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HISTORY
OF THE
TWENTIETH AIR FORCE:
GENESIS

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HISTORY OF THE TWENTIETH AIR FORCE: GENESIS

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F O R E W O R D

This study was written by Maj. James L. Cate of the VII Bombardment Section, Combat Operational History Division, AAF Historical Office. Liberal use was made of materials forwarded from the theater by the historical officer of the XX Bomber Command, whose contributions are duly acknowledged in the footnotes. Fundamentally, however, the study is concerned with policies which were formulated outside the theater and at highest levels; hence the sources most frequently used have been found in the files of various offices of AAF headquarters, including that of the Twentieth Air Force itself, and in the radio messages between Washington and the theater. In a certain sense then this study complements the History of the XX Bomber Command prepared in the CBI and now on deposit in the archives of the AAF Historical Office.

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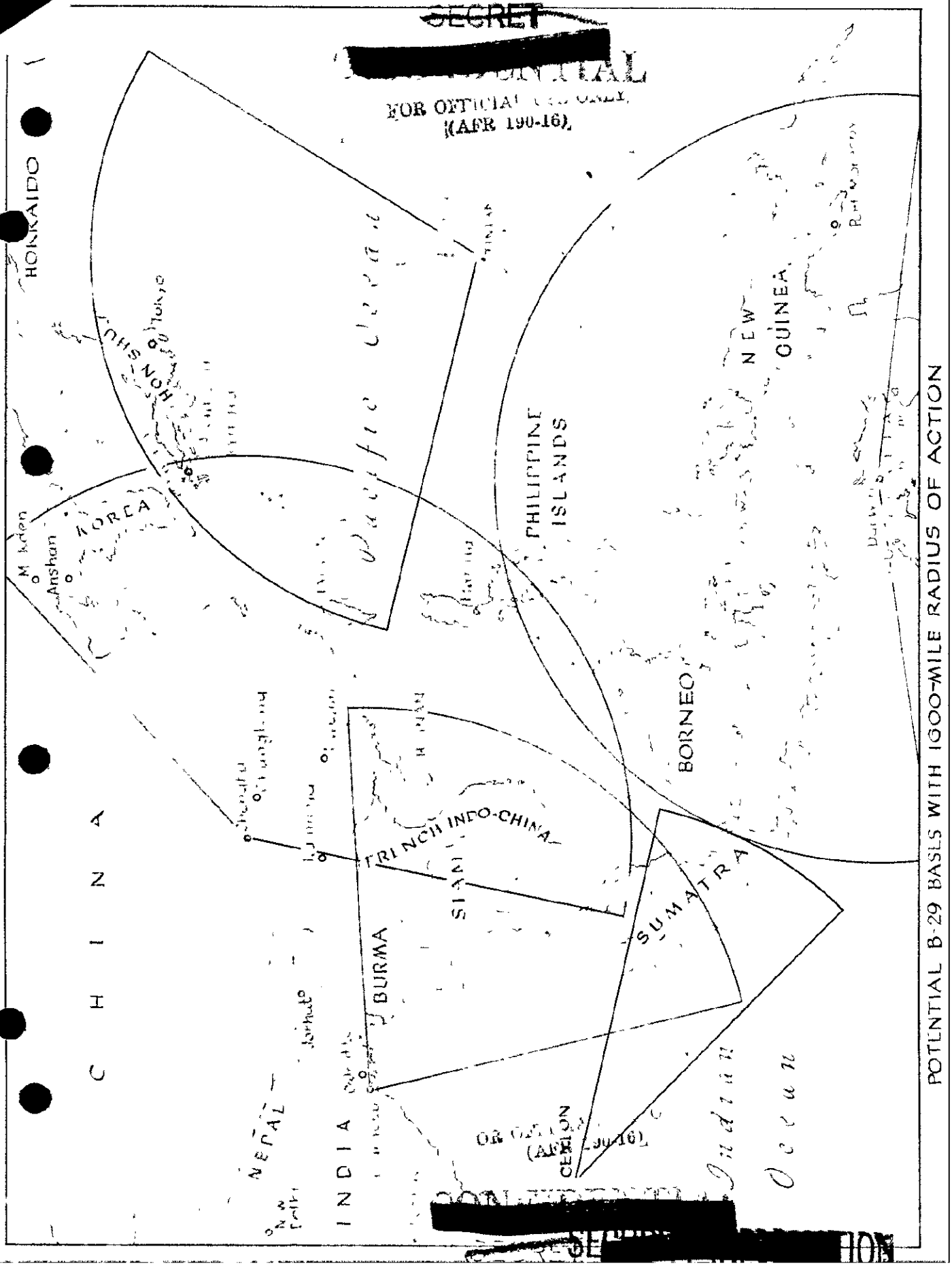

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History of the Twentieth Air Force: Genesis

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Chapter I

INTRODUCTION: THE PROBLEM

> The attack on Japan by the Superfortress B-29 from distant bases introduces a new type of offensive against our enemy. It also creates a new problem in the application of military force.
>
> Gen. George C. Marshall, announcing the formation of the Twentieth Air Force, 16 June 1944.

On 15 June 1944 a force of about 50 B-29's from the XX Bomber Command struck at the Imperial Iron and Steel Works at Yawata. On the same day the Second and Fourth Marine Divisions landed at Saipan. And on the following day the formation of the Twentieth Air Force was announced at Washington. The two blows at the Japanese Empire, though widely separated in space, were coordinated for tactical purposes. They may be brought together in a symbolic fashion as well. Together these events signalized the inauguration of a new phase in the war against Japan. The former initiated a program of strategic bombardment of the Japanese Inner Zone from China bases; the latter opened an assault on the Marianas which soon was to provide more adequate bases for the augmentation of that program.

Previously there had been in the war against Japan little of the sort of strategic bombardment which had constituted the AAF's main contribution in the ETO. Bombardment by the Fifth, the Thirteenth, and the Seventh Air Forces had been almost exclusively of the tactical variety, directed at the enemy's air strips, at the shipping by which

he nourished his advanced forces, at his supply dumps and island defenses, at his troops in the field. A few strikes only had been made against the sole strategic targets in the Outer Zone--oil installations of the Netherlands East Indies which lay at the very edge of the tactical radius of the B-24. The important targets of the Inner Zone had been immune to land-based air attack, girded about with a formidable chain of island bases and lying far beyond the range of the B-17 or B-24.

The tactical operations of the AAF in the Pacific had helped ground and naval forces first to check the Jap's advance, then to throw him back; by the seizure or neutralization of his island bases the perimeter of his defense had been constricted. And in China the Fourteenth Air Force, by its tactical missions in cooperation with Chinese ground forces, had managed to save a handful of bases from which medium and heavy bombers could reach out to the China Sea. Given a plane with a longer range, the stage was set for a new type of operations.

On a chart of the Asia-West Pacific areas draw an arc with a radius of 2,000 miles from Chengtu in China; then draw a similar arc centered on Saipan. Encompassed within those two segments lies the whole heart of the Japanese Empire. Very-long-range bombers based at those two centers and properly supplied could subject the very source of the Japanese war effort to the same sort of attack which had paved the way for the invasion of northern Europe.

By 15 June the VLR bombers, in moderate numbers, were available. One of the base areas had been developed, the other was under attack.

For the former a system of supply, feasible if uneconomic, had been worked out; and for the latter the logistical problems seemed in anticipation fairly simple. From the point of view of strategic bombardment--and essentially that is the point of view of the AAF--all that had passed was prologue. A new air story began on 15 June.

This volume then is merely a preface. It is called History of the Twentieth Air Force: Genesis; but as if gun-shy it stops short of combat operations. Actually it deals only with plans and preparations: with the strategic plans which led to the deployment of B-29 units in the Far East, with the establishment of bases and of means of supply, and with the peculiar organization of the Twentieth Air Force. Plans, then, and bases and logistics and command--but first the weapon itself.

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Chapter II

THE WEAPON

Happy is that state which in time of peace thinks of war.

Inscription on the Arsenal of medieval Venice.

The Twentieth Air Force is different. Its shoulder patch is a heraldic symbol of its world theater. In a global war it alone of the Army Air Forces is truly global. Its unique character has been determined by the unique character of its weapon. Other air forces have come to be identified in the public mind with a particular plane--the Eighth and the B-17, Chennault's Fourteenth and the shark-faced P-40, Kenney's Fifth and the specially armed B-25. With the Twentieth only was that identity of air force and airplane perfect: in the beginning no other combat air force used the B-29 and the Twentieth used no other combat plane. Any history of the Twentieth Air Force must then begin with the Boeing B-29.

To be appreciated the plane should be seen near the B-17, the "last of the medium bombers" as General Arnold has called it, but a mere catalogue of the B-29's characteristics is enlightening.[1] When the B-29 first entered combat, it had a span of 141 feet, 3 inches, a length of 99 feet, an over-all height of 27 feet, 9 inches. It had a basic weight of 74,500 pounds, combat weight of 120,000, maximum war weight of 135,000. Its four Wright R-3350-23 engines with turbosuper-chargers developed 2,200 horsepower at sea level and turned 16 foot-

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7 inch, four-bladed Hamilton propellers. Its performance varied with flight conditions, but "normally" it had a service ceiling of over 38,000 feet and at 30,000 feet a maximum speed of 361 miles per hour. It had a range of 4,400 miles without bombs, 3,500 miles with four tons of bombs. With all tanks loaded it carried 10,763 gallons of fuel. It was armed with twelve .50-caliber machine guns in remote-controlled, power-driven turrets, and originally it carried a 20-millimeter cannon, since discarded. Its large pressurized cabins gave the maximum in crew comfort. Its equipment contained every up-to-the-minute gadget. Its lines were as sleek as a fighter's.

This, in brief, is how the B-29 came to be built.

On 10 November 1939 General Arnold as Chief of the Air Corps requested permission of the War Department to initiate action which should lead to the experimental development of a four-engine bomber of approximately 70,000 pounds weight and possessing characteristics superior to those of the B-17B and B-24.[2] The specific requirements for performance were high:

		Designed Attainment	Minimum Attainment
(a)	High speed at design altitude	m.p.h. 450	300
(b)	Tactical radius at design altitude with 2,000-lb. bomb load (5,333 mile range)	miles 2,000	2,000
(c)	Average speed for these range conditions	m.p.h. 250	200
(d)	Service ceiling	ft. 40,000	30,000
(e)	Service ceiling, any 2 engines	ft. 15,000	12,000

(f) Take-off and landing from 4,000-foot sod field.

(g) Design altitude to be as high as practically possible, with minimum of 30,000 feet.

The standards set for structure and design, equipment, and armament were equally ambitious. Bomb bays were to accommodate up to 8,000 pounds of bombs of any standard size, and there was to be a high degree of interchangeability of bomb and fuel load.[3]

The requested authority was granted on 2 December,[4] and on 29 January 1940, Request for Data R-40B was circulated among five leading aircraft manufacturing companies.[5] During February the stipulated requirements were in several instances revised upwards, and on the basis of specifications issued on 8 April 1940 preliminary designs were submitted by several of the companies. These designs were appraised by an evaluation board, and the competitors rated in the following order of preference: Boeing, Lockheed, Douglas, Consolidated.[6] On 27 June contracts for preliminary engineering data were issued to the four companies,[7] and their planes were given the designations, respectively, of XB-29, XB-30, XB-31, XB-32. Lockheed and Douglas subsequently withdrew from the competition. Two experimental models were ordered from Boeing and Consolidated on 6 September, and 2 months later the order was increased to three from each company.[8] Mock-up inspections were held on 7 April 1941.

The XB-32 was the first to fly, its initial model being airborne on 7 September 1942. After 30 flights that model crashed on 10 May 1943. The second and third models flew first on 2 July and 9 November 1943, respectively. Important changes in design and other factors so

retarded the development of the B-32 that it has not as yet been used by the Twentieth Air Force. This study will take no further cognizance of the B-32 save as it figures in the early plans for deployment of VLR bombers.

The first XB-29 model made 22 test flights between 21 September and 28 December 1942. The second model caught fire and crashed on its eighth flight, 18 February 1943. The third model made 8 successful flights from 6 to 28 June, after which it and the original plane were sent to Wichita, Kans., for armament and accelerated flight testing.

This dry recital of essential facts is intended merely to provide a few chronological pegs upon which the story of strategic plans for VLR bombers may be draped. The full history of the development of the B-29 needs to be written. That history will show how, under the difficult situation obtaining in the period 1940-44, the American aircraft industry and the officers and men of the Materiel Command were able to build so revolutionary an aircraft as the B-29 in so short a time. The time did not seem short to those who were anxious to throw the B-29 into combat, but whereas it had originally been expected that 5 years of experimentation would be necessary before flight testing began on such a plane,[9] the B-29 was actually in combat within 4½ years after the inception of the program. The development of a VLR bomber had been given a high priority in the Air Corps Research and Development Program for the fiscal year 1941, but in the spring of 1940 General Arnold still thought it would be 1945 before the B-29 could be procured.[10] The increasing importance given to heavy bombardment

in defense plans made it desirable to anticipate all target dates for the B-29, and to effect that end the Air Corps decided to order an untried plane into quantity production. The same expedient had been adopted with dubious results in World War I and it was against current Air Corps policy,[11] but the international situation in 1941 called for bold decisions. On 17 May 1941 Boeing was authorized to begin production when ready. This order was based on a mass of blueprints and a wooden mock-up, some 16 months before the first test flight. When that flight was made, 1,664 B-29's were already on order.[12]

It was inevitable that this feverish telescoping of research, development, testing, and procurement should lead to delays, and that uncertainty should exist as to when the plane could be committed to combat. It was inevitable too that the delays and uncertainty should be reflected in plans for deployment. In the absence of a firm target date the planners were apt to take the most optimistic estimate, and their plans fluctuated both with the readjustments in readiness dates and with the changes in the tactical situation until the very eve of the actual move overseas of the first B-29 units. This intimate relation between the materiel factor and strategic plans must be appreciated if the efforts of the planners are to be understood.

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Chapter III

THE ORIGINAL MISSION

> For the first time we are approaching the problem of our air requirements in a logical way. We are analyzing the problem first in order to determine the characteristics of the tools needed.
> General Stone, Chief of WPD, 30 October 1940.

The history of the Twentieth Air Force, properly conceived, did not begin with its activation on 4 April 1944; no more did the history of the B-29 begin with General Arnold's request on 10 November 1939 for authority to initiate development of a long-range bomber. The B-29, for all the superlatives which have been showered upon it, is only the current phase in a long evolution which began during World War I and which has already, in the XB-35 and XB-36, stretched out toward the future. This evolution of the heavy bomber has not been merely a matter of technological development, though it was the technicians who made each successive bomber possible. Behind the story of technology there is a story of an idea, a purpose. In metaphysical terms, the technicians were the efficient cause, the idea the final cause. At the expense of some digression it is worth while to try to determine here the purpose for which the B-29 was built, for that purpose and its subsequent modifications constitute a significant clue to American thought on air power during the last decade.

The original specifications to which the B-29 was designed described its mission thus: "The destruction by bombs of land or

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naval materiel objectives."[1] This tells all--or nothing. The same phrase was applied to the purpose of the medium bomber authorized at the same time.

In November 1943 Maj. Gen. O. P. Echols of MM&D wrote: "It is safe to say that the B-29 airplane was thought out and planned as a high altitude, long-range bomber to attack Japan, her cities and industrial keypoints--dependent upon speed and altitude as well as firepower for self-protection."[2] When that statement was made, such a mission had been designated for the B-29, and in view of the characteristics of the plane and our bombardment policy in the ETO, the conclusion might logically have been drawn that such had been the original purpose. It is true that a plan for the use of a force of 2,000-mile-radius bombers against Japanese industry was presented just before the B-29 program was initiated,[3] and it may be that the possibility of that mission was ever in the minds of Air Corps leaders. But the stipulated purpose for which the B-29 was designed was not the aerial bombardment of Japan; ostensibly, at least, the plane was designed for a mission much more in keeping with our national policies and the temper of our national thought in the late nineteen-thirties. The successive stages by which this original mission was modified are described in this and the succeeding chapters; they follow closely the changes in our national policies and in the over-all strategic situation.

The logical way to wage war would be to select during peacetime the future enemy, determine his military capabilities, design a

weapon against the weakest spot in his armor, and bend all efforts toward hitting him with that weapon suddenly and in great force. Within limits, that is the way a military dictatorship makes war. For a peace-loving democracy such as the United States a policy like this cannot be followed. We do not select an enemy. Between wars we will neither support nor tolerate the elaborate organization necessary for the collection and evaluation of military intelligence. We lag behind in the development of weapons until war seems imminent, trusting in Yankee ingenuity and our productive capacity to overtake in a short time the handicap imposed by an enemy's foresight. The weapons we build in peace we design for defense, to discourage a potential enemy from striking or if he will not be discouraged, to render his plans ineffective until we can arm for the offensive. We do not strike first.

These are among the most obvious points in our national policy, known alike to our citizens, our friends, and our potential enemies. They are deeply rooted in our national tradition. Heretofore they have been sanctioned by good fortune, if not by the inefficiency and cost of our belated efforts. Perhaps they are inherent in our democratic way of life. At any rate it is against the background of this aspect of our national psychology that the genesis of the VLR bomber must be examined.

During the two decades which followed World War I, Air Corps appropriations were too lean to allow for much experimental development. The period was not, however, wholly sterile. Within the Air Corps there was a perennial search for a solution to the related

problems of what the most effective air weapon might be and how that weapon should be utilized. Perhaps it was the novelty of the air weapon itself and the realization of its rapid rate of obsolescence that gave to a small group of officers a fresher approach than was common in America's peacetime military establishment. At any rate, three central ideas were evolved which came to dominate Air Corps policies: (1) that air power to be effective must be based on bombardment; (2) that command principles should be established by which that bombardment could be directed against proper targets according to proper tactical methods; and (3) that a long-range heavy bomber should be developed which would be capable of implementing our doctrines under the peculiar geographical conditions obtaining in the United States. Those ideas were publicized by Billy Mitchell in the nineteen-twenties, and they were the guiding principles of his spiritual heirs in the thirties--of Generals Arnold and Andrews and Westover and the rest. On each score these men were bitterly opposed by both the War and Navy Departments, who denied the soundness of those doctrines, resisted every claim to the independence of command, and objected to the development and procurement of a heavy bomber on the grounds both of economy and of the lack of a suitable mission.

By the middle thirties the Air Corps had scored some compromise victories: 1935 marked the establishment of the GHQ Air Force; the formulation of a more positive (if still unsatisfactory) understanding with the Navy in regard to the function of Army bombers in national defense, and the first successful flight of the XB-17. That heavy bomber

exceeded all expectations in its performance, yet even before its maiden flight the Air Corps was planning a larger experimental aircraft with a range of 5,000 miles, to be followed by a still larger model with a range of 8,000 to 10,000 miles which was to be designed for procurement if acceptable.[4]

The first of these planes, the Boeing XB-15, was test-flown by the Air Corps on 8 August 1938. The second, the giant Douglas XB-19, was authorized in September 1936 and test-flown on 27 June 1941. In spite of the hopes of the Air Corps, neither of these planes got past the experimental stage. There were no fundamental flaws in design or structure, and the lessons learned from these aircraft were to pay dividends in the development of the B-29 and subsequent models. But in each case the size and weight of the plane had been conceived on too ambitious a scale for the power plants then available, so that later the B-29, though its engines were much more powerful than those of the XB-19, was designed as a smaller plane.

