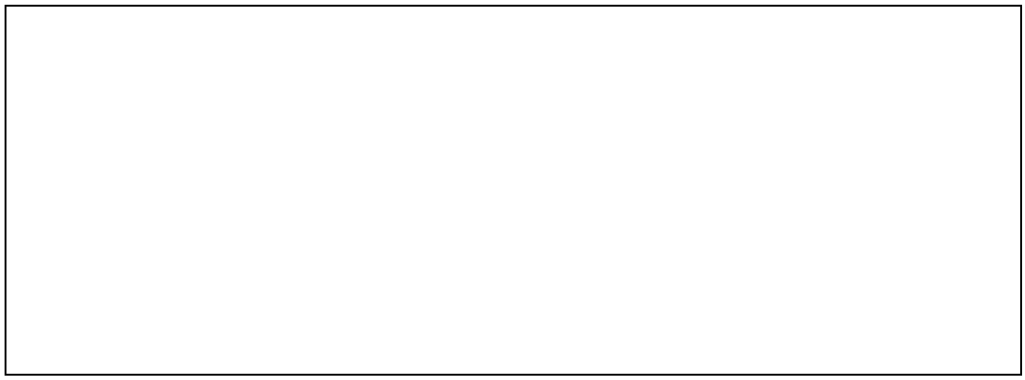
46. We also lack any basis for estimating the IOC of either a solid fuel MRBM or ICBM.

three years would probably be required for flight testing before IOC. This schedule assumes no serious difficulties anywhere in the development process, however, and we presently doubt that the Chinese could have strategic missiles with solid fuel rocket motors in the field by 1975.

Space Program

47. Although we are puzzled why the Chinese have not already tried to orbit an earth satellite, we continue to expect them to attempt to do so as soon as they can. Should such an attempt be made in the next year or so, the Chinese would probably use a modified MRBM as a booster and add a small second stage. An MRBM modified in this manner could probably place into a low earth orbit a payload weighing a few hundred pounds.

48. It is evident from the size and complexity of facilities at Pad B-2 that the Chinese have ambitious space goals; indeed, considering the level of China's economic and technological development, perhaps overly ambitious. Analysis of the facilities at Pad B-2 and of the tall vertical test tower at the Nan-yuan missile plant suggest that the Chinese may envision a launch vehicle and space



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