Now this constant effort to develop ever-larger bombers was not merely an expression of the American penchant for "bigger and better" machines, though that national trait cannot be wholly discarded as a possible causative factor. The bomb load contemplated for those huge planes was relatively small; the chief desideratum was range, and given the current efficiency of motors and design, range was a matter of size. The desire for range is to be interpreted in terms of the mission of the heavy bomber as it was then conceived by the Air Corps.

The idea of strategic bombardment, of the destruction by air power

of the very sources of an enemy's ability and will to resist, had developed early among American airmen and it was never far from their minds. But in the United States the military do not formulate national policies; their duty is to provide the military means by which policies established by the civil government are effectuated. Strategic bombardment is by its very nature offensive. It demands bases within practical operational range of the target. In the nineteen-thirties we had no bases within striking distance of the homeland of any potential enemy with bombers then available or immediately foreseeable. Hence any plans for strategic bombardment had to suppose a great extention of the range of our bombers or the acquisition of an advanced base. The seizure of a base was unthinkable--Congress balked even at developing those we had--nor would we subscribe to building long-range bombers expressly for bombing an enemy's cities. And hence it was that before Congress and before the public the Air Corps defended its requests for funds by speaking only of national defense.

Remember the temper of that decade. It was a time of resurgent and highly vocal isolationism and pacificism; of the Geneva Conference on disarmament; of the Nye Committee and neutrality legislation; of Merchants of Death and Idiot's Delight; of boys taking the Oxford Oath on college campuses and Babe Ruth supporting "moral rearmament" in Madison Square Garden; of the Tydings-McDuffie Act to withdraw from the Philippines. In such an America one did not speak publicly of developing a plane to bomb Krupp at Essen or Mitsubishi at Nagoya. The mission of the Air Corps was national defense. Even when the

Germans were overrunning France, General Emmons wished to emphasize that point of view in an effort to turn Henry Ford to the production of heavy bombers. "It should not be difficult," he wrote, "to convince Mr. Ford that the bomber, as far as we are concerned, is not an offensive weapon but the best means we have available to defend the United States."[5]

To the arch-isolationists "defense" meant literally the repulse of an enemy from our continental shores. So narrow a view of course was repugnant to Army and Navy authorities, and in 1938 Congress officially accepted the dictum that our first frontiers of defense ran along the lines Alaska-Hawaii-Samoa-Panama, and Panama-Virgin Islands-Maine. Obviously any attack must be made by water or by air, the latter long interpreted as a carrier strike. Traditionally the Navy had been vested with the duty of bearing the first brunt of attack. The development of the land-based bomber with an ever-increasing range offered an alternative made of attack, and it also threatened to disrupt the traditional allocation of defense responsibilities; it was this potential infringement upon an ancient prerogative which was the fundamental cause of the Navy's hostility to the establishment of an independent air force and to the procurement of a long-range Army bomber. Acrimonious disputes were punctuated rather than terminated by a series of agreements between the services, of which the most important was Joint Action of the Army and Navy (11 September 1935). According to this arrangement, the Army air component was, inter alia, "to operate as an arm of the mobile Army, both in the conduct of air operations over the land

in support of land operations and in the conduct of air operations over the sea in direct defense of the coast" (Par. 21, b, (1)); and to conduct "air operations in support of or in lieu of naval forces" (Par. 22, a,(31)).

The wording of this document was such that it was susceptible to more than one interpretation. The Air Corps took the view that the mission of its heavy bombers included: (1) offshore reconnaissance; (2) destruction (with, or in lieu of, naval forces) of an approaching enemy fleet and train; (3) reinforcement of outlying bases and garrisons; and (4) counter-air measures against an enemy's bases. It was for these functions rather than in anticipation of the Combined Bomber Offensive that the B-17 was developed. This fact is indicated by the enthusiastic reports of the GHQ Air Force on the performance of that plane in 1937: the B-17 was "the best bombardment aircraft in existence; particularly for coastal defense purposes";[6] because of its range it was "in a class by itself and may well constitute the only means available to prevent an attack on our shores by hostile aviation."[7]

Similarly it was the desire to extend the effective radius of such activities that motivated the efforts of the Air Corps to develop and procure a larger bomber with a longer range. In 1938 General Andrews defended the Air Corps request for an ultra-long-range bomber by pointing out that such a plane could "patrol at rated speed for 3 days over the Atlantic Ocean and shore," locating hostile fleets and attacking them at will. Similarly operations could be extended over the South Atlantic and the Pacific, so that "the frontier of approach

of hostile surface vessels could be so removed from the Pacific Coast that attack could not be delivered."[8] There is no word here about strategic bombardment.

The War Department at this time did not accept the view that greater range was a military necessity. When in June 1936 the Air Corps requested procurement of 11 B-15's and 50 B-17's for the reinforcement of Hawaii, Alaska, and Panama, the General Staff ruled that under the existing situation no tactical or strategic requirement existed for a plane with a 3,500-mile range.[9] The same attitude was reflected in the War Department's decision in 1937 to procure only two-engine bombers for the fiscal year 1939,[10] and in its refusal to authorize the experimental bomber requested by the Air Corps in 1938. This policy was crystallized in a Joint Board agreement, JB No. 349, 29 June 1938. Called on to advise concerning the possibility of limiting the development of Army bombardment and reconnaissance aviation, the Joint Board arrived at the following conclusion:

> Based on the present situation it is not considered probable that the Army Air Corps will be called upon in war to perform any missions that require the use of reconnaissance and heavy bombardment planes of greater practical ferrying range, greater tactical radius, and greater carrying capacity than those of the B-17,

and that in consequence the procurement of planes surpassing the B-17 in those respects was not justified.[11] The agreement was approved by the Secretary of War. This was 6 months after the Panay incident, 3 months before Munich, 3½ years before Pearl Harbor. And yet General Andrews had estimated that at least 5 years would be required for research and development before procurement of such a bomber could begin!

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This moratorium on VLR bombers imposed by the War and Navy Departments lasted a year. It was broken by changes in the international situation and in national policies made at the highest level.

So long as national defense was defined in terms of resisting an attack on continental United States or its outlying possessions by a navy, troop convoys, and/or carriers, Japan alone of the aggressor nations seemed to possess both the capabilities and the incentive to launch such an attack. The British and French navies constituted more than a match for the German and Italian, both in capital ships and in carriers, a fact which was tacitly admitted in the disposition of the bulk of our fleet in the Pacific. The latent antagonism in the United States for Hitler's Germany was considered by many to be founded on ideological rather than on practical grounds, and it was not shared by all Americans. Antagonism against Japan was more firmly rooted. The ideological factor was present in a wide-spread sympathy for China, and there was an element of racial feeling in the western states; but there was also a general recognition of the conflict of national interests in the Far East. Thoughtful persons as well as the Hearst press believed a war inevitable unless we should abandon our traditional policies in the western Pacific, and even rabid isolationists were less certain of Japan's innocence than of Germany's. And so long as Japan seemed our most likely enemy, it was natural that much of our defense thought turned on the Pacific and the Navy. Given the geographic situation and the current status of aircraft development,

Alaska offered the only possible area in the Pacific from which Japan could operate land-based bombers against continental United States, and while the significance of Alaska and the Aleutians had early been recognized by Army airmen, the danger did not appear great to most Americans.

There was in 1938 and 1939 no easing of the tension in the Pacific--that grew steadily worse; but the rapid march of events in Europe served in part to reorient American thinking on defense requirements. Germany's open rearmament and the disregard of existing international agreements were leading Europe inexorably toward a general conflict, while the revolutionary character of Nazi doctrine with its blatant Pan-Germanism threatened the new world as well as the old. So long as the British fleet existed there seemed little likelihood of a massinvasion of North America; but Axis activities in the ripe fields of Latin America suggested that the new Nazi technique of pre-invasion infiltration had already begun there, and the development of long-range aircraft by the Luftwaffe offered a new threat. If those bombers lacked range enough to bomb New York directly from Germany, they could easily reach Brazil, and if based there and serviced by "tourists" and "students" and "civilian" technicians, they might constitute a potent threat against our national security.

These new possibilities enhanced the importance of the Atlantic frontier "from Newfoundland to Tierra del Fuego." As early as October 1937 the President in his Chicago "Quarantine" speech had pointed out

the danger of an attack by the aggressor nations against the Americas, and by the beginning of 1939 this threat had given rise to a definite defense policy. On 4 January in his annual message to Congress the President pledged "our people and our resources" in defense of the whole of the Western Hemisphere. On the 12th he asked Congress for funds to implement that policy, including $300,000,000 for the expansion of the Air Corps. The appropriation, with modifications, was authorized on 3 April. The Air Corps now had a broader mission and a deeper purse. The twin bases of War Department hostility to the long-range bomber--lack of need and lack of funds--could no longer be urged.

The new policy had been anticipated by the Air Corps. In June 1938 the Air Corps Board had been directed to prepare a study on the mission of the Air Corps under the Monroe Doctrine. The report submitted on 12 October analyzed the specific duties of the air arm in its independent air operations in support of ground and naval forces and in counter-air activities. The conclusion was reached that most of the Air Corps functions in this task could best be accomplished by a heavy bomber-reconnaissance plane with a tactical radius of 1,500 miles or more, and the Board recommended that the development of such a plane be given high priority.[12]

With the new funds available, the Air Corps turned to more specific planning for hemisphere defense. An Air Board was convened in March to formulate basic doctrines.[13] Although the several components of the air arm were considered, it was the striking force which came in for most attention. The force might be employed from continental

United States, from overseas possessions, or as an element in an expeditionary force. In any case its effectiveness would be limited by available bases and by the "useful tactical operating radius of its equipment." It is indicative of the importance ascribed to the new threat that the first task of this force was thought to be defense against an air attack, but that such a defense could be best accomplished by the "attack and destruction of enemy aviation facilities and of enemy aviation at its bases, whether land or sea." To make effective such measures, we should acquire bases to ensure coverage of all land and sea areas from which an enemy could strike. Current aircraft needs would have to be met with the 1,000-mile-radius plane (B-17), but research should be initiated toward securing a plane with a ferrying range of 3,000 miles, a tactical operating radius of 2,000 miles. This aircraft was described as "an airplane designed as a long range heavy bomber but adaptable to use in long range strategical reconnaissance over either land or sea."[14]

To make more detailed recommendations on the types of new planes needed for hemisphere defense, another Air Corps Board (the "Kilmer Board") was appointed on 12 May. The Board listed, among other requirements, these bombardment aircraft: (1) a long-range, high-altitude bomber, weight about 200,000 pounds, with a range of 8,000 miles, tactical radius of 3,000 miles; (2) a heavy bomber, weight about 70,000 pounds, with a range of 5,333 miles and radius of 2,000 miles; and (3) a medium bomber, range 2,667 miles, radius 1,000 miles.[15] The aircraft thus recommended came to be known as "Air Board" types.

It will be noted that current standards of the heavy bomber exemplified in type (3) and eventually to emerge as the B-24, were now listed as characteristic of a "medium bomber," and that the standard heavy was to have the 2,000-mile radius deemed necessary for hemisphere defense. Development of so large a plane as the latter had been forbidden by the Joint Board only a year before,[16] but it was the opinion of the Air Corps that the mission laid on that arm by the President's message and accepted by Congress in its large appropriation for aircraft had invalidated the JB ruling, since the fulfillment of that mission "specifically in the Caribbean area" was beyond the capabilities of the B-17.[17] Fortunately the same interpretation was accepted by the War Department and the official barrier which had long inhibited the development of a VLR bomber was at last removed.

On 10 August The Adjutant General directed the modification of the FY 1941 Research and Development Program by the addition of $4,700,000 to provide for the purchase of five heavy bombers for service test.[18] It was on the basis of this authorization that on 10 November General Arnold initiated the formal proceedings described above which launched the B-29 program.

The progress of events in Europe after the outbreak of war in September 1939 accentuated rather than eliminated the dangers to the Atlantic frontier. Until the true significance of the air Battle of Britain began to be realized--and that was not until 1941--the prestige of the Luftwaffe was not challenged. When in December 1939 Air Corps officers drew up a list of offensive and defensive armament to be

included in the proposed long-range bomber, it was the experience of the European war, not of Japan's "China incident," on which they levied. And when on 16 May 1940 the President initiated a program for 50,000 aircraft, the first requirements of the Air Corps were listed in terms of hemisphere defense.

Those requirements were based on these strategic assumptions: that we might face a German-Italian-Japanese alliance and a U.S.S.R. friendly toward those nations; that the U. S. Fleet would be superior to the Japanese in the Pacific but inferior to the German-Italian in the Atlantic; that "no Japanese airplanes could fly to the Western Hemisphere direct from Japanese territory"; but that some 4,176 German-Italian planes could, without denuding forces in Europe, fly from Africa to Brazil, from Ireland to Newfoundland, or from Ireland to Greenland to Canada, and based in any of those regions would prove a menace to the United States.[19] These assumptions, it will be noticed, were framed with an eye on the possibility of the defeat or surrender of the British and French fleets, and of a successful invasion of the British Isles. The requirements had to be estimated in such wise as to provide an adequate defense by an America facing alone a great coalition of aggressor nations.

A tentative Air Corps estimate for "<u>continued future requirements of the army for air power</u>" for hemisphere defense (30 April 1940) had envisioned the development of five types of bombardment aircraft ranging from a light bomber to a long-range plane with an operating

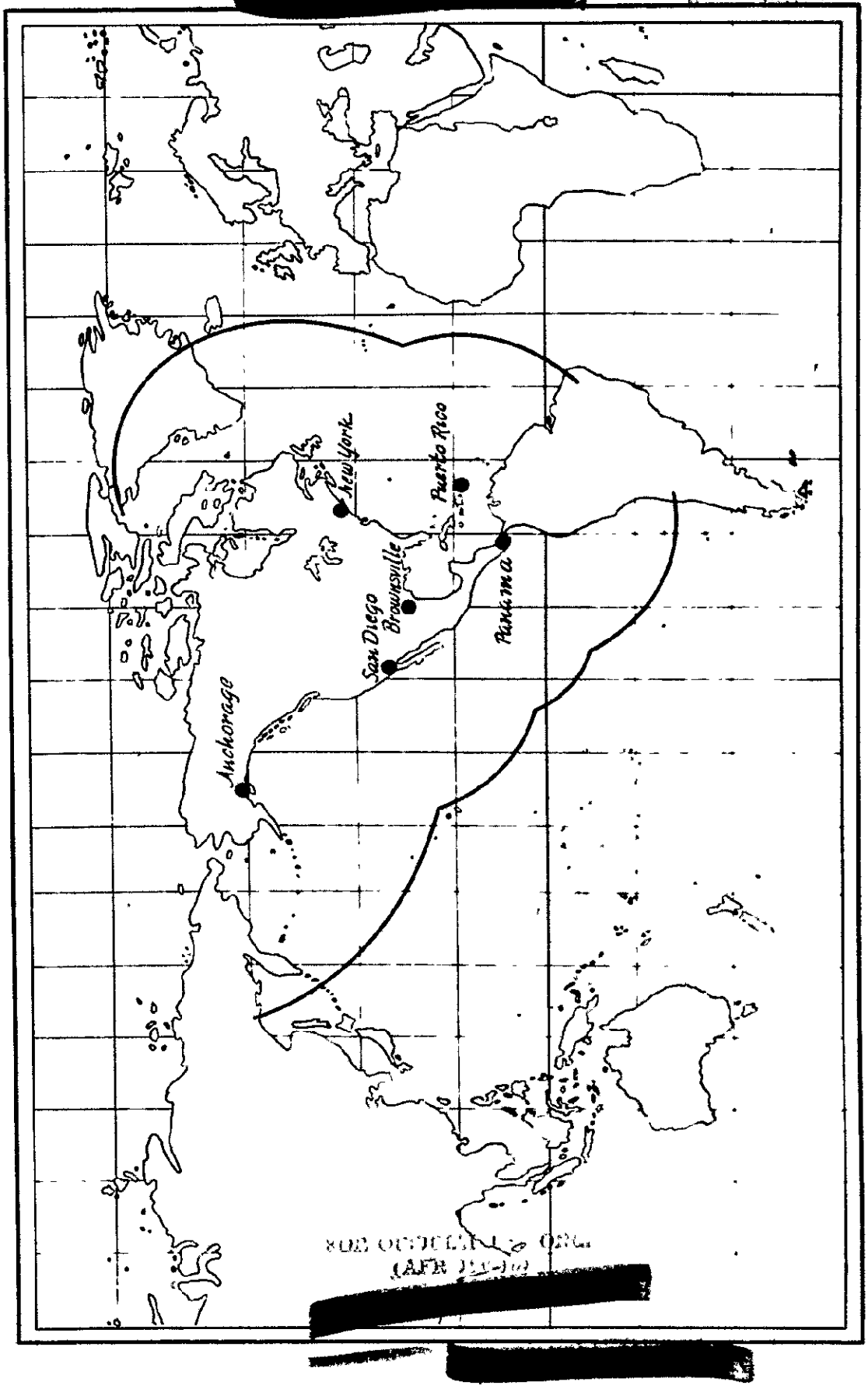
radius of 4,000 miles. The characteristics differed slightly from the previous Air Board specifications, but the general scheme was much the same; the bombers were to be used to interrupt an expeditionary force, each in a zone appropriate to its respective range. The 4,000-mile-radius plane was expected to be ready for procurement in 1947, the next largest in 1945; meanwhile the 80,000-pound bomber (i.e., the nearest approach to the later B-29) could be used as an interim substitute.[20]

When the Air Corps' formal estimate of requirements for hemisphere defense was submitted on 3 June it was accompanied by an analysis of the task. This was thought to entail six specific missions, listed in the following order of priorities: to (1) deny the establishment of hostile air bases in the Americas; (2) defeat hostile air forces lodged in the Western Hemisphere by attacking their bases; (3) defeat hostile air forces by fighting in the air; (4) prevent the landing of expeditionary forces by destroying troop transports and supply ships; (5) cooperate with the mobile Army in ground operations; and (6) operate in support of or in lieu of U. S. naval forces against hostile fleets. To fulfill these missions the Air Corps requested the following bombardment groups: 6 light, 45 medium, 22 heavy. The planes were again those of Air Board specifications; i.e., the medium could be B-17, B-24, B-25, or B-26, and the heavy was the 2,000-mile-radius plane, the future B-29. Of this latter type, two groups were to be based in northeast Canada and the other 20 were to be a part of the mobile striking force kept at some convenient base in the United States and ready for rapid deployment in any direction.[21] It is significant that another Air

Board which reported in June on priorities to be followed in the development of the several types recommended that the 2,000-mile radius bomber be placed first on the list.[22]

In the light of this evidence it is difficult to avoid the conclusion that the B-29, so far as it had a specific purpose, was originally conceived as a weapon primarily for the defense of the two Americas and of the outlying possessions of the United States; that the tactical functions first prescribed for it were long-range reconnaissance and strikes at an enemy approaching by sea or at his air bases established in this hemisphere; that the areas most often considered were the Caribbean and the North and South Atlantic frontiers; and that the potential enemy most feared was Germany (with her Italian ally). These purposes did not, of course, inhibit any other action by the plane; its recommended assignment to the striking force was an assurance of fluidity of purpose as well as of mobility of action. If we became involved in war, an obvious course would be to throw these planes into strategic bombardment, once the security of this hemisphere was assured. But that strategy would require bases not held in 1939; the very charts with which the B-29's mission were illustrated show graphically that the range of that bomber was calculated in terms of defense rather than of strikes at the German or Japanese homeland.[23]

How this original mission was modified in the light of a changing world situation will be related in the following chapters.



AIR DEFENSE OF THE U.S.
By Air Force with 2500-mile radius of action

Chapter IV

THE EARLY PLANS

> If you want the B-29 used efficiently and effectively where it will do the most good in the shortest time, the Southwest Pacific area is the place and the Fifth Air Force can do the job.
>
> Letter, Lt. Gen. George C. Kenney to General Arnold, 29 October 1943.

Although the B-29 would seem to have been designed primarily for hemisphere defense, plans for its employment for strategic bombardment were being formulated before ever the mock-up was completed. Of necessity, the time-lag between the blueprint stage and quantity production of the bomber made impossible the early adoption of any firm commitments. Tentative plans made in Washington and requests from the several theaters and commands indicate that at one time or another consideration was given to the deployment of B-29 units in practically every theater of a global war. Generally the most seriously considered plans followed closely the changing strategic situations from 1941 to 1944. It was this fact and the inevitable delay in the production of the aircraft which explain why the final choice of a field of operations differed so radically from the theater most often contemplated until well into 1943. These abortive plans may be described briefly as a useful background for the definitive scheme under which the XX Bomber Command was finally to operate. For convenience they are designated as "early plans," though in point of fact some of

them had ardent supporters until after the advance units of the XX Bomber Command had moved out.

Air Staff Plans

When the Air Staff began to consider the VLR bomber as a weapon of offense as well as for hemisphere defense, most of their plans, for reasons which will become apparent, were directed against Germany. One important exception to this tendency should be noted. During the autumn of 1939 WPD was working concurrently on five alternative war plans, each based on a different potential situation. These so-called RAINBOW plans envisaged respectively: No. 1, defense in the Atlantic alone; No. 2, defense in the Pacific alone; No. 3, offensive in the Pacific, defense in the Atlantic; No. 4, offensive in the Atlantic, defensive in the Pacific; No. 5, offensive in Europe.[1] On 1 September 1939, the day Germany marched on Poland, Lt. Col. Carl Spaatz, Chief of Plans Division, submitted a study on the possible air contribution to RAINBOW No. 3.[2]

As a means of enforcing Japanese acquiescence in our national policies, Colonel Spaatz rejected the alternatives of an expeditionary force or a naval blockade in favor of a "sustained air attack of critical elements in the Japanese industrial set up." To strike at the highly vulnerable industrial area it appeared more feasible to employ the Air Board 2,000-mile-radius bomber than to attempt to develop the 4,000-mile-radius plane for use from Hawaii or to obtain, by force or negotiation, bases from which the B-17 could operate. The

Air Board heavy bomber (i.e., the future B-29) might conceivably be employed from bases in China, in the Aleutians (if U.S.S.R. would consent to provide refueling stations in Siberia), in Guam, or in the Philippines. However, bases on the Asiatic mainland were not entirely practical; Guam was vulnerable and Congress had recently refused funds for a naval air base there. Luzon offered the happiest solution. Hence Colonel Spaatz advocated that two groups of 2,000-mile-radius bombers (plus supporting air units) be deployed in Luzon when unit equipment, crews, and replacements were fully available and that six groups in the GHQ Air Force be earmarked for immediate dispatch at the threat of hostilities.

This plan had two flaws: the main industrial areas on Honshu lay at extreme range for the Air Board bomber operating from Luzon (Manila to Tokyo, 1,860 miles); and it was commonly (and correctly) accepted in military and naval circles that the Philippines would be extremely difficult to defend. The plan is of academic interest in view of the eventual deployment of the XXI Bomber Command. The fall of Luzon, long before the B-29 was ready for combat, alone would have prevented the implementation of this plan, but actually it was estopped earlier by a clarification of our national aims. By and large those aims, insofar as they contemplated offensive war, were directed eastward toward Europe rather than westward.

It was suggested in the previous chapter that Axis victories in Europe between September 1939 and June 1940 enhanced the importance of hemisphere defense. It was obvious however that if the build-up

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of air, ground, and naval forces in the United States did not discourage an enemy attack on the Americas, we would not be content to remain forever on the defensive. Even in his request for an expanded air force on 12 January 1939 the President had stated that our defenses should be strong enough "to ward off sudden attack against strategic positions and key facilities essential to ensure sustained resistance and ultimate victory." Ultimate victory meant an offensive and to the Air Corps offense meant strategic bombardment. With the fall of France and the ever-present fear of a German invasion of the British Isles, the problem of how to carry an air war to Germany was raised, if not publicly, at least within the Air Corps itself.

The simplest if not the most practical method lay in the development of the Air Board's 4,000-mile-radius bomber, which could reach the heart of Germany from permanent bases in North America. General Arnold had described that plane as one "capable of disrupting the launching of expeditionary forces against the Western Hemisphere"[3]--that is, of hitting directly at Europe. A more positive statement of the role of the VLR bomber appears in an exchange of letters shortly thereafter.

On 4 June 1940 Brig. Gen. James E. Chaney, then Commanding General, Air Defense Command, wrote to the Chief of Staff recommending the establishment of a special project for the rapid development and procurement in large numbers of "long range strategical bombers." These aircraft should be "capable of carrying out sustained and effective bombing operations to the maximum operating range" possible, with the

[redacted]

ultimate objective of "carrying war and destruction to Berlin, that is, to Germany proper." Until that ultimate in aircraft could be developed we should build up a force of interim long-range strategic bombers as a threat to Germany, contingent upon their possible use from "advanced bases that might become available to us under certain conditions of warfare," as well as for counter-air activities should the Axis establish themselves in the Western Hemisphere.[4]

The letter suggests that General Chaney was not fully conversant with the current designs of the Air Corps. What he advocated was essentially that the Air Board's 4,000-mile-radius bomber be built for bombing Germany from North American bases and that pending its completion the Air Board's heavy (B-29) and medium (B-17, B-24) bombers might be deployed in England. Actually this was to become the substance of Air Corps planning. General Arnold's comments on this letter indicate the degree to which offensive action was supplanting mere hemisphere defense in Air Corps consideration of the role of the VLR bomber.

General Arnold pointed out that an enemy operating from advanced bases (i.e., in the Americas) could reach the United States with existing aircraft. To thwart this purpose we should need planes equal in range and superior in numbers to his, and even if we completely defeated his efforts our victory would be an empty one. To hurt the enemy vitally we must strike not his attacking forces but his homeland. With our present bombers we could do this only from advanced bases,

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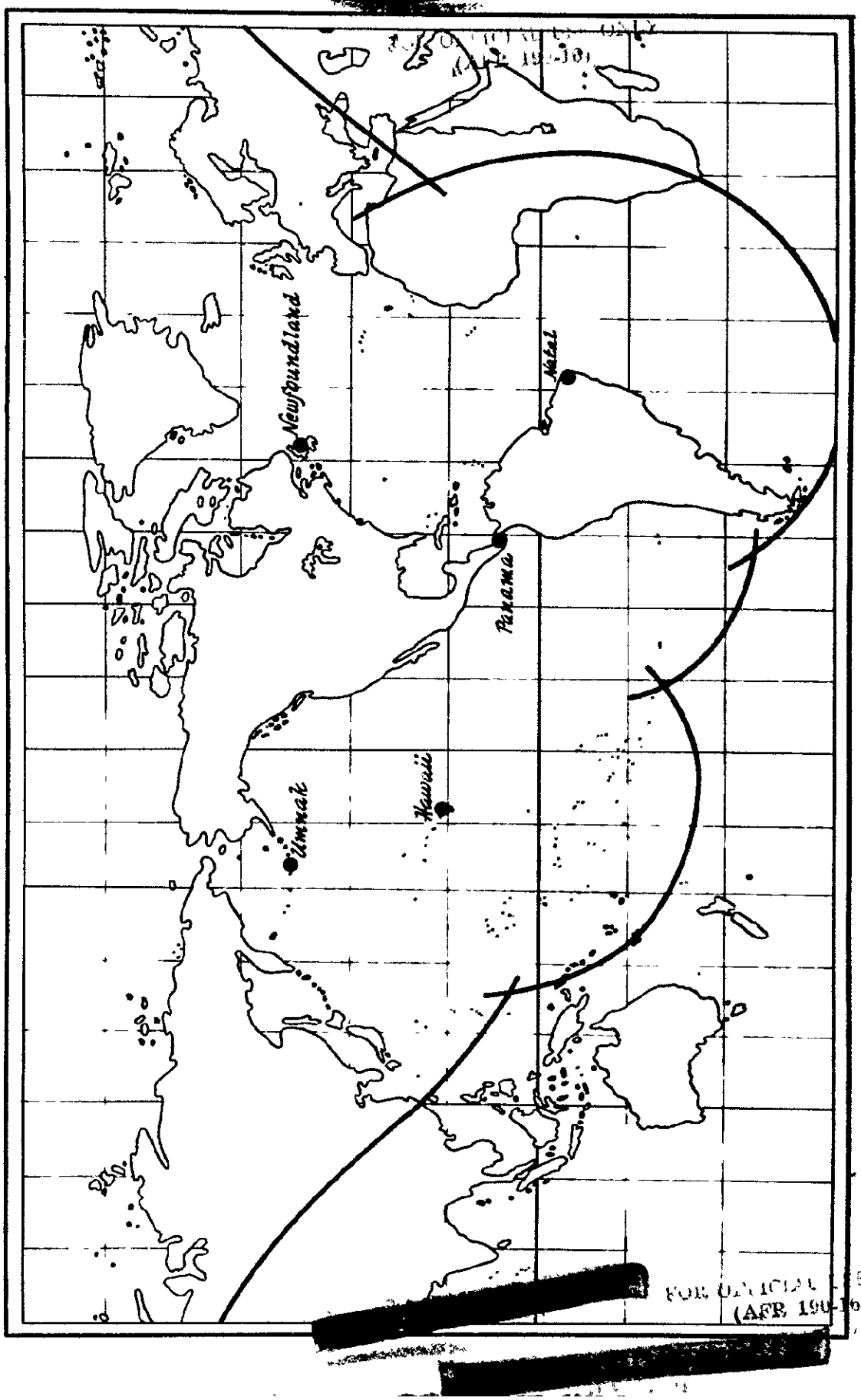

4000-Mile Radius from 5 Bases
as
Umnak-Alaska-Hawaii-Panama-Newfoundland
Natal, Brazil

[redacted]

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and "the likelihood of our securing such bases appears quite remote." Hence we must depend on a VLR bomber, for the war in Europe had demonstrated that "the air offensive has become an essential prelude to any sort of successful strategic action." It was because of these considerations that the Air Corps had given, in its program for FY 1941, the highest priority to the 2,000-mile-radius bomber and was pushing vigorously the experimental development of the 4,000-mile-radius model.[5] In short, the Air Corps had already launched the program General Chaney advocated, and for the reasons he alleged.

General Arnold's pessimism concerning the use of bases near enough to constitute a menace to Germany may have been evoked by the precarious state of England itself in the days after Dunkirk. And hence the air planners continued to consider the possibility of achieving quantity production on the 4,000-mile-radius bomber, capable of reaching from Point Barrow to Berlin, from Natal to Dakar, etc.[6] Their studies assumed that the United States might be "facing a hostile world alone," but the policies of the national administration were with increasing frankness aimed at avoiding that danger. The dispatch of weapons to England after Dunkirk and the destroyers-for-bases deal suggest that by autumn of 1940 it had already been decided that in an emergency our aid would not stop "short of war." By the end of 1940 the U. S. and British staffs had begun to lay foundations for collaboration in the event of our entering the war, and the Air Staff was engaged in formulating the pertinent sections of RAINBOW No. 5, which assumed (for planning purposes) that the United States "had

decided to intervene in Europe for the immediate purpose of preventing the collapse of England and the ultimate purpose of the complete defeat of Germany."[7]

As a result of conversations between representatives of the U. S. and British staffs, a series of proposals was formulated concerning general strategic principles to be followed (ABC-1).[8] Those principles were accepted as fundamental to the U. S. RAINBOW No. 5 plan which was adopted about the first of June.[9]

Of greatest significance to the present study were the assumptions that Germany was the most important enemy; that the main weight of Anglo-American efforts should be directed against Germany until that enemy was defeated; that pending the build-up of large ground forces the main offensive effort should consist of the aerial bombardment of German military and industrial targets; and that until the defeat of Germany, Japan as an actual or a potential enemy should be contained by a strategic defensive. In consonance with these assumptions, RAINBOW No. 5 called for the early deployment in the United Kingdom of a striking force of B-17's for the strategic bombardment of Germany. In the Pacific, the prime responsibility was to devolve upon the U. S. Navy, and the few B-17 and B-24 units which were allocated to Hawaii and the Philippines were for purely defensive purposes. RAINBOW No. 5 was concerned primarily with the period immediately before and after M-day, and in consequence no provision was made for the deployment of the B-29, now in the mock-up stage. The long-term air plans formulated in 1941 and 1942, however, assumed that VLR bombers would be in

quantity production within a calculable time, and to those aircraft was assigned a heavy share of the projected bomber offensives.

Three of those comprehensive air plans should be mentioned here. The first, AWPD/1 (12 August 1941), was drawn up in compliance with a presidential directive which sought merely to determine the munitions required for the total defeat of our potential enemies; the air Planners, going beyond the letter of the directive, supplemented the desired information with a broad operational plan.[10] Based on the principles of ABC-1 and RAINBOW No. 5, AWPD/1 assumed again that the main U. S. effort was to be directed against Germany, and that the air contribution was to consist primarily of the build-up of a huge bomber force in the European area for conducting a sustained and intensive bomber offensive against German military and industrial targets. This bomber force was to include eventually (by spring 1944), some 24 groups of B-29 and B-32 airplanes (1, 632 operational aircraft), in addition to conventional heavy and medium bombers. The 24 groups were to be based in the United Kingdom and in the Middle East (Suez region), and it was estimated that with other AAF and RAF units they would saturate available airfield areas. Hence the development of the 4,000-mile-radius bomber should be pushed in order that more distant bases might be employed. When this plane was in production 44 groups (2,992 operational aircraft) should be added to the striking force.[11]

Indicative of the essentially offensive nature of AWPD/1 is the fact that whereas these tremendous forces of VLR bombers were contemplated

for the attack on Germany, none were scheduled for the original mission of hemisphere defense, nor for the strategic defense in the Pacific; for those tasks current heavy bombers (B-17, B-24) were deemed adequate. It was suggested however that VLR bombers might attack Japanese industry from the Philippines or from Alaska, if U.S.S.R. could be persuaded to allow us to establish refueling bases in Siberia. The deployment of two groups of B-29's or B-32's in one of those two regions was recommended.[12] This, it will be noticed, was a return to Spaatz' plan and the interest in Siberia was to crop up occasionally later. However, this Pacific force was to constitute but an infinitesimal part of the over-all VLR bomber deployment.

In spite of the grave complexion imposed on the Pacific situation by the disaster to our fleet at Pearl Harbor and to our air striking forces in Oahu and Luzon, later revisions of this strategic air plan adhered to the proposition that VLR bombers should be used exclusively or predominantly in Europe until the collapse of Germany. AWPD/4 (15 December 1941) revised upward the number of VLR bombers (and other types) to be deployed against Germany.[13] It accepted the eventual need of a bomber offensive against Japanese war industry and recommended that the preparation of bases in Alaska should be initiated against future use--but no VLR units were to be allocated to the Pacific until after the defeat of Germany.

The experience of the early months of the war did little to change the views of the Air Planners. On 9 September 1942, in response to a presidential directive requesting an estimate of aircraft required for

complete ascendancy in 1943, they submitted a third strategic plan, AWPD/42.[14] Since we could not fight two major air wars simultaneously, they recommended that we deploy the bulk of our air forces (including VLR bombers) in the ETO until the defeat of Germany, predicted for 1944. Meanwhile our air activities in the Pacific would be limited to strategic defense, strikes at Japanese shipping, and cooperation with other arms in winning bases closer to Japan; only later with bases set up and bomber units re-deployed from Europe was the air offensive against Japan itself to be launched. However, it was recognized that because of excessively long distances in the Pacific, VLR bombers might eventually play an important role. When B-29's were in quantity production (late 1944), they were to be sent to the Pacific; after the end of the European war the VLR units available were to be re-deployed in the Far East. No detailed target studies had been made, but suggested objectives included aircraft and engine factories, the steel industry, oil refineries, and chemical and rubber factories. The value of Siberian bases was again mentioned, but there was no effort to indicate the exact position of contemplated bases, the precise targets to be hit, or the weight of attack necessary.

In effect, then, the over-all strategic plans emanating from AAF Headquarters in 1941 and 1942 were oriented chiefly toward Europe. Gone were any ideas of the necessity of tying down B-29's to the task of hemisphere defense; the Pacific air offensive lay far in the future. VLR aircraft were looked on as a means of supplementing if not wholly supplanting the B-17 and B-24 in the bomber offensive against Germany.

This attitude persisted until spring 1943, when the Air Planners still preferred this scheme to suggestions that the B-29, as an untried plane, be introduced in a "softer theater" in the Pacific.[15] The processes by which that attitude was changed will be described in the next chapter; here it is fitting to indicate briefly other suggestions for the use of the B-29.

Requests from the Theaters and Commands

Interest in the destination of the B-29 was not confined to the Air Planners in Washington. The B-29 was in prospect so potent a weapon that the commander of almost any air force was able to produce valid reasons why that plane should be entrusted to his use. The uncertainty of the combat readiness date kept deployment plans in so fluid a state that no theater was definitely ruled out, and specific requests for the allocation of B-29 units came from several theaters and commands. Even where no outright plea was entered, the necessity for preparations for the reception of an aircraft whose weight and size demanded specially constructed airfields brought inquiries as to specifications and probable target dates. The list of such cases which follows is probably not complete, but it indicates by its very diversity the difficult choice which faced AAF Headquarters.

For the War against Germany. The leaders of the Eighth Air Force had been aware from before its establishment in England that they were scheduled to receive [redacted] of VLR units, and they were probably more intimately aware than most commanders in other theaters of the successive delays in the production of the aircraft. In March

1943, after the XB-29 had been flying for 6 months, Maj. Gen. Ira C. Eaker requested of AAF Headquarters information concerning the estimated time of arrival in England of the first B-29 units, the rate of build-up, and the final strength. Inasmuch as 9 to 12 months were required for building a new airdrome and 3 to 5 for enlarging existing normal fields, this information and the specifications of the VLR airdromes were necessary for planning purposes.[16] General Arnold's reply gave the desired airdrome specifications, but stated that operational groups could not move out before January 1944, and that no figures could be given on anticipated rates of delivery or eventual strength.[17] It seems likely that General Eaker's inquiry had been especially prompted by the study which his staff was currently engaged in, and which resulted in the "Plan for a Combined Bomber Offensive" (13 April 43). At any rate, in view of their belated and uncertain deployment, the plan did not contemplate the use of B-29 units: the job in Europe was to be finished as it had been begun, by the B-17 and B-24.[18]

Nevertheless as the January target date approached General Eaker again asked if the B-29 was to be committed to the United Kingdom, and if so, at what time and in what quantities.[19] By this time the B-29 had been definitively assigned to another theater. General Eaker was informed that no B-29 units would be allocated to his air force in 1944, but that the cover plan for the overseas movement of the initial contingents provided for the dispatch of a few B-29's to England as a feint; to make the deception effective it was necessary that all concerned should continue to believe in the all-out employment of VLR bombers in the United Kingdom.[20]

This shift from the European theater as the contemplated area for employment of the B-29 marked the end of a second phase in operational planning. In expressing their preference in March 1943 for its use in that theater, the Air Planners had stressed the bomb load and the great range of the B-29, which would have allowed the alternate use of bases in England and North Africa.[21] The coupling of the United Kingdom and the Mediterranean in order to achieve flexibility in attacks and to avoid the North European winter weather had been implicit in all the early air plans; it had been, indeed, the one feature in the TORCH plan which had been agreeable to the Air Staff. When the fall of Tunisia seemed imminent, the Air Staff would have preferred to develop bases in North Africa and thence bomb Germany by means of the B-29 rather than to go on with the projected invasion of Sicily.[22]

Later it will be shown that the final choice of a theater for the first B-29 units was governed in part at least by political considerations. But in retrospect the long delay in the appearance of the VLR bomber makes its proposed use in the ETO less attractive. By summer 1943 it was apparent that the earliest realistic target date would fall in the following spring. By that time the Combined Bomber Offensive would be approaching its climax. The tremendous force of B-17's and B-24's on hand and scheduled seemed adequate for the designed task; and the addition of four B-29 groups—all that would be available before the anticipated fall of Germany in the autumn of 1944—would not revolutionize the striking power of USSTAF.

Whereas in 1941 and 1942 it would have been possible to reach all Axis targets from available bases only by use of a VLR bomber, by early 1944 the Axis periphery had shrunk. From airfields in England and Italy (and soon, in the U.S.S.R.), B-17's and B-24's could hit any target in the Reich or its satellite states: the extra range of the B-29 would have been superfluous. Against German fighter opposition the B-29 would have been at best only moderately more effective than the B-17 and it would have required the same long-range fighter escorts. In prevailing European weather it would seldom have been able to bomb from substratosphere altitudes, as early experience with the B-17 had shown, and hence many of the elaborate features built into the plane would have been of limited utility. In short, the use of the B-29 in Europe might have gone against all canons of economy of force. A limited addition to the striking power of USSTAF would have been purchased at the expense of introducing piecemeal to the toughest theater in the world an untried plane whose revolutionary characteristics had been conceived for a different sort of task. This had happened with the B-17 for reasons outside the control of the AAF; it did not have to happen with the B-29.

One of the functions originally contemplated for the B-29--long-range reconnaissance--was not entirely forgotten. The AAF Antisubmarine Command in April 1943 requested a high priority on the assignment of 24 of these planes for patrol in the Atlantic. The request was, however, refused in favor of concentrating on the build-up of a strategic bombardment force.[23] The Navy too was interested in obtaining B-29's

for reconnaissance in connection with naval operations, and, after its assumption of the duties of the Antisubmarine Command, for the war against the U-boat. In the face of the Navy's long-standing objection to the development of a long-range Army bomber and of its continued complaints against the high production priority enjoyed by the B-29, this interest may have seemed gratuitous. At any rate the official AAF position was simple: "The Army Air Force will not discuss the allocation of B-29's to the Navy."[24]

For the War against Japan. Inquiries and requests from the various theaters of the Japanese war followed a similar pattern. Soon after his arrival in India in February 1942, General Brereton seems to have asked for specifications for airfields for VLR bombers. He was given full data on runways for B-39's and B-32's and advised to allow for their later expansion for the XB-35 and XB-36, though those planes were not expected to be in quantity production before spring of 1944.[25] That estimate was not overconservative; it was early 1944 before work on B-29 fields was to begin in India.

To leaders in the several Pacific areas the designed range of the B-29 was alluring. In commenting on the tactical lessons of the battle of Midway (3-5 June 1942), General Emmons expressed the conviction that the B-17 was deficient in range for operations in the Central Pacific and suggested that every effort be made to produce and deliver to that area B-29 or B-32 aircraft.[26] Three months later Maj. Gen. Millard F. Harmon, in advocating the establishment of a large base at Bora Bora, indicated that he was expecting to use B-29's in the South

Pacific.[27] The early general plans for deployment of the B-29 had all considered its possible use in the North Pacific. The Japanese invasion of the Aleutians and abortive attack on Alaska had for a while sidetracked that consideration, but with the American reconquest of the western Aleutians in 1943 (Attu, May; Kiska, August) interest in that area as a base for VLR bombing of Japan was revived. Inasmuch as this interest actually materialized later in the building of B-29 airdromes, the relations between that project and over-all strategic plans will be discussed in a subsequent chapter.[28] But of all the Pacific areas it was the Southwest which brought forward the liveliest claims for allocation of B-29 units.

Lt. Gen. George C. Kenney had been, while at Wright Field, associated with the experimental development of the B-29. When in September 1942 he became Commanding General of the Fifth Air Force he was perhaps better informed as to the potentialities of that plane than other AAF commanders, and he seems to have entertained some belief that he enjoyed a personal priority in demands for its allocation. In June 1943 he made inquiries of AAF Headquarters, similar to others described above, concerning the type of airfields which should be built to accommodate the B-29.[29] Six weeks later he wrote to General Arnold: "I hear that the B-29 is flying again. I assume that I am still to get the first B-29 unit"; and he emphasized the fact that if the plane was to be used in the Southwest Pacific, the information on airfields requested earlier, and an advance B-29 for experimentation, should be dispatched as soon as possible.[30] When this letter arrived, tentative

plans were being shaped in the Air Staff for use of the earliest B-29 units in the CBI.[31] Some members of the Combined Staff Planners however were vigorously opposing the CBI in favor of the Southwest Pacific as the area for earliest deployment of the B-29, and to inform himself as to the advantages of this alternative proposal General Arnold cabled General Kenney requesting his views on the best use of the B-29 for the early defeat of Japan.[32] General Kenney needed no urging. His reply was a long and enthusiastic presentation of a plan to employ the VLR bombers from existing bases in Australia between Darwin and Broome. The main targets were to be POL installations in the NEI (Palembang, Balikpapan, etc.), enemy shipping south of a line Singapore-Saigon-Manila-Marianas-Marshalls, and heavily defended bases such as Truk and Palau.[33] A little later Kenney indicated something of the tactics he expected to use--night bombing by flares from a fairly low altitude which would have made the pressurized cabin unnecessary and the armament too light.[34] The strategy which Kenney advocated was essentially that recommended by Navy members of the Combined Staff Planners; but for reasons which will appear later, that strategy was not adopted. In spite of his eloquent plea, General Kenney was informed in mid-November that the B-29 was to be assigned to another theater.[35] Subsequent efforts on his part and on the part of General MacArthur to reverse the decision were futile.

To recapitulate: from the summer of 1940 until the summer of 1943, most plans had given preference to the United Kingdom as the area from which VLR bombers were to be employed; other theaters were also

considered, until late in 1943 a firm decision was made to commit the planes to the CBI. The process by which that decision was made will be described in the next chapter.

Chapter V

THE CHOICE OF A THEATER

> It is a matter of primary importance, both politically and militarily, that the present Chinese government be supported in its prosecution of the war against Japan. The importance of keeping China in the war has been emphasized on several occasions by the President . . . MATTERHORN, which has been assigned first priority on the highest level, is contributing directly to keeping China in the war . . .
>
> Gen. H. H. Arnold to the Joint Chiefs of Staff, 15 July 1944.

If until spring 1943 the Air Planners had given almost exclusive attention to the ETO as a field of operations for VLR bombers, that tendency had been dictated by over-all strategy. At mid-May of that year the war against Germany was still the primary concern of the Combined Chiefs of Staff. The North African campaign had just been brought to a successful if belated conclusion; the invasion of Sicily was imminent, with Italy as the next logical objective. In the north the Combined Bomber Offensive was getting under way, and in spite of diversions to the Mediterranean the build-up of forces for a full-scale invasion of the Continent in 1944 had begun. Tentative plans in broad outline had been laid for the defeat of the European Axis, and for more than a year in the future the bulk of men and supplies were earmarked for that task.

The war against Japan was still in its defensive phase. American forces had checked the Japanese advance westward at Midway, southward in the Solomons, and in the North Pacific had recently recaptured Attu. But British campaigns in northern Burma [redacted] yab region

had failed, and in war-weary China the Japanese were consolidating and extending their holdings. Except in respect to U. S. naval forces, allocations for Asia and the Pacific were strictly subordinated to those for the ETO.

Nevertheless, when the TRIDENT conference was convened in Washington on 11 May 1943, the Japanese war was of paramount concern to the military leaders of the United Nations. That fact is attested by the attendance of U. S. and British commanders from Asia, and it is to be accounted for by two factors. First, since it was expected that the war against Germany might be completed late in 1944, it was high time that long-range plans be initiated for the redeployment of forces from Europe to the Far East, and for a strategic offensive against Japan both before and after that movement. Second, the British failures in southeast Asia, the deterioration of the tactical situation in China, and the consequent embarrassment of the Chungking government all contributed to an imperative need for immediate action in the CBI if China was to be kept in the war.

By May 1943 a fairly reliable estimate of a target date for the deployment of the earliest B-29 units could be made. That date was too late to allow the B-29 to play any considerable role in the pre-invasion bomber offensive against Europe, but it could be fitted easily into the schedule of operations in the Far East. So it was that the B-29 came to figure prominently in both the long-term strategy and in proposals for early aid and encouragement to the Chinese.

Actually there seems to have been little opposition within the Combined Chiefs of Staff toward the diversion of VLR bombers, long

intended for Europe, to the Far East. But between the several nations, services, agencies, and individuals concerned there were divergent opinions, strongly maintained, as to where and how the B-29 could best contribute to the defeat of Japan. Those differences were not easily resolved, and when on 10 April 1944 a final commitment of the initial VLR units was made, their advance echelon had been in the theater for months and the flight echelons had begun to arrive at the operational bases.

This chapter constitutes an effort at describing the processes by which that commitment was made. The story is complex and at times perhaps a little tedious, involving as it must an analysis of numerous planning papers as they moved from one agency to another with some modification but inevitably with much repetition in phraseology. Nor is it possible to follow one straight line of development in the B-29 program; it will often be expedient to describe plans which were still-born---or which aborted, to use a good AAF locution. And the story is further complicated by the intimate relation of the B-29 project to those two types of planning mentioned above: that having to do with immediate aid to China and that concerned with long-range strategy for the defeat of Japan.

But the story is as important to read as it is difficult to tell. During its first year of existence the Twentieth Air Force included two bomber commands. Of these, the XX Bomber Command operated under logistical conditions of exceeding difficulty; ton for ton the bombs it loosed over Japan must have been the most expensive in effort and

in money of all those dropped by the AAF. Deployment in the theater first occupied by this organization was long contested by certain agencies, and some--not all--of the arguments they advanced have been justified by operational experience. Why the AAF adhered tenaciously to a plan of operations whose difficulties they realized in advance can be understood only by following the tangled thread which this chapter attempts to unravel. In part, the deployment of the XX Bomber Command stemmed from the sound AAF doctrine of hitting directly at the heart of the enemy, and from the temporary lack of a better base. But, as the following pages will show, there was also a compelling force outside and above the AAF. In respect to the XXI Bomber Command, it is necessary to show how the AAF desire for the area on which it was to be based changed in detail at least the general strategy in the Pacific, and how once that base had been designated for seizure the emphasis in the VLR bombardment program swung from the XX to the XXI Bomber Command.

One further note of warning: in the several plans which are analyzed in this chapter, three practical considerations recur constantly--the problems of airfield construction, of logistical support, and of a proper command arrangement for the VLR force. To the extent possible those problems will be reserved for later chapters; this deals only with the choice of the area for deployment and the area to be attacked.

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At the Casablanca conference (beginning 14 January 1943) the Anglo-American powers had made certain promises of aid to Chiang

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Kai-shek, notably in the form of an increased flow of military supplies by air transport out of India, and of operations in Burma. Those promises had not been fulfilled when the TRIDENT conference met. The Chinese minister, Dr. T. V. Soong, described to the Combined Chiefs the precarious situation of his government, to which the neglect of those promises had contributed, and requested immediate material aid, particularly in the form of more munitions delivered by air transport over the Hump and of augmentation of USAAF in China.[1] Renewed promises were made in both respects,[2] and preliminary steps were taken for the formulation of a long-term offensive strategy.

In broadest outline, that strategy was conceived as entailing six phases: (1) augment existing operations in and from China; recapture Burma (British, assisted by United States and Chinese); (2) prepare to capture Hong Kong (Chinese); (3) secure control of the upper part of the South China Sea (United States) and capture Hong Kong (Chinese and United States); (4) establish air bases in eastern China (Chinese, aided by British and United States); (5) conduct overwhelming bomber offensive against Japan (United States, British, Chinese); and (6) invade Japan (all forces).[3] In this strategy all later operations hinged on the seizure of Hong Kong as a port of entry and on the control of the South China Sea, which in turn depended on an advance from the Central and Southwest Pacific by U. S. naval and amphibious forces.

To provide a basis for further discussion of this general strategy, the Combined Planners were directed to prepare a more detailed Appreciation and Plan for the Defeat of Japan.[4] The study, CPS 83, was

completed on 8 August in anticipation of the forthcoming QUADRANT conference (Quebec, 14-24 August).[5] The plan adhered in general to the outline laid down at TRIDENT but went further in describing the means whereby the several objectives were to be accomplished. Great stress was laid on the naval and air superiority of the United Nations: the destruction of Japanese sea and air forces, the blockade of Japan, and the long-range bombardment of the Japanese homeland from East China and/or Formosan bases were considered as absolute prerequisites, even as possible substitutes, for a final invasion. Actually the function of the United Nations' ground forces would be a subordinate one--an AAF critic was moved to call the study a "Navy plan." But its most disturbing element, at least in retrospect, was the time factor; consciously adopting the least favorable dates, the planners scheduled the bomber offensive to begin only in 1947.[6] Essentially this represented a British point of view, and in their preference for indirect methods of attack and their antagonism toward large-scale ground activities and an early invasion the British planners were repeating for Asia the position they had maintained earlier in respect to the European war. The American members wished to speed up the timing and in the end their view was to prevail.

At QUADRANT the related problems of immediate measures to keep China in the war and of long-term strategy in the Far East again figured importantly in the agenda. In respect to the former, certain commitments were made and announced to the Generalissimo.[7] The matter of long-term strategy was somewhat more complicated. The Combined

Chiefs examined CPS 83 and tabled it because of its slow tempo.[9] The U. S. Chiefs of Staff advocated an accelerated pace for the war, and presented a schedule of operations preparatory to the assault on the Chinese coast which was consonant with the general strategy suggested at TRIDENT.[9] This more aggressive attitude was reflected in the Final Report to the President and Prime Minister,[10] which indicated the Combined Chiefs' general concept of the Japanese war. The whole strategy was to be based on the JCS premise that by proper methods Japan might be defeated within 12 months after victory in Europe (par. 22). Toward this end, the redeployment of troops should begin as soon as conditions allowed (par. 24), and every effort should be made to capitalize on the United Nations' air and naval superiority, and on novel methods of warfare (par. 20, 21). The schedule of operations for 1943-44 offered by the U. S. Chiefs of Staff was accepted as a basis for further planning. Briefly, this contemplated an advance by U. S. naval and amphibious forces through the Central Pacific via the Gilberts-Marshalls-Ponape-Truk-Palau, coordinated with a parallel American sweep from southern New Guinea and the Solomons through the Bismarck Sea and Admiralties and along the New Guinea coast to Vogelkop. Further study was to be given to the feasibility of attacks on the Marianas and the Kuriles.

Meanwhile the main effort in the CBI was to be by British forces. In general, operations there should have as objectives the establishment of a land LOC from India to China (the Ledo Road), improving and securing air transport routes and building a pipe-line from Calcutta

to Assam to Kunming--to the end that China might be maintained as an effective ally and that U. S. and Chinese air forces might increase the intensity of their operations (par. 37-40; 67). Finally, a study should be made of the potentialities and limitations of developing the air route to China on a scale permitting the employment of all heavy bombers and transports available for the CBI if Germany should be defeated by autumn 1944 (par. 44).

That last paragraph was apparently suggested by an Air Plan for the Defeat of Japan, drawn up by the AAF Planners and submitted by the JCS.[11] The Combined Planners in CPS 83 had stressed the importance of "long-range bombardment" of Japan, and indeed the bases contemplated--Hong Kong and Formosa--were too distantly removed from the Tokyo area to allow the use of any but VLR bombers. According to that plan the bomber offensive was to begin in 1947, by which time VLR planes should be available in great quantity. Just what date the CPS had accepted as the readiness date of the B-29 is not apparent, but a later reference suggests that it was a pessimistic estimate, perhaps for late 1944.[12] The AAF Planners, however, were working on the basis of a more optimistic schedule, at least for the initial units, and their plan called for an earlier use of the plane. At the expense of some digression the current status of the VLR project may be described.

On 25 March 1943 the Air Planners received from the Director of Bombardment a status report on the B-29. The problems incident to production were enumerated and the opinion advanced that the earliest

date for undertaking training with that plane would be late summer of that year. The Director of Bombardment also wished to delay deployment until at least six groups were ready and then to introduce the plane in a "softer" theater in Asia or the Pacific.[13] AC/AS, Plans still was favorable to the employment of the B-29 against Germany, and the idea of delaying action until six groups were ready was repugnant, but he did initiate studies for the possible use of that plane in the Far East. These studies included reports on "Japanese Target Data" (AC/AS, Intelligence); on the number of sorties required for destruction of priority targets (AC/AS, Operations); on suitable VLR bomber bases in China (Colonel Loutzenheiser of Plans); on minimum bomber strength required to accomplish the mission in 4 to 8 months;[14] and on the vulnerability of Japanese industrial areas to incendiary attacks.[15] These studies were to be incorporated into an over-all paper then being prepared by the Air Planners in collaboration with the JPS.[16] Concurrently General Arnold had directed the Committee of Operations Analysts to prepare an "analysis of strategic targets in Japan," the destruction of which would knock that nation out of the war.[17] This analysis was not completed until November, though some agencies had access to its conclusions before it reached final form. The significance of this document will be indicated in subsequent pages.

Now that a reasonably firm estimate on B-29 production could be made, plans for the organization and training of VLR combat units were pushed through with some celerity. Brig. Gen. Kenneth B. Wolfe had

been put in charge of a special project for expediting the production of B-29's. In a progress report of 3 May he indicated that 150 bombers might be expected by 1 January 1944.[18] Later in the month at a conference between General Wolfe and Maj. Gen. Davenport Johnson of the Second Air Force, over-all policies were established for the training of combat crews.[19] For the first wing of four groups 262 crews were to be trained; by the end of 1944 it was expected that double that number should be available.[20] On 1 June 1943 the 58th Bombardment Wing (H) was activated, with General Wolfe in command.[21] Originally based at Marietta, Georgia, the new organization was soon moved to training fields in Kansas, with headquarters at Smoky Hill Air Field, Salina. In that area the training of B-29 crews was conducted, and the organization of the groups, the 58th Wing, and, after 27 November, of the XX Bomber Command was perfected. The story of those organizations has been told elsewhere[22] and need not be repeated here. What is significant for the present study is the fact that from April 1943 the Air Planners were no longer engaged in the type of academic exercise relative to the employment of the B-29 which had appeared in AWPD/1. Plans could be based on an estimate of 150 B-29's, with trained crews, ready for service early in 1944, as well as on the quantity production of aircraft and crews which were anticipated for 1944-45.[23] A short-term plan for the early deployment of the first 150 aircraft was to come later; the Air Plan which was presented at QUADRANT, and which may now be analyzed, was conceived on a grander scale.

The Air Plan, sometimes known as SETTING SUN,[24] had been drawn up in consonance with the now accepted objective of defeating [redacted] 2 months

after victory in Europe, predicted for autumn 1944. The choice of an area from which to launch the air offensive against Japan was governed by two factors. First, as General Arnold had pointed out to the CCS, if current schedules of operations were adhered to, Pacific Island bases within range of Japan proper would not be available in 1943-44.[25] Only China would offer the requisite capacity and dispersion, within practical tactical radius, for the aircraft which could be deployed against Japan by the end of 1944.[26] The second consideration was of considerable political and strategic importance. The deep concern of the highest Anglo-American authorities over the military and political situation in China had been made evident at both the TRIDENT and QUADRANT conferences. It was the opinion of the AAF Planners that "the initiation of the bomber offensive, and even measures in preparation therefor, will tremendously stimulate Chinese morale and unify the Chinese people under the leadership of Chiang Kai-shek."[27] These two factors, the long delay before island bases near the Japanese homeland would be available and the desire to revive the Chinese war spirit, were fundamental in AAF policies. Later they were buttressed by considerations of target selection, but to one who does not have access to papers at the highest governmental level, it would appear that in the long run the question of Chinese morale was the deciding point.

If the desire to initiate the bomber offensive early enough to accomplish the defeat of Japan by the end of 1945 forbade waiting for Pacific island bases, it was even less practical to await the capture of an East China port at a still later date.[28] Hence the AAF Planners

proposed to construct a number of air bases along a 400-mile axis north and south of Changsha. Within a radius of 1,500 miles from these bases lay most of the industrial areas of Japan, and it was assumed that the B-29 could operate at that radius with a 10-ton bomb load. Ten groups (28 aircraft each) of B-29's could be deployed in the area by October 1944, 20 groups by May 1945. It was calculated that with groups operating at the rate of five missions a month at 50% strength, 168 group-months would be sufficient to accomplish the objective, and that with the forces stipulated, that weight of attack could be delivered within 12 months time.

This force was to operate without disturbing existing or projected air or ground LOC's. The ATC route, Ledo Road, and Calcutta-Assam-Kunming pipe line were to serve a U. S.-trained Chinese army and the Fourteenth and Tenth Air Forces, all of which were to devote their energies toward defense of the new project against the almost certain violent Japanese reaction. All supplies for the bomber offensive were to be transported by air from Calcutta to Kunming and thence distributed among the fields in the Changsha area. For this task, B-24's released from the European war and converted into transports (C-87's) were to be employed at the rate of 200 per B-29 group--i.e., 2,000 by October 1944, 4,000 by May 1945. The project would require a total of 596,000 tons per month flowing through Calcutta, but the current capacity of that port (estimated at 960,000 tons) was deemed adequate.

Inasmuch as it would require some 12 months to prepare the numerous installations required, it was necessary that the plan be given immediate

consideration, if the target date of autumn 1944 was to be met. On the recommendation of the U. S. members the CCS referred the plan to the CPS for study and report by 15 September,[29] and the necessity of that study had been emphasized in the paragraph (par. 44) of the Final Report at QUADRANT which was cited above.[30] By 15 September, however, criticism sufficiently cogent to condemn the plan in its original form had come from another source.

On 23 August General Somervell cabled General Stilwell a short resume of the SETTING SUN plan, requesting that he make a study of its logistical practicability.[31] Three days later a more detailed description of the project was sent, with a request for General Stilwell's comments as to its operational feasibility and tactical efficiency.[32] Finally General Stilwell was asked certain specific questions in regard to supplying and defending the base area, and if there were other base areas he might prefer to the Changsha region.[33]

General Stilwell's reply to these cables came in the form of a long message of 11 September.[34] Specific questions were answered, some favorably, some unfavorably. The gist of his argument was however that the plan as a whole was logistically impracticable within the time limits set. Numerous factors contributed to the difficulties of achievement, but basic to all was the alleged inadequacy of the port of Calcutta.

In response to the query as to other base areas, General Stilwell presented an alternative plan, called TWILIGHT, which introduced certain

novel proposals. He advocated the use of several airfields along the Kweilin-Changsha railroad (Liuchow, Kweilin, Suichwan, Hengyang), but as advanced rather than permanent bases. The B-29's were to be kept at airfields in the Calcutta area, which was relatively secure from attack and which offered facilities for 4th echelon maintenance and repair greatly superior to those in China. For a mission against Japan, the B-29's were to be fully serviced, less bombs, in the rear area, and proceeding to the advanced base, were to off-load surplus gas (1,183 gallons from the capacity load of 7,666) and bomb up. That flight was to be made by extra flight personnel with the combat crew deadheading as passengers; at the Kweilin area field, the latter would take over, accomplish the mission, return to the advanced base, refuel, and be flown back to Calcutta by the extra crew.

None of the existing supply routes into China were to be levied on for the B-29's; extra fuel, bombs, and other supplies were to be hauled over the Hump by 45 converted B-24's and 367 C-54's or C-87's, operating direct from Calcutta to Kweilin and back via Kunming. These transports could sustain a force of 10 B-29 groups flying five 100-sortie missions a month with five-ton bomb loads. They could be made operational by April 1945, and should be sufficient for the task; later 10 additional B-29 units might be based in the Mandalay area. This program, less ambitious and more economical than that of the AAF Planners, would require only 58,000 tons per month, exclusive of POL, and existing port facilities at Calcutta could handle the load.

It was calculated that the additional airdromes needed and a pipe line in the Calcutta area could be built on time with the aid of American materials, machinery, engineer units, and supervisory personnel. Ground security for the advanced bases would require 50 Chinese divisions equipped and trained by the United States. During construction those fields would be protected from air attack by an augmented Fourteenth Air Force; after February 1945 that function would be taken over by five fighter groups assigned to the project. Logistical support for both air and ground defense forces was to be by means of LOC's currently operating or projected (augmented ATC, Ledo Road, pipe lines).

TWILIGHT bore in some respects the distinctive brand of the CBI theater. General Stratemeyer's staff must have had an important part in framing it, but it represented the combined efforts as well of the theater headquarters, the Fourteenth Air Force, and SOS, fortified by the counsel of the RAF and British Army Headquarters in India. If the scale of B-29 operations was reduced and the target date retarded, those changes had been made by officers who knew from experience the difficulty of meeting target dates in the face of British apathy and Chinese politics, and with the native labor and materials available in India and China. On the other hand, the security forces demanded seem so out of proportion to the potential accomplishments of 10 VLR groups that one might wonder if Generals Stilwell and Chennault were more interested in the proposed strategic bombardment or in augmenting their respective ground and air forces. One new feature in the

TWILIGHT plan--the idea of using a permanent base in the rear and operating through a staging area--was an extension of tactics which had been used on a smaller scale by General Chennault. It was indeed in perfect accord with AAF doctrines of mobility and with practices already current in the ETO and in the Pacific; and in the end it was to be the most important single feature of TWILIGHT which was put into practice.

General Stilwell had been advised that Col. G.B. Stone would bring to the theater for discussion a detailed report on the plan for using the Changsha bases. The theater critique of that plan, however, had been made on the basis of the cabled summaries only, and TWILIGHT had been formulated before the arrival of that officer. Brig. Gen. Robert Oliver of Headquarters [redacted] was now dispatched to Washington to present the details of the TWILIGHT plan.[35] On his arrival he found that the CSP, having studied the Air Plan in compliance with their directive from QUADRANT, were prepared to reject that project on logistical grounds, but were willing to consider further the substitute TWILIGHT proposals.[36] The CSP already had issued an interim report recommending that their QUADRANT directive be withdrawn and that the study of possible B-29 operations be included in the over-all plans for the early defeat of Japan.[37]

The AAF Planner acted on this proposal immediately, submitting to the JPS on 16 September a memo containing an outline plan for the defeat of Japan within 12 months after the defeat of Germany.[38] This memo indicated that in general the AAF favored the TWILIGHT proposal,

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though it was felt that certain features of the original plan should be retained, including the earlier target date, the use of more converted B-24 transports, and the improvement of port facilities in India. Provisions should be made for the deployment of the second 10 groups of B-29's when the Mandalay-Rangoon area was available, and a study should be made as to the possibility of basing B-17 and B-24 aircraft in China for bombing Formosa, Hainan, Canton, and Hong Kong. These activities, if consummated, might well constitute the major United Nations effort in the period immediately following the collapse of Germany, but in keeping with the desire of the CPS, the Air Planner went on in an effort to fit these CBI operations into the over-all strategy against Japan. This part of the study was to introduce a new base area of great significance to the history of B-29 operations.

In the schedule of specific operations for 1943-44 presented by the JCS at QUADRANT, it had been indicated that consideration was being given to the seizure of the Marianas. In early September that operation was thought of as a subordinate action for the purpose of establishing a naval base, and it was scheduled tentatively for early 1946, subsequent to the capture of Truk and the Palaus (Yap). The AAF had suggested that the target date be advanced and that the islands be used as a base "from which to conduct bombing operations against the mainland of Japan."[39] The AAF Planner now advocated that the islands be seized in mid-1944 by by-passing and neutralizing certain objectives in the Central Pacific, with the "establishment of /very/ heavy bomber bases as the basic mission." Eventually 8 groups of B-29's should

be based in the Marshall-Caroline area, and, staging through the Marianas, should strike at the industrial core of Japan. Other areas to be considered for later deployment of B-29's were Marcus Island, the Aleutians, Luzon, Formosa, and the Maritime Province if U.S.S.R. should go to war with Japan. Plans should contemplate the eventual employment of 28 groups of B-29's, with operations to begin in March 1945 or earlier. It was recommended that this plan be presented to JWPC for inclusion in the over-all plans they were engaged in formulating.

Meanwhile the outline plan was under review within the Air Staff. At General Arnold's direction, a special board was formed to report, by 21 September, on its feasibility and probable effectiveness.[40] The prospect of revising general Pacific strategy to secure at an early date B-29 bases in the Marianas made dubious the wisdom of any large-scale effort in China which would delay the Pacific operation.[41] Nevertheless, the board recommended that a modified version of TWILIGHT be developed, calling for the early employment of B-29's in China.[42]

Planning for the employment of the B-29, then, had to take cognizance of two issues: first, to provide for ultimate deployment of all available VLR units, calculated at 16 operational groups by the end of 1944,[43] in consonance with over-all strategy, and in this respect the Air Staff seems unanimously to have favored the Marianas as the most promising base area; and second, to make interim arrangements for the early use in China of those units which were currently being organized and trained by General Wolfe. This latter proposal had this intrinsic merit, that the B-29 was [redacted] quantity and its

early commitment to combat was desirable if for no other purpose than to test the characteristics of the plane and the character of the training program. But the B-29 might have been introduced under conditions less difficult and less expensive than those obtaining in China, and it is hard to avoid the conclusion that in the last analysis the deciding factor was political--or strategic in the broadest sense. The need of immediate measures to encourage the Chungking government was reiterated in each successive general conference from Casablanca to SEXTANT. Given the existing strategical situation, U. S. air power seemed to offer the most feasible means of accomplishing that goal. To achieve the proper effect, air operations had to be launched from China and extend to the Japanese homeland. Only the B-29 could accomplish such a mission. And in the oriental world where prestige counted so heavily, no plane could have salved so readily as the "Superfortress" the wounds of a nation piqued by seeming neglect by its allies. During the period between the QUADRANT and SEXTANT conferences the President exhibited a lively interest in the projected deployment of VLR bombers in China; and while no direct documentary evidence has been found to substantiate such an assumption, it seems not unlikely that he may have given the original impetus to such plans.[44] If he did direct the formulation of such plans, that was of course sufficient alone to launch the modified TWILIGHT operation. Such a plan, moreover, had in spite of its obvious difficulties this virtue from General Arnold's point of view: that it proposed to strike directly at the root of the Japanese war potential, in perfect accord with standard AAF doctrines of strategic bombardment. In the face of these circumstances the contemplated difficulties and expense were irrelevant factors.

To secure a developed practical plan with details on operational methods, General Arnold turned to General Wolfe, whose long experience with the development of the B-29 and present position as commander of the 58th Bombardment Wing afforded first-hand knowledge of the potentialities of the aircraft, of its production program, and of the crews. Apparently General Wolfe was directed to prepare immediately a modified TWILIGHT plan as recommended by the special board on 20 September,[45] and on the 24th he complied with that directive.[46] The Wolfe plan, which called for the initiation of bombing operations by about 1 June 1944, adopted some of the salient features of TWILIGHT. The most important innovation was a provision that the project should be made practically self-supporting by basing 150 B-29's in the Calcutta area to serve as transports for the striking force of 100 B-29's based in the advanced area in and around Kweilin.

While the general outline of the plan was acceptable to AAF Headquarters, two features called for further revision. For one thing the target date of June 1944 was too tardy to comply with the President's desire for an immediate show of force in China. And against this desire for speed, there was a disquieting lag in B-29 production, occasioned by the inevitable "bugs" in a new plane and by labor difficulties in one of the factories manufacturing the Wright 3350 engine. If the target date had to be advanced in the face of a production slow-down, the aircraft complement of the original force would have to be scaled down. In light of these factors General Wolfe revised his plan and re-submitted it to General Arnold on 11 October.[47]

The new version was a full operational plan, with tabs and charts on logistics, organization, troop basis, etc., and since much of its substance was later put into practice it may here be analyzed in some detail.

The mission was defined as initiating strategic bombardment of Japan proper with the maximum number of B-29's at the earliest possible date. Operations were to be calculated on the basis of 150 aircraft available by 1 March 1944 and 300 by 1 September; and on a training schedule capable of providing 300 crews by 1 March, 450 (i.e., 150 double crews for combat, 150 for transport), plus normal replacements, by 1 August. Certain assumptions were made in regard to conditions in the theater: that airdromes would be made available in the Calcutta area (for 150 aircraft by 1 March, 300 by 1 September) and near Kweilin (5 fields by 1 March); that proposed improvements be made in port facilities at Calcutta, in the Brahmaputra River route, and in radio facilities in Burma and China; that the 308th Bombardment Group (H) maintain its current transport schedule and be allotted 20 additional C-87's, and that ATC achieve a rate of 10,000 tons over-the-Hump freight per month; and that a rail-truck line from Kunming to Kweilin be available. To accomplish the mission, a bomber command, consisting of two wings of five groups each, should be organized.

All the B-29's were to be based in the Calcutta area, as in TWILIGHT, and were to stage through the Kweilin airdromes in their strikes at Japan. Operations were to be initiated about 1 April, with 150 aircraft in the theater. Three 100-sortie missions were to be

run in rapid succession; thereafter the weight of attack would be 200 sorties per month until September, then 300 per month. Supply was to be largely by the B-29's themselves, 60% of them being engaged in transport directly from Calcutta to Kweilin, 40% in combat missions. To secure flexibility of operations the planes were not to be modified; and thus the transports would serve as a combat reserve, and the combat planes might under conditions unfavorable for attack assist in transport. The whole force, plus the 308th Group, would be able to build up a stock pile for the initial missions in the month of March. Thereafter the B-29's would transport enough supplies to maintain the stock pile and provide for the missions at a rate of three Calcutta-Kweilin transport sorties per combat sortie. Air defense would be by the Fourteenth Air Force, reinforced by 150 P-51 or P-63 fighters, supplied by existing facilities and the augmented 308th Group.

General Wolfe pointed out the weaknesses inherent in his own scheme: the vulnerability of the transport route to enemy interdiction and of the advanced bases to ground and air attack; the abnormal requirements for supply and maintenance; and the fact that no paralyzing blow could be delivered. On the other hand the project would be largely self-contained, it would require no previous ground or naval action, and it offered a chance for early and continuous attack on Japan which promised important if not decisive material and psychological results. The calculated risks, he concluded, were well within accepted AAF standards. To meet the deadlines established, he recommended early approval and action.

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This plan General Wolfe discussed with AC/AS, Plans on 12 October and discovered several controversial points. Most important was that of the location of the advanced bases. He had followed TWILIGHT in naming the Kweilin area and had apparently assumed that Chinese forces would furnish ground protection. In view of the demand of General Stilwell for 50 U. S.-trained-and-equipped Chinese divisions for that responsibility, the Asiatic Theater Branch of Plans (Col. G. G. Carey) had searched for a base area within range of the Japanese Inner Zone but less open to Japanese attack. So that "the plan in general /might/ be insulated from minutiae which may be controversial at the moment but which are irrelevant to action which as of necessity has to be initiated without delay," General Wolfe suggested to General Arnold on 12 October that certain of the assumptions he had made be held temporarily in abeyance, and that Chengtu be substituted as an alternative area wherever Kweilin had been mentioned.[48]

The Wolfe plan then showed these modifications from TWILIGHT: the project was to pay its own way rather than depend on a large force of transports; it was to dispense with the tremendous ground force previously contemplated; and it was to use the Chengtu rather than the Kweilin area for staging fields. These features were to be fundamental to the project which eventually was to materialize.

On 13 October General Arnold approved in principle the Wolfe project, indorsing it in his own hand: "I have told the President that this will be started (in China to Japan) on March 1. See that it is done. HHA."[49] This date was far in advance of that anticipated in

the early plans, and several months earlier than Wolfe's original estimate, but it was not so early as the President desired, or apparently, as he had expected. He wrote to General Marshall:[50]

> I am still pretty thoroughly disgusted with the India-China matters. The last straw was the report from Arnold that he could not get the B-29's operating out of China until March or April next year. Everything seems to go wrong. But the worst thing is that we are falling down on our promises every single time. We have not fulfilled one of them yet. I do not see why we have to use B-29's. We have several other types of bombing planes.

In response to a request from the Chief of Staff, General Arnold had a draft message prepared explaining that the delays in committing the B-29 were the result of labor troubles, the flaws inherent in any new plane, and the logistical difficulties in the CBI; he pointed out that the B-29 was the only plane capable of hitting Japan from available bases in China, but offered to reinforce the Fourteenth Air Force with B-24's if it were deemed desirable.[51] This latter offer was not accepted; the Wolfe project, with the target dates suggested, continued to stand as our best possible contribution to the war in China.

To secure more definite information from the theater upon which a comparison of the merits of TWILIGHT and the Wolfe plan could be made, further queries were dispatched to General Stilwell.[52] The gist of the replies[53] indicated that General Stilwell was unwilling to accept the responsibility of defending B-29's at Kweilin with fewer than 50 Chinese divisions, but that Chengtu could be secured with no additional ground troops and only two extra fighter groups; that logistical problems for Chengtu would be difficult but not insurmountable; and that the airfields needed for initial forces could be built

in 4 to 6 months. In brief, the theater had no objection to the modification of their TWILIGHT plan as an interim measure which promised to expedite operations.[54] Enthusiasm was dampened by the conviction that "no aerial knock out blow however can be expected from Chengtu"[55] (a view heartily concurred with in Washington), but General Stilwell accepted the plan in principle, requesting the earliest possible announcement of its formal acceptance in order that arrangements for construction might be begun.

AC/AS Plans continued to work on modification and refinement of details of the Wolfe plan,[56] and on 9 November the revised plan, which came to be known as MATTERHORN, was presented to the Joint Planners for their consideration.[57]

In addition to the features which have been described above, the new paper contained recommendations on target selection based on information from the as-yet unpublished report of the Committee of Operations Analysts. Highest priority was given to coke ovens, an integral part of the steel industry, most of which were located within tactical radius of Chengtu. It was estimated that strikes to the weight of 100 sorties a month from April to September, and 300 a month thereafter, would cripple those plants and seriously interfere with the Japanese war effort. The combat, maintenance, and construction forces necessary for the accomplishment of this mission were designated, and with the exception of the temporary diversion of engineer aviation battalions for airdrome construction in India, it was considered that the plan would not interfere with other projected operations.

The U. S. Navy had already registered a complaint in respect to the over-riding priority enjoyed by the B-29 project,[58] and in the JPS discussion of the MATTERHORN paper on 9 November, the Navy Planner again raised that issue. The Army Planner objected as well to the suggested temporary diversion of four engineer aviation battalions, and hence it was agreed that the JWPC be directed to study the paper and report on it to the Joint Planners at the now immiment SEXTANT conference. Meanwhile the Air Planner was to secure JCS permission to request the cooperation of British and Chinese governments in constructing the requisite airdromes should the plan be approved.[59] This permission was granted by the Joint Chiefs, who recommended that the CCS authorize the airfields in Calcutta and that the proper U. S. authorities make arrangements for the Chengtu area.[60] Those steps were taken immediately by the "proper U. S. authorities." MATTERHORN had been presented to the President and approved in principle,[61] and on 10 November he dispatched cables to the Prime Minister and the Generalissimo announcing the American intention and requesting their cooperation in regard to the airfields.[62] Both leaders expressed a willingness to furnish the desired sites and to cooperate with the United States in construction work.[63] The theater commanders were informed of the probable adoption of MATTERHORN and of the initial negotiations for airdromes,[64] and they turned to the task of preparing those fields against an early D-day.[65]

Because of the urgency imposed by that date, the AAF could not delay action until the formal acceptance of MATTERHORN. A directive

was issued to effect the formation of a VLR Bomber Command under General Wolfe, consisting of the 58th and 73d Bombardment Wings (VH), and to insure the prompt movement overseas of engineer, air depot, and other service units.[66] The units which presented the most difficulty were those required for construction since they would have to be diverted from previous commitments; and the request made on 13 November by General Arnold for the assignment of certain engineer aviation battalions, dump truck companies, and petroleum distributing (pipe line) companies was the opening gun in a struggle which was to last for several months.[67]

These arrangements, it must be remembered, were all tentative, final action being contingent upon the decision which the Joint Chiefs would make at SEXTANT. In view however of the interest which the President had shown in VLR bombing from Chinese bases, of his acceptance in principle of the MATTERHORN design, and of his cables to the heads of the other governments concerned, the early adoption of the project must have seemed to the AAF a foregone conclusion.[68] In retrospect any effort to block a plan backed by so high an authority seems futile. Yet determined opposition from some sources was evident at SEXTANT, and even after MATTERHORN was formally approved, that opposition continued in an attempt to rescind that action or to diminish the forces allocated to the project.

In accord with their decision of 9 November, the JSP on the following day referred JPS 320 (MATTERHORN) to the JWPC for study, directing that recommendations be forwarded by cable to SEXTANT by

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17 November.[69] The Senior Team of JWPC went on to SEXTANT and the task fell to the Home Team. They in turn enlisted the aid of the Joint Intelligence Committee,[70] who rendered a report not wholly favorable to MATTERHORN and indicated their preference for the early employment of B-29's from North Australian bases.[71] On the basis of this information the Home Team made its report in the form of a series of cables, summed up later in a formal paper dispatched by courier. Their first interim report contained these judgments: that bombing of coke ovens would not aid in a short-term plan since the effects would not be seriously felt until 1946; that Chengtu presented unusual difficulties in logistics and security; and that operations from Calcutta, Ceylon, and Australia would force the enemy to readjust his whole economic program.[72] In a second cable the Home Team expressed the belief that the MATTERHORN plan could be made feasible by changing D-day to July 1944, by increasing the troop basis and supplies, by diverting shipping from other theaters, and by providing greater defense facilities; but that meanwhile further study should be devoted to the selection of targets other than coke ovens and to the choice of a more suitable base area.[73] Finally, on the basis of a downward revision of the estimated tactical radius of the B-29, the Home Team calculated that too little of the Japanese coke industry could be brought under attack from Chengtu. They consequently reversed their earlier decision, declaring that the plan could not be implemented and recommending that no action be taken until more definite information on the capabilities of the B-29 and on target analysis was available.[74]

General Wolfe's plan had been based on the expected ability of the B-29 to deliver 5 tons of bombs to a distance of 1,625 miles. That estimate had not been made without such tests as could be made under simulated conditions,[75] but on the basis of current difficulties with the plane, the Home Team alleged that the tactical radius must be figured at 1,304 miles. General Arnold cabled Washington to learn Wolfe's own views,[76] and was informed that with minor improvements now being effected in the B-29, all targets listed in MATTERHORN could be reached from Chengtu.[77] In spite of this considered judgment of the officer best qualified to speak for the B-29, the formal report of the Home Team on 30 November adhered to the general tenor of their cable messages, stressing the inefficiency of an operation in which they claimed only 14% of the B-29 sorties would be against enemy targets, and the improbability of early decisive effects on Japanese war capacity from destruction of coke ovens. Hence it was recommended that work proceed on the Calcutta and Chengtu airfields, but that no firm commitment be made until a more thorough study had been made.[78]

While the Home Team was thus rendering its unfavorable reports on MATTERHORN, discussion of the employment of the B-29 had proceeded at SEXTANT, where efforts were made to fit the VLR bombers into both immediate and long-term plans for the war against Japan. Formal sessions of the conference began at Cairo on 22 November and continued, with a 3-day interval for the meeting with Marshal Stalin at Tehran, until 7 December. A full record of the negotiations between the President, the Prime Minister, and the Generalissimo is not available--nor, for

that matter, of the meetings of the several military agencies--but the important decisions relative to the B-29 can be described with some precision.

Actually the Joint Chiefs had resumed the discussion of MATTERHORN, begun on 9 November, on board a cruiser en route to Cairo. They took certain additional preparatory actions but delayed making a firm decision pending the report by JWPC. At Cairo the Joint Planners and Joint Chiefs continued their deliberations, and in spite of the recommendation of the Home Team the JCS on 2 December, approved the MATTERHORN plan.[79] This determined, as far as U. S. action was concerned, that the first two VLR wings (eight groups) would operate from the Calcutta-Chengtu bases, but the project was intimately connected with over-all plans which could be decided only by the chiefs of the several governments [redacted]

The MATTERHORN project was incorporated into a schedule of operations for 1944 which the JCS presented to the Combined Chiefs and which included as well other contemplated tasks for VLR units.[80] This schedule called for the coordinated sweeps from the Southwest and Central Pacific which had been described at QUADRANT, but the timing was accelerated, and, as the AAF had advocated, the Marianas were to be seized as a base for attacking Japan. The following specific references were made to the employment of VLR bombers: (1) operations in China should "include also the establishing, without materially affecting other approved operations, of a very long-range strategic bombing force at Calcutta, with advanced bases at Chengtu to attack

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vital targets in the Japanese Inner Zone," target date 1 May 1944; (2) initiate VLR bombardment of targets in the NEI from the Southwest Pacific on 20 July; (3) seize the Marianas in October and begin VLR bombing of Japan on 31 December; and (4) continue preparations for eventual VLR bombing of the Kuriles and northern Japan. These operations were approved by the CCS on 6 December,[81] included in their final report to the President and Prime Minister,[82] and accepted by those officials on the 7th.

This decision, however firm it may seem to have been, did not settle finally the fate of MATTERHORN nor the disposition of units counted on as available in 1944. At SEXTANT, in addition to the JCS schedule of operations for 1944, a tentative Over-all Plan for Defeat of Japan was submitted for consideration. This plan, prepared by the CPS, advocated further study of TWILIGHT--now called DRAKE--as offering a scheme of operations potentially more potent than that envisaged in MATTERHORN.[83] The Over-all Plan was accepted in principle by the Combined Chiefs, and as a possible alternative to planned operations in Burma it was suggested that full effort might be devoted to intensifying measures necessary for a large-scale program of VLR bombardment from China.[84] Choice between those alternatives was postponed pending an expression of opinion from Lord Mountbatten and Chiang Kai-shek. Two months later a report from Mountbatten's staff indicated that he was favorably disposed toward the DRAKE plan.[85] The chief objection to the DRAKE plan--General Stilwell's demand for 50 Chinese divisions and an augmented Fourteenth Air Force to defend Kweilin--was still a

powerful factor in American thought;[86] and while B-29 airfields were eventually constructed in the Kweilin area, that was as a part of the MATTERHORN scheme.[87] DRAKE died a natural, lingering death. The real competition to Chengtu came from Pacific areas rather than from Kweilin.

In recommending the adoption of MATTERHORN to the Combined Chiefs, the JCS indicated that they had "directed that a study be made for the optimum use, timing and deployment in the war against Japan of VLR bombers."[88] Their directive had been forwarded to the JWPC Home Team while the latter were still engaged in their study of JPS 320.[89] They were instructed to utilize the Report of the Committee of Operations Analysts of November 11, which had been used, in an unfinished form, by the framers of JPS 320.[90] Since the tentative approval by the JCS of VLR operations from China had not named specifically the base area to be occupied, TWILIGHT (or DRAKE, as that operation was now called) was still a rival of MATTERHORN,[91] and there was even consideration of the inadvisability of any VLR deployment in China. Because much of the argument for and against MATTERHORN turned on interpretations of the report of the COA, a brief resumé of that document should be given here.

The COA on 23 March 1943 had been directed by General Arnold to prepare an "analysis of strategic targets located in Japan," the destruction of which would knock that country out of the war. The committee consisted of 15 members, including representatives from the AAF, G-2, the Navy, FEA, OSS, and special civilian consultants for the AAF, with Brig. Gen. Byron E. Gates as chairman.[92] This committee had just completed a study on German strategic targets on which the plan

for the Combined Bomber Offensive was to be based, and they brought to the new task a rich experience and inevitably a point of view. Intelligence concerning Japanese industrial and military objectives was less complete than that for Germany, but a similar technique could be applied. A score of sub-committees was formed, each studying one industry, and on the basis of their findings the final report was compiled.

The COA's interpretation of the directive was significant in two respects. First, the "strategic targets" called for in the directive became in the report "Economic Objectives"--that is, industries geared closely to the war effort; there is no consideration of the bombardment of military installations per se (as bases at Truk or Yap). Second, although the directive referred to targets "located in Japan," the study accepted this in the broadest sense to include production and processing areas in the whole of the Inner Zone, in the Outer Zone where pertinent, and the sea and land routes connecting those areas. Frankly admitting the incomplete nature of the evidence and indicating the need of photographic reconnaissance to supplement and bring down to date the available intelligence, the COA described some 13 industries which did "not now appear profitable aviation target systems,"[93] though it was recognized that further information or altered conditions might change the status of any one of these.

Six target systems were recommended in the summary conclusions and analyzed more fully in the main report. (1) Merchant shipping, vital to Japanese industry and to military operations should be attacked in harbor and at sea. A significant increase in the current

rate of sinkings would force a withdrawal from areas south of Formosa and affect seriously Japanese industrial output. (2) Steel production, basic to the whole war economy, was particularly vulnerable because of heavy concentration of fragile coke ovens in Kyushu, Korea, and Manchuria, responsible for the production of 66% of Japanese steel. "These coke ovens are the prime economic targets. They should be attacked as soon as the forces necessary to destroy them in rapid succession become available."[94] (3) Urban industrial areas, highly concentrated and in general very inflammable, were considered vulnerable to incendiary attack. Saturation tactics, especially from December to May, would destroy industrial housing, public services, and small factories. (4) Aircraft plants were considered "high priority targets" which should be attacked "when the state of current intelligence permits."[95] (5) Anti-friction bearings were thought to come almost exclusively from 6 main factories, whose destruction would have an early and pervasive effect on Japanese war industry. (6) Electronics: the production of tubes and hard metals for radio and radar was most highly concentrated, and any interruption of that production would have an immediate effect on the conduct of the war.

Several general considerations had governed this evaluation of target systems: (1) the fact that the far-flung Japanese industry and wide-spread military deployment were wholly dependent upon long sea communications; (2) that the rapidly developing Japanese industry should be hit before it reached its production peak; (3) that this industry had certain weaknesses because of its recent growth and its lack of a

backlog of civilian heavy industry; (4) that the "timing of the war against Japan justifies attack upon industries lying relatively deep in the structure of war production. When limitations of time do not require exclusive concentration upon immediate military effect, the most serious long-term damage can be inflicted by disrupting the production of basic materials like steel, which are essential to the manufacture of all military and naval equipment"; and (5) that the food situation on the main islands was so delicately balanced that if an effective means of attack could be devised the target priority list should be revised.[96]

Two principles should guide the air attack: (1) concentration upon any target system selected heavy enough to bomb through excess capacity and non-essential use (as opposed to diffused bombing of many industries); and (2) speed and follow-up sufficient to outstrip processes of recuperation, evasion and substitution.[97]

This then was the report which the JWPC Home Team was directed to consider in framing its new paper on Optimum Use, Timing, and Deployment of VLR Bombers. The AAF Staff believed that the JWPC Home Team had not given sufficient attention to the report in their previous criticism of the MATTERHORN project,[98] but even under the new directive that committee was to interpret the report in a fashion entirely different from that of the Air Planner. The issues upon which the JWPC and the AAF differed are clear enough; the reasons for those differences may only be deduced from the arguments themselves.

The COA, properly, had not considered the tactical means by which the targets they listed were to be destroyed; their di[redacted]ve did not

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stipulate that they should concern themselves with bases, the performance of bombardment aircraft, or problems of logistics or of base security. When that directive was issued, the decision to speed up the Japanese war had not yet been made and the time factor was not mentioned. The COA had listed six priority target systems in the order given above, but apparently they had not intended that as an order of preference--in fact, policies of military security discouraged any preferential listing. Shipping led the list, with steel second; but a sentence quoted above[99] specifically states that coke ovens upon which the steel industry depended "are the primary economic targets." (italics added), and should be attacked as soon as possible. Petroleum, for reasons which seemed adequate to the COA, was relegated to the list of secondary objectives.

The COA report, read literally, seems fully to justify the position of the AAF in regard to MATTERHORN. Committed to a general strategy of attacking Japan by air from Chinese bases, the AAF had drawn up the earliest versions of its plans without any target designations. Now the report of the COA named for them a vital target system (steel via coke ovens) presently vulnerable only from China bases and to the B-29. The objective was wholly in accord with AAF doctrines of strategic bombardment, the means feasible if not efficient.

The attitude of the JWPC differed sharply in several respects. To aid them in the study they had been directed to make, they requested the JIC to prepare a study, on a time basis, of the most effective use of VLR bombers. Significantly, the study was to consider not only

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economic targets (where the COA report should serve as a guide), but military targets as well: an estimate was to be made as to the effort required to neutralize important Japanese bases (including Truk, Yap, and Palau).[100] Such targets were to be considered as could be hit, figuring alternative tactical radii for the B-29 of 1,300 and 1,600 miles, from bases in the Aleutians (Shemya), Chengtu, Calcutta, Australia (Darwin, Broome), Port Moresby, and the Marianas (Saipan).

The report of the JIC[101] differed in detail rather than in substance from their earlier unfavorable critique of MATTERHORN.[102] They now declared against bombardment of long-term economic objectives in favor of heavy attrition of merchant shipping which, they concluded, would force the enemy to withdraw to his Inner Zone and thus affect immediately both his military and industrial fronts. After shipping, the steel and petroleum industries were named as the most vital target systems. Of those base areas which had been listed for examination, Chengtu was classified as the most difficult logistically and the most vulnerable to attack. The Marianas were deemed the best area once they were available. Meanwhile the best initial use of the B-29 would be from Broome and Darwin, against merchant shipping and oil refineries in the NEI, with occasional missions staging through Port Moresby against Truk. When and if Chengtu should be secure and its supply problems solved, a maximum force should be used thence in strikes against ship concentrations in the Yellow Sea and the steel industry in the Inner Zone.

In their studies the JIC had utilized a report on the technical aspects of the problem prepared jointly, at their instigation, by

AC/AS, Intelligence and the Air Technical Analysis Division (CP-35-Navy).[103] The findings in this joint paper had not been followed in the JIC report, and AC/AS, Intelligence now registered disapproval of that procedure, requesting that the inconsistencies be ironed out in a JIC meeting.[104] Nevertheless, the JIC paper was approved by the Service Members[105] and was adopted by JWPC as the basic element in its own report.

The JWPC report, submitted to JSP on 24 January, recommended the following disposition of VLR units; the first four groups should be sent to the Southwest Pacific; the next four, to Chengtu; the next 12 were to go to the Marianas, which were to have an over-riding priority, but if those units became available before the island bases were set up, the units were to be used in the Southwest Pacific or Chengtu; eventually, perhaps, two groups should be sent to the Aleutians; and two groups were to be held pending further information.[106]

This paper was immediately ordered cancelled and withdrawn--for reasons not stipulated[107]--but was re-circulated at the instigation of the naval member[108] and was presented to the Joint Planners for discussion on 26 January. At that time Brig. Gen. H. S. Hansell, the Air Planner, requested and obtained time for a more careful consideration of the paper by the AAF.[109] After some study General Hansell drew up a critique of the document. He charged that the JWPC had been misled by the JIC's faulty interpretation of the COA's report of 11 November--for example, they had erroneously stated that the COA had not considered POL targets--and that the JWPC had prevented a full and unbiased

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examination of the problem by directing attention to certain potential bases to the exclusion of others (as Kweilin, Kunming, and Ceylon). Hence he recommended that JWPC and JIC be directed to restudy the problem in light of a full reading of the COA report, without previous emphasis on any stipulated bases or on military (as opposed to economic) targets. Where opinions ran contrary to COA findings, or where choices were dictated by operational or tactical considerations, those opinions should be fully documented.[110]

On 9 February the JSP considered the disputed paper in light of General Hansell's memo and of a presentation of data on the B-29 by its project officer. The paper was then returned to JWPC for revision to include these items: MATTERHORN to be executed on the original 8 group scale; Palembang to be attacked by aircraft from Calcutta staging through Ceylon; subsequent B-29 units to be sent to the Southwest Pacific, earmarked for eventual use in the Marianas; and further consideration to be given to their deployment in the Aleutians.[111]

The revised report was returned by JWPC on 15 February. If they accepted MATTERHORN, it was somewhat grudgingly. Their conclusions were that: considering the intrinsic importance of the targets only, the order of priority should be shipping, POL installations, steel (via coke ovens), urban industrial areas, aircraft plants, bearings, and electronics; considering the capabilities of the B-29 the order should be POL installations, steel (coke ovens), urban areas, aircraft plants, bearings, electronics, shipping. Balancing all factors, they believed

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the best interim use of the B-29 would be (1) against POL installations and ship concentrations in the NEI from bases in the Southwest Pacific and (2) against coke ovens and shipping from China bases; and that B-29's should be moved from both areas when island bases within range of Japan proper were available. They still preferred the Australian bases for initial deployment, from the point of view of supply, maintenance, and security; and whereas they had to accept the priority enjoyed by the China bases they felt "that it should be emphasized, however, that the implementation of MATTERHORN first is not in consonance with conclusions reached from the detailed studies."[112]

This revision was considered by the JSP on 16 February,[113] and with some modification was incorporated into the latter's report to the Joint Chiefs on 2 March.[114]

In this paper, the JPS accepted the general line of reasoning advanced by the JWPC, but they reversed the order of priority of the initial targets--that is, they listed (1) coke ovens before (2) POL installations in the NEI. They recommended, because of decisions "on highest level," that MATTERHORN get the first eight groups of B-29's; that the force bomb Palembang via staging bases in Ceylon; that the next 12 groups be assigned to the Marianas, but that they should operate temporarily from the Southwest Pacific if they became available before the Marianas bases. The next two groups should be considered for the Aleutians and studies should be made on the possible employment of B-29's from the Philippines, Formosa, and the U.S.S.R. Maritime Province after the original base areas were saturated.

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The continued resistance to MATTERHORN which had been manifest in planning and intelligence agencies was symptomatic of a wider undercurrent of opposition. There seems to have been no challenge from any group in Washington to the assumption that the Marianas would constitute an ideal base; but according to the SEXTANT schedule, operations from those islands would commence only at the end of 1944, and the interim employment of the B-29's was intimately connected with the wider problems of Pacific strategy to which SEXTANT had given no final solution. The AAF in its advocacy of MATTERHORN had long enjoyed, as the preceding pages have shown, the tentative approval of the President, and since SEXTANT, the official approval of the Joint and Combined Chiefs. The COA had provided a rational target program. The Air Staff may have felt in general better qualified than the other arms to make judgments on the proper use of a strategic bombardment plane; and in their preference for industrial targets in the heart of the Inner Zone as against the shipping and military installations around the Japanese perimeter they had the sanction of AAF doctrine, of the current successes of the Combined Bomber Offensive in Europe, and of the indifferent success of earlier high-level bomber attacks on shipping in the Pacific.

JWPC, in holding out for the Southwest Pacific, was reflecting what was essentially a Navy point of view: the destruction of POL installations and shipping concentrations in the NEI and the bombardment of Truk, Yap, and Palau were calculated to facilitate the Navy's westward movement through the Central Pacific. By the same token,

those operations would aid General MacArthur's move from the Southwest Pacific to the Philippines, and the plan for employment of the B-29 which General Kenney had submitted in October[115] was strikingly similar to that of JWPC. All in all, the Chief of the Air Staff had felt that there was enough evidence of "a widespread effort to discredit MATTERHORN" to call for a "counter-offensive" in the form of memos directed to the President and the Chiefof Staff.[116] Early in February the possibility that the Chengtu operation might be scratched seemed strong enough to justify some re-examination, by AC/AS, Plans, of the whole problem of interim employment of B-29 units.[117]

Obviously diversion from MATTERHORN could be effected only by consent from highest authority, but in early 1944 plans for the Pacific were in a state offlux, and in any radical revision earlier decisions concerning VLR bombers might be changed. The schedule of specific operations adopted at SEXTANT had been purposely kept flexible to allow for any "short cuts" which might appear feasible. That schedule, it will be recalled, had listed the assault on the Marianas for October, after the capture of Ponape and Truk, with VLR missions beginning at the end of December. The potential importance of those missions, however, and the growing air and naval strength of U. S. forces suggested the possibility of an earlier capture of those islands. And in an operation whose chief purpose it was to establish bases for the B-29's, it might be considered poetic justice, if not soundest tactics, that the B-29's should be diverted from China to assist in neutralizing Japanese bases before and during that attack.

Dissident views concerning general Pacific strategy and the role of the B-29 were aired in conferences at Washington, at Honolulu, and at Brisbane. General MacArthur desired that all currently operational B-29's might be deployed in the Southwest Pacific and was inclined to question the wisdom of their initial use from the Marianas.[118] General Richardson believed that only a minimum number of B-29 units could be based in those islands,[119] and the Navy was still undecided whether to turn northward to the Marianas or to go on directly island by island to join General MacArthur at Mindanao.[120]

Under these circumstances a short paper was prepared, outlining the AAF concept of the Pacific War.[121] Those views were presented to the JCS on 15 February by General Hansell, and apparently were well received.[122] Meanwhile the role of the B-29 was discussed at conferences at the White House on the 11th and 19th. Finally, on 12 March, the JCS arrived at a definitive decision concerning operations in the Pacific, and CINCPOA and CINCSOWESPAC were informed of the change in their respective directives. The westward advance by POA forces would be via the Marianas, Carolines, Palau, and Mindanao, Truk being by-passed and neutralized. Target date for the attack on the Marianas was to be 15 June, for Palau, 15 September; and POA and SOWESPAC forces were to join in an assault on Mindanao on 15 November. The objective in seizing the Marianas was "to secure control of sea communications through the Central Pacific by isolating and neutralizing the Carolines and by the establishment of sea and air bases for operations against Japanese sea routes and long range air attacks against the Japanese homeland."[123]

This decision was in effect a double victory for the Air Planners. First it brought to fruition the effort begun the previous September to secure for the B-29 what was generally looked on as the best base area short of Formosa. And the acceleration of the target date obviated any further need to consider interim deployment in the Southwest Pacific. With the first eight groups of B-29's scheduled for MATTERHORN, and the next four groups becoming operational simultaneously with the availability of the Marianas (autumn 1944), there would be no "interim" deployment. Hence when General MacArthur, in a cable concurred in by Admiral Nimitz, reduced his previous request for all operational B-29's to a mere 35 aircraft,[124] even that was refused. Whereas General MacArthur had wished to use the B-29's from Darwin in attacks against oil refineries in the NEI, he was informed that planes assigned to MATTERHORN would stage through Ceylon to hit Palembang, and it was suggested that he supplement this operation with B-24 missions against Balikpapan and Surabaya.[125]

At the same time, the accelerated program for the Marianas forced a downward revision of the scale of MATTERHORN. The firm support which that project had enjoyed in the AAF had been due to the fact that it offered the earliest opportunity to hit at the inner sources of Japanese power. It had long been accepted that when the Marianas were set up as bases all B-29 units would be sent there up to the capacity of the islands. Now it appeared that those bases would be ready even before the second wing could be sent to MATTERHORN.

The paper on Optimum Use, etc. (JCS 742) which the JPS had presented

to the Joint Chiefs on 2 March had been passed back and forth between those agencies several times for revision of sections dealing with command and control. Eventually it was referred to the Joint Strategic Survey Committee for review. That committee recommended that, in light of the new schedule of operations in the Pacific, the MATTERHORN force be cut to the initial four groups (just beginning their flight to the CBI), that the second four groups be diverted from MATTERHORN to the Marianas, and that subsequent units be sent to the latter area as rapidly as bases and planes became available--to a total of 10 to 12 groups.[126]

These suggestions were incorporated into the final JCS paper on the subject on 6 April, which was informally accepted by the Joint Chiefs on the 10th.[127] Presumably, since this action cut by one half the force which had been sanctioned for MATTERHORN at SEXTANT, the new program must have received the approval of the President.[128]

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This then was the program under which units of the Twentieth Air Force were first deployed. In view of the expected operational flexibility of VLR units, of the numerous bases already in existence and contemplated, and of an ever-changing tactical and strategic situation, it was by no means assured that the program would be implemented as it then stood. In the twelve months that had elapsed since the AAF had first begun its serious study of the possible employment of VLR bombers against Japan, the plans had been changed frequently in an effort to accommodate them to military realities, and the command arrangement for the B-29's was such that subsequent changes in deployment might be easily effected.

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The one constant factor in a year of fluctuating plans had been the allocation of B-29 units to operate from China bases. That design had been vigorously opposed and had been changed in detail and drastically reduced in scope. But actual work on implementing the design had been progressing since the first adoption in principle of the MATTERHORN project on 10 November. Late in December when the MATTERHORN plan was being attacked, one of the Joint Planners pointed out "that construction of airfields in the Calcutta and Chengtu areas is already under way, and that in general, events had overtaken the report."[129] This was a realistic judgment. If strategic considerations and the time element had given the original impetus to the Chengtu project, the construction of those fields had stood as an earnest of the consummation of the plan.

Earlier in this chapter it was indicated that most of the formal plans which were drawn up for the employment of the B-29 included some reference to the system of command as well as to the area of deployment. It now becomes necessary to analyze those sections of the plans which dealt with command principles and to trace those steps which led to the establishment of the Twentieth Air Force and its constituent bomber commands.

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Chapter VI

THE STRATEGIC AIR FORCE

> Long- and extreme-range bombing machines for operations by day and night, utilized against targets outside the range of machines designed for /tactical/ functions, involve for their efficient utilization operational considerations of a purely aerial character, and require for their conception and execution a large measure of freedom and independence from other military schemes.
>
> Sir William Weir, Secretary of State for the RAF, May 1918.

Introduction

In an earlier chapter[1] it was suggested that in the period between the two World Wars the history of military aeronautics in the United States was dominated by three intimately related trends: the emergence of a doctrine of offensive warfare based on bombardment; the development of long-range heavy bombers to implement that doctrine; and the effort to establish an organization and command system which would permit the unhampered development and procurement of materiel and its proper use according to approved tactical principles. To the degree that those trends converge in the VLR project they are pertinent to this study. Consideration has already been given to the evolution of the VLR bomber and to the offensive mission to which it was dedicated. This chapter deals with the efforts of the AAF to achieve a system of command and control compatible with the characteristics and mission of that plane. For a proper understanding of the issues involved, it may be useful to turn for a while to the past. For if the Twentieth Air

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Force is now the most advanced type of organization in the AAF, its form is only the current phase of a long process of evolution.

The problems of command and control of the air arm had been brought into sharp focus during World War I by the rapid technological and tactical development of military aeronautics. The basic issue was whether the airplane should be considered merely as one additional weapon to be attached to the conventional military services, as corps artillery was to a field army or a squadron of PT boats was to a fleet; or whether the air was to be thought of as a new medium in which war should be waged by a separate service possessing its own specialized weapons and enjoying a position analogous to that of the army and navy. The problem was apparent at two planes: at the governmental level where policies were made for procurement, organization, and over-all strategy; and in the combat zone where the tactical control of air units was of vital concern. Among most of the European belligerents the inept handling of nascent air power by state officials and military leaders ignorant of the capabilities and limitations of aircraft led, by the end of the war, to a greater degree of independence for aeronautics at both levels.

The classic example is Great Britain. There public opinion, incensed over the general conduct of aeronautical affairs and by German air raids on English cities, enabled far-sighted civilians to enact radical changes. The Royal Air Force was created (1 April 1918) separate from the British Army and the Royal Navy, and enjoying cabinet representation in the Air Ministry.[2] Two months later the Independent

Force, RAF, was established. Its mission was, in our way of speaking, strategic bombardment. It was immediately responsible to the Air Ministry, whose directives were executed by the commander of the force. He then was "independent" of any operational control by the Commander-in-Chief, British Armies in France.[3]

In October the organization was extended to include U. S., French and Italian air units in the Inter-Allied Independent Air Force, under direct command of British General H. M. Trenchard, who in the interest of unity was "under the Supreme Command of Marshal' Foch for operations."[4] This strategic air force was established too late to influence the progress of the war; the soundness of the doctrines underlying it and the feasibility of its methods of command, both of which had been bitterly resisted, were not given the acid test of battle. But in spite of this fact, and of the intervening years, the mention of this experiment is not wholly impertinent to the Twentieth Air Force. The problem facing the AAF in 1943 was essentially the same as that of 1918--how best to secure that independence of action necessary for a consistent and articulated program of strategic bombardment without vitiating a unified command of allied forces in a combat theater. The ultimate solution in either case was not dissimilar, and there is a real, if indirect, historical connection between the two. For if the Independent Air Force was short lived, its potential significance was not lost among the advocates of air power. Trenchard lived on to influence the RAF policy of strategic bombardment in World War II.

Billy Mitchell, who might have assumed a high command in the Inter-Allied Force had the war gone into 1919,[5] became imbued with the strategic and command principles upon which it was founded, and through him those principles were brought into American military thought, to form eventually the matrix of the Twentieth Air Force. And indeed, with most of the oft-quoted exponents of aerial warfare--Douhet, Mitchell, Seversky--it became axiomatic that the mobile striking force of heavy bombers was the key to air power, and the first corollary was that such a weapon could be forged and directed only by an independent air service.[6]

The movement for a separate air force had not been, by 1918, so strong nor so successful in the United States as in England, perhaps because of the immunity of our cities to air attack and because our late entry into the war allowed us time for fewer mistakes. We did make as many mistakes as could reasonably be expected in the allotted time, both on the home front and in the field; and while the British were creating their RAF and its Independent Force, the U. S. Air Service was just emerging, under unsavory circumstances, from the Signal Corps (20 May 1918).[7] The struggle for independence became more vigorous in the years after the Armistice. Against the intrenched interests in the War and Navy Departments were aligned Air Service officers, airminded congressmen, civilian experts, and some pressure groups, with Billy Mitchell as the spearhead of the attack. The campaign resulted in numerous reports by committees and boards, in the introduction in Congress of many bills to provide for a unified and separate air force or its equivalent, and in much oratory and rancor. Such

changes as were effected however were compromise measures calculated to thwart, rather than to acquiesce in, the demands for independence. This was true of the establishment of the Air Corps (2 July 1926) and of the GHQ Air Force (1 March 1935). This latter move did in theory provide an organization for strategic bombardment by setting up a mobile striking force completely divorced from the four field armies. But neither this step nor the creation in 1941[8] of the Army Air Forces provided a satisfactory system of administrative control or of operational command. For though a considerable share of the bombardment units was detached from the field armies to GHQ AF in 1935, and to its successor, the Air Force Combat Command in 1941, those units were under command of GHQ, which could in war assign them to task forces and thus remove them completely from any operational control by the AAF.

With the tremendous expansion of U. S. air forces in1941 in preparation for an almost certain war, it became the custom if not the explicit policy of the AAF to postpone the struggle for complete independence in favor of an effort to secure practical autonomy within the War Department. That limited goal was achieved in the reorganization of 9 March 1942, which established the AAF, AGF, and SOS (later ASF) as coordinate, autonomous forces under the Chief of Staff, USA.[9]

While this arrangement established the parity of the AAF and AGF, it also made it impossible for the former to exert any direct control over combat operations. For the AFCC was abolished and the four continental air forces which remained to the CG AAF were not, strictly speaking, combat organizations. Most of the tactical units were assigned

to overseas air forces, each of which came under a theater commander who might be a ground, a naval, or an air officer. One mitigating feature however had already been provided by the establishment early in 1942 of the Joint and Combined Chiefs of Staff. The CG AAF was a member of both these bodies and thus was in a position to participate in the formulation of strategic policies and plans and in the framing of directives through which theater commanders utilized AAF units assigned to them. The part played by General Arnold through the CCS and JCS in the deployment of B-29 units has already been shown; it was through that latter organization rather than merely by virtue of his command over the AAF that General Arnold was at last to gain control of the Twentieth Air Force.

As a matter of fact the independent air force as envisaged in the nineteen-twenties would not of itself have solved the problem of command in a war where each major operation involved the cooperation of air, ground, and naval contingents and usually of forces from two or more nations. From the beginning of the war both U. S. and British leaders had been determined to avoid the mistakes of the last war in respect to command. The related but apparently contradictory principles of unity of command and of integral national forces had been accepted in 1941 and in spite of difficulties had been on the whole successfully maintained: no war in history had seen so perfect a coalition of allies. But the peculiar nature of a VLR bombardment force threatened further to complicate an already complex situation. The expedient of a supreme commander for a theater enjoying unity of command over air, ground, and

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naval forces each international in composition had worked successfully in the Mediterranean; and that system was to function even more smoothly in the ETO in 1944. Had the B-29 been assigned to that theater its units might easily have been fitted into the existing arrangement as part of USSTAF, participating in the Combined Bomber Offensive according to directives from the CCS and receiving all its administrative and logistical support from a single theater commander.

The reorientation of deployment plans, however, which from summer 1943 on were pointing the B-29 toward Japan, gave to the command problem a new complexion. Instead of a single theater as in northwestern Europe, four theaters converged upon Japan. Instead of the relative stability, insofar as strategic bombardment bases were concerned, of the ETO, the Asiatic-Pacific areas presented a fluid tactical situation which forbade the permanent assignment of a strategic air force to any one theater.

The greatest assets of the B-29 lay in its extraordinary range and the potential mobility inherent in that range, and the operational system envisaged to capitalize on those qualities might frequently transgress theater boundaries. Whatever unity of operational control might be achieved, the responsibility for logistical support, administration, and base security must inevitably be divided between theater or sector commanders drawn from different U. S. services or, in Asia, from allies with widely divergent military and political aims.

Finally there was the matter of the personalities of the several

commanders, which does not often appear in the official records but which must have colored AAF thinking. In the ETO the policy of strategic bombardment had been initiated by the RAF long before we entered the war--in fact had evolved naturally from the policies of 1918. Such differences as existed in AAF and RAF thinking lay rather in tactical doctrines than in essential air strategy. Had the B-29 been committed to the ETO, there could have been no doubt but that it would have been utilized in its proper mission. In the Japanese war, the predominance of U. S. naval commanders with air doctrines quite different from those held by the AAF, of Allied and U. S. army commanders interested primarily in ground warfare, and even of AAF commanders whose mode of warfare varied sharply from that waged over Europe did not augur favorably for a program of uninterrupted strategic bombardment under theater command.

Against this background it is easy to see why it was that the AAF stood out for a new type of organization and a new principle of command for its VLR bomber force, and why it was so difficult to arrive at a satisfactory arrangement. The efforts of the AAF in this respect parallel their attempts to choose the theater of operations and to stipulate the targets to be hit; often the several problems appear in the same planning papers and the solutions were reached simultaneously in April 1944. The problem of command involved decisions at two levels; that resulting in the formation of the Twentieth Air Force and that which provided the detailed machinery whereby bomber commands assigned to that organization could be operated in the Asiatic-Pacific theaters.

Actually the problems of the Twentieth Air Force and the XX Bomber Command were mutually interdependent; perhaps in the long run those of the XX Bomber Command were the deciding factor in the formation of the larger organization. But at the risk of some artificiality and repetition, the problems of those two organizations may be discussed separately. First then for the story of how General Arnold after more than two years of war finally got command of a combat air force.[10]

The Establishment of the Twentieth Air Force

How early it was that the AAF became convinced of the necessity of providing some special command arrangement for the VLR bomber force is not apparent. Those plans emanating from both Washington and the theater which were concerned exclusively with deployment in the CBI seem to have been based on the assumption that B-29 units would be fitted into the existing U. S. command channels, and their terms provided only for the allocation of responsibilities among the several commanders. As soon as the planners began to conceive of future deployment in Pacific areas as well as in the CBI, however, the idea of a strategic air force "independent" in the sense used in 1918 began to be manifest. The AAF Plans for the Defeat of Japan (16 September 1943), which contemplated the use of VLR bases in the CBI, Marianas, Aleutians, Luzon, Formosa, and other areas, advanced what was to become the standard AAF policy. The simultaneous use of widely scattered bases would demand careful coordination of attacks, and it was thought that:[11]

> Such integration of timing and effort, fully capitalizing upon the mobility of aircraft, requires a cohesive overall control of strategic air operations, free of the direction of local area commanders and subject only to the Joint or Combined Chiefs of Staff.

The choice between the JCS and CCS was not an easy one to make. The B-29's and their crews would be wholly an American contribution and in the Pacific areas administration, supply, and defense would all be provided by U. S. commanders. In the CBI, however, some of those functions would become the responsibility of British commanders, and the British members of the CCS would have therein a legitimate concern. And to the extent that the Combined Chiefs were responsible for the allocation of materiel to the several theaters, any new project which threatened to disrupt existing priorities might be expected to come under their administrative, if not tactical, control.

In this dilemma the AAF early favored the policy of keeping the VLR project entirely under U. S. control, turning to the CCS only for directives obligating British commanders to make available such facilities and services as were required.[12] That policy was accepted in principle by the JCS--the exact date is not apparent but it seems to have been before SEXTANT--and after MATTERHORN was approved at that conference the Joint Chiefs turned to the intricate job of establishing a workable command system for a VLR bomber command under purely American leadership in the CBI.[13] The mere agreement to vest control of the B-29's in the JCS did not however provide any machinery by which that body could exercise its control. The AAF favored the establishment of a "Headquarters Strategic Air Force." This would have constituted a

return to the principle of the GHQ AF, with the JCS occupying the position formerly held by GHQ, and presumably involving some administrative control by the CG, AAF. This idea was opposed by those elements in Washington which had attempted to block the MATTERHORN project.[14] The issue was carried to the White House, however, and in meetings on 11 and 19 February it was accepted with presidential approval that control of VLR aircraft would be retained in Washington under the Joint Chiefs; moreover, "it was generally understood that executive direction" of the development and control of those bombers would be vested in General Arnold as CG, AAF.[15] But in this respect, as in the matter of deployment, formal action lagged far behind tacit approval by the President.

The Joint Planners, currently engaged in revising their paper on Optimum Use . . . of VLR Bombers, incorporated into that plan the suggested control by the JCS, but included no mention of the executive functions of General Arnold.[16] When their revision was presented to the JCS for consideration the pertinent paragraphs were phrased thus:[17]

> 12. In order to capitalize upon the flexibility of VLR bombing forces, control should be retained under the Joint Chiefs of Staff.
>
> 13. It is recommended that a. Theater and area commanders concerned be advised of the proposed employment of VLR bombers and directed to provide and develop bases and facilities as indicated above, within present and projected resources available. b. Control, including deployment of VLR bombers be retained directly under the Joint Chiefs of Staff in order that VLR forces may be employed and deployed to meet the developments in the strategic situation.

To provide for that part of the White House agreement which had been omitted, General Arnold suggested the addition to par. 13 of this

sentence:[18]

13. c. The Commanding General, Army Air Forces, is designated as the executive agent of the Joint Chiefs of Staff, to exercise general direction of the VLR bomber forces engaged in the war against Japan; in exercising this direction, he will coordinate matters, where necessary, with the Chief of Staff, U. S. Army, and the Commander in Chief, U. S. Fleet.

Simultaneously Admiral King proposed, in the interest of clarity, to define "control" more specifically by substituting "strategic deployment and the designation of missions"; and to vest the theater commander with the responsibility of local coordination.[19] On 7 March the paper was returned to the JSP for reconsideration in light of the proposed amendments.[20] The revision suggested by the Joint Planners contained Admiral King's amendments, but made no reference to the CG, AAF as executive agent; instead, there is merely a statement that the latter should be authorized by the JCS "to communicate directly with VLR bomber forces in the field for purposes of coordinating their operations"--a policy dictated by a current issue in the CHI.[21] A review of the plan for Optimum Use . . . of VLR Bombers by the Joint Strategic Survey Committee resulted in its approval subject to certain addenda, including one suggested by the British Chiefs of Staff, to the effect that theater commanders might in an emergency divert the VLR bombers from their original mission.[22]

When the report of the JSSC was brought before the Joint Chiefs on 28 March, Admiral Leahy recommended that it be approved. General Arnold then suggested as an alternative certain proposals of Admiral King's. The Commander in Chief, U. S. Fleet had advocated, General Arnold said, the creation of "an air force, known as the Joint Chiefs

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of Staff Air Force, to be commanded by the Commanding General Army Air Forces, who will be the executive agent of the Joint Chiefs of Staff." The JCS would determine the employment and deployment of the force, charging the CG, AAF with responsibility for its logistic support, administration, and transfers.[23]

Why General Arnold rather than Admiral King presented the latter's views is not clear, nor for that matter, why the admiral should have entertained such views. The Navy, at least to the extent that its attitude was expressed by its representatives on the JPS, had not been sympathetic to MATTERHORN nor, apparently, to the AAF design for control of the VLR force. Yet King's proposal was in perfect accord with that design. And so, anomalous as it may seem, the Commander in Chief, U. S. Fleet was responsible, at least to the extent of making the initiating suggestion, for the establishment of the Twentieth Air Force.

For there was general agreement to Arnold's suggestion that King's proposal be approved and the JPS was directed to prepare a paper incorporating the latter's views. The statement on command arrangements was actually drawn up by AC/AS, Plans;[24] it was then circulated among the members of the JCS and informally accepted by them at the end of March.[25] This paper was included by the JSP in their final revision of their plan for VLR bombers in the war against Japan, and as part of that over-all plan was approved by the Joint Chiefs on 10 April.[26] Inasmuch as the provisions for command and control were those under which the Twentieth Air Force was established and operated, an analysis

of their terms will serve here as a useful recapitulation.

These were the terms: (1) a strategic Army Air Force, known as the Twentieth, was to be established, to operate directly under the JCS, with the CG, AAF acting as their executive agent in implementing their directives for the employment of VLR bombers; (2) major decisions concerning deployment, missions, and target objectives were to be made by the JCS and executed by the CG, AAF; (3) should a strategical or tactical emergency arise, theater or area commanders might utilize VLR forces in their respective theaters for purposes other than the primary mission, immediately informing the JCS; (4) responsibility for providing suitable bases and base defense would rest with the theater or area commander as directed by the JCS; (5) recognizing the existence of problems of local coordination, the JCS would vest theater or area commanders with logistical obligations for Twentieth Air Force units operating from their areas, with the responsibility for establishing equitable and uniform administrative policies, and with the duty of providing local coordination of operations so that conflicts might be avoided between theater forces operating under general directives of the JCS and local VLR units operating under special JCS directives; (6) directives relative to VLR operations were to be framed with these considerations in mind; and (7) the CG, AAF was to have direct communication with VLR commanders in the field, advising appropriate theater or area commanders of communications thus exchanged.

The adoption of this unique command arrangement provided a definite and apparently workable solution to a very complex problem, but it

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was not to go unchallenged. It will be recalled that when VLR plans were still in an inchoate stage the Air Staff had considered as alternative possibilities command by the Joint or Combined Chiefs of Staff. The evolution of the system which was finally adopted has been treated in the foregoing pages from the Washington point of view, but as the next section of this study will indicate, some of the features of that system had been dictated by practical issues which had arisen between U. S. and British commanders in India.[27] Actually the propriety of tactical control of VLR bombers by the Joint Chiefs does not appear to have been questioned earlier; it was accepted explicitly by the Supreme Allied Commander, South East Asia, and tacitly by the British Chiefs of Staff. Now, however, with the formation of the Twentieth Air Force, that British policy was reversed. Current difficulties in adjusting the XX Bomber Command to the complicated command channels in SEAC may have justified some concern on the part of the British, but it would seem more likely that the real motivating factors in this reversal may be sought in SACSEA's views on over-all strategy and in the British concern with the long-term plans for strategic bombardment of Japan.

On 19 April the U. S. Chiefs of Staff presented to the CCS a memo which announced the formation of the Twentieth Air Force, described its peculiar command system, and provided a draft message for the British Chiefs of Staff to dispatch to SACSEA.[28] One month later a reply from the British Chiefs of Staff was presented. This memo raised certain questions relative to the control of VLR units within British

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theaters of responsibility. In view of those problems and of the British intention of participating in the bomber offensive against Japan once the war in Europe was ended, the British proposed that all VLR aircraft should be controlled by General Arnold, who would occupy in that respect a position roughly equivalent to that of the British Chief of Air Staff in executing CCS directives for the Combined Bomber Offensive against Germany.[29]

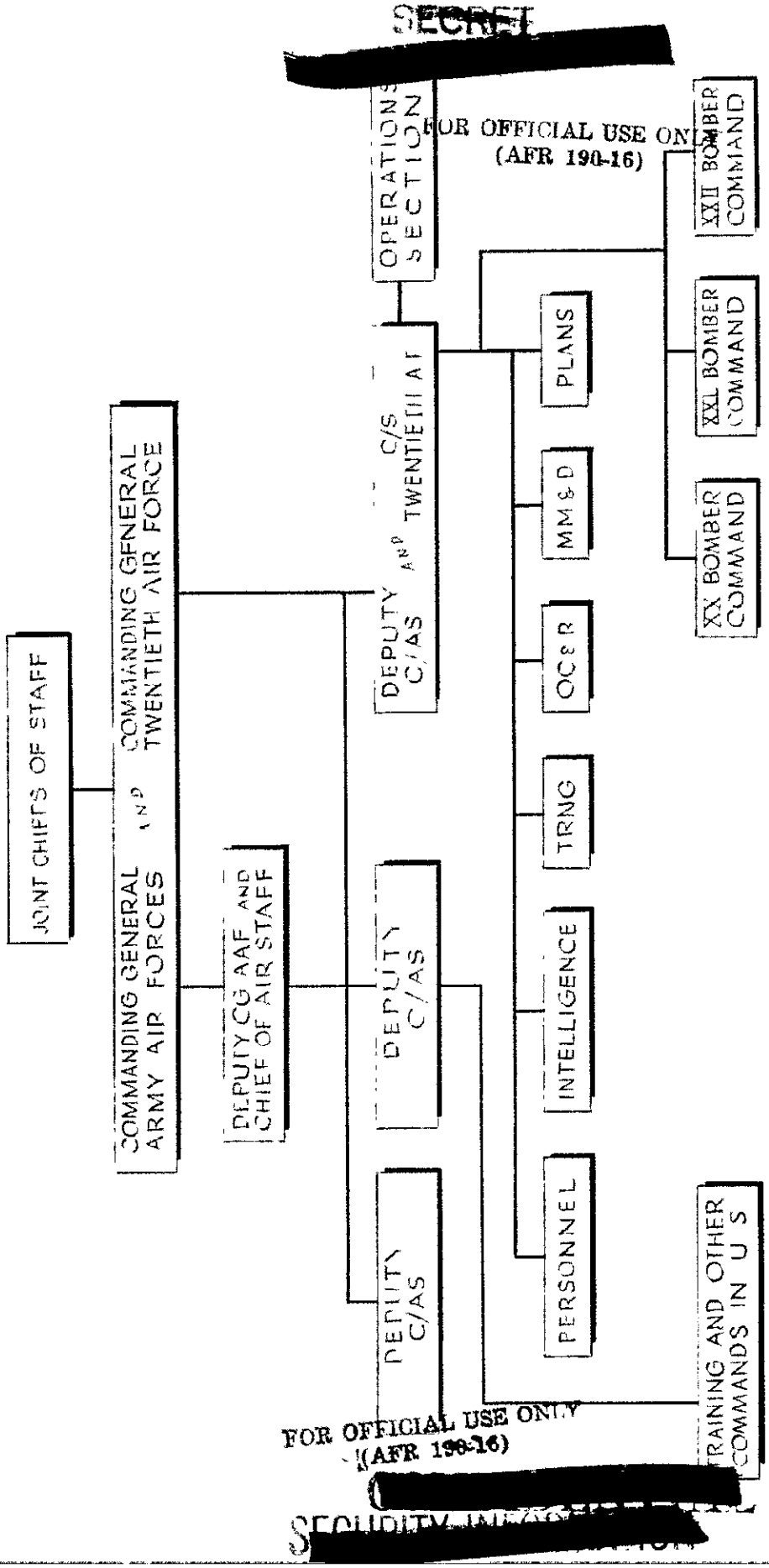
This proposal was referred to the Joint Planners for recommendations. Their reactions were unfavorable. They pointed out that conditions in the war against Japan were not analagous to those governing the Combined Bomber Offensive in Europe. Current plans called for the deployment of all VLR units, except the four groups now in India, in areas controlled solely by American commanders. This meant 24 to 26 groups by summer 1945, and eventually 49 groups in all. The British, by their own account, would not allocate any units to the strategic bombardment of Japan until mid-1945, and not possessing a proper VLR bomber they could hardly reach the Inner Zone from bases now contemplated. Their line of attack would presumably be via Malaya-Singapore, and hence it might be questioned if operations in the Far East would ever be "combined" in the sense used in Europe.[30]

In view of these facts the JPS recommended the dispatch of a memo declining the British proposal. This communication recognized that problems might arise concerning the Twentieth Air Force which would require coordination with the British Chiefs of Staff, but assumed

that those could be solved by reference to the CCS. Actually no difficulty was expected soon, since agreements had been reached regarding the XX Bomber Command and subsequent units would be deployed in areas of U. S. responsibility. And hence, though the U. S. Chiefs of Staff appreciated the British desire to participate in the bomber offensive against Japan, it was believed that the command of the VLR force should be left with the JCS "until such time as British VLR forces are in fact allocated for employment against Japan, at which time this question of control of the Strategic Air Force (VLR) should again be re-examined."[31]

This recommendation was informally accepted by the JCS on 31 May, with minor changes in phrasing.[32] This insured that for a year or so at least the direction of the Twentieth Air Force would remain in the hands of the Joint Chiefs.

There remains the necessity of describing briefly the machinery whereby that direction was applied. In this respect as in so many others in the development of the VLR force, practical steps had been taken before formal approval was granted. From its inception the VLR program had been conducted, in the interest of security and dispatch, under special ad hoc arrangements--witness General Wolfe's "B-29 Project," the assignment of the XX Bomber Command (VH) Special to the Second Air Force but under direct control of General Wolfe,[33] and the establishment of a VHB Project Office in the Pentagon under Lt. Col.



Enclosure 1 to letter AG322 (4 APR 44) OB-1-AFRPG-M, dated 4 APR 44

K. H. Gibson. Early in March some preliminary steps were taken toward setting up the VLR air force which then seemed imminent. An Operations Section, U. S. Strategic Air Forces was established with Col. Cecil E. Combs as Director of Operations.[34] The project remained nebulous however until the informal acceptance by the JCS on 28 March of Admiral King's suggestion. On 31 March the inter-office memoranda requisite to the activation of the new air force were prepared.[35] Five days later, on 4 April, the Twentieth Air Force was constituted and ordered activated at Washington on the same date under order of the CG, AAF.[36] On 6 April General Arnold assumed command by GO No. 1. The timing was not premature. Four days earlier the first B-29 had landed at an operational base in India--greeted by a battery of U. S. sound cameras and a welcome from a distinguished gathering.[37]

The letter of activation gave a simple diagram to explain the command channels which had been established by the Joint Chiefs,[38] but no firm guidance in respect to administrative details. General Arnold was faced with a problem as old as the Athanasian doctrine of the Trinity: with perfect unity, he must be three persons--a member of the JCS, the Commanding General, AAF, and the Commanding General, Twentieth Air Force. Obviously with his manifold duties he could not devote the same amount of time to the Twentieth as could the commander of a conventional air force, nor could his staff. The solution was a simple one. Each member of the Air Staff was to occupy a dual role, assuming simultaneously his normal function for the AAF and for the Twentieth Air Force as well. The working staff of the Twentieth was

made up of a group of operating assistants, with Brig. Gen. H. S. Hansell, Deputy Chief of Air Staff, as Chief of Staff (and effective executive) of the Twentieth Air Force.[39]

On 8 April General Hansell, in an effort to establish sound administrative procedures, dispatched an R&R to the several offices of the Air Staff which described the general make-up of the Twentieth and gave a tentative schedule of the respective responsibilities of the Air Staff and of the theater commanders.[40] For further clarification, a list of specific questions was appended, and each office was requested to comment on those which pertained to its duties. On the basis of these replies Management Control would be able to allocate each administrative responsibility to the proper staff officer and his delegate.[41]

The first staff meeting of the Twentieth Air Force was held on 12 April. General Hansell explained the peculiar nature of the new organization and the administrative procedures to be followed. On the same day, in token of the intimate relations with OPD and the Navy, which control by the Joint Chiefs would entail, the staff met also with representatives from those organizations.[42] By this date, then, the Twentieth Air Force was fully launched under its new system of command and control. The development of that system had been influenced strongly at times by the practical problems which had already arisen in the relations of the XX Bomber Command with the theater commander. It now becomes necessary to describe those problems and the steps which were taken to solve them.

Command and Control of the XX Bomber Command

The Wolfe plan for the employment of the B-29 in the CBI had called for the establishment in that theater of a bomber command consisting of two wings. When in November approval of the MATTERHORN revision of the Wolfe plan seemed imminent preliminary action was taken for the formation of such a command.[43] While MATTERHORN was under discussion at SEXTANT, on 27 November, the XX Bomber Command was activated at Salina, Kansas.[44] The internal organization of the command was determined by the peculiar nature of the B-29 and of its mission,[45] but it was conceived naturally without any reference to the manner in which the command should be controlled from above. This lay outside the competence of the AAF itself and was in fact a matter which concerned the Joint Chiefs at the same time they were endeavoring to solve the broader problem of command of all VLR units. A workable system had been achieved by the time the Twentieth Air Force was constituted. By that time the XX Bomber Command had been reduced to a single wing, and its importance had been transcended in anticipation by that of the XXI. But the establishment of the XX Bomber Command in the theater involved many practical difficulties. A recital of the processes by which command relations for that organization were established and of the conditions which had governed the final decisions will illuminate the thinking that led to the retention in Washington of the over-all command of VLR forces.

Each theater in this global war presents unique problems of command and it has been not the least remarkable accomplishment of

the CCS and JCS that they have been able to interpret general principles so flexibly as to provide a practical arrangement for such areas. Certainly no theater has challenged their ingenuity and patience more than has the CBI. At the QUADRANT conference, where the employment of a VLR force against Japan was first seriously considered, the CCS also revamped the command set-up in South East Asia. But the eventual commitment of the XX Bomber Command to that area added difficulties inherent in control of a VLR force to those which stemmed from a confused political and military situation which had defied organizational stability. A brief review of the issues involved in India and China will indicate difficulties which faced the Joint Chiefs when plans for the deployment of VLR units were oriented in that direction.

The CBI was a large area, great in land-mass and housing the largest civilian population of any theater.[46] Distances were formidable; communications, both from the United States and within the theater itself, were slow. Armed forces of three allies were fighting a common foe; but those forces were not commensurate in strength with the size or potential importance of the area, nor had their accomplishments been significant. The feebleness of their effort had resulted partly from the difficult strategic situation, but it was aggravated by radical differences between the several allies in war aims, in temperament, and in the constituency of forces. In the face of practical difficulties, the accepted principles of unity of command and of integral national forces were threatened with eclipse.

It was a salient feature of all VLR plans for the CBI, including that which was eventually adopted, that B-29 units would base in India,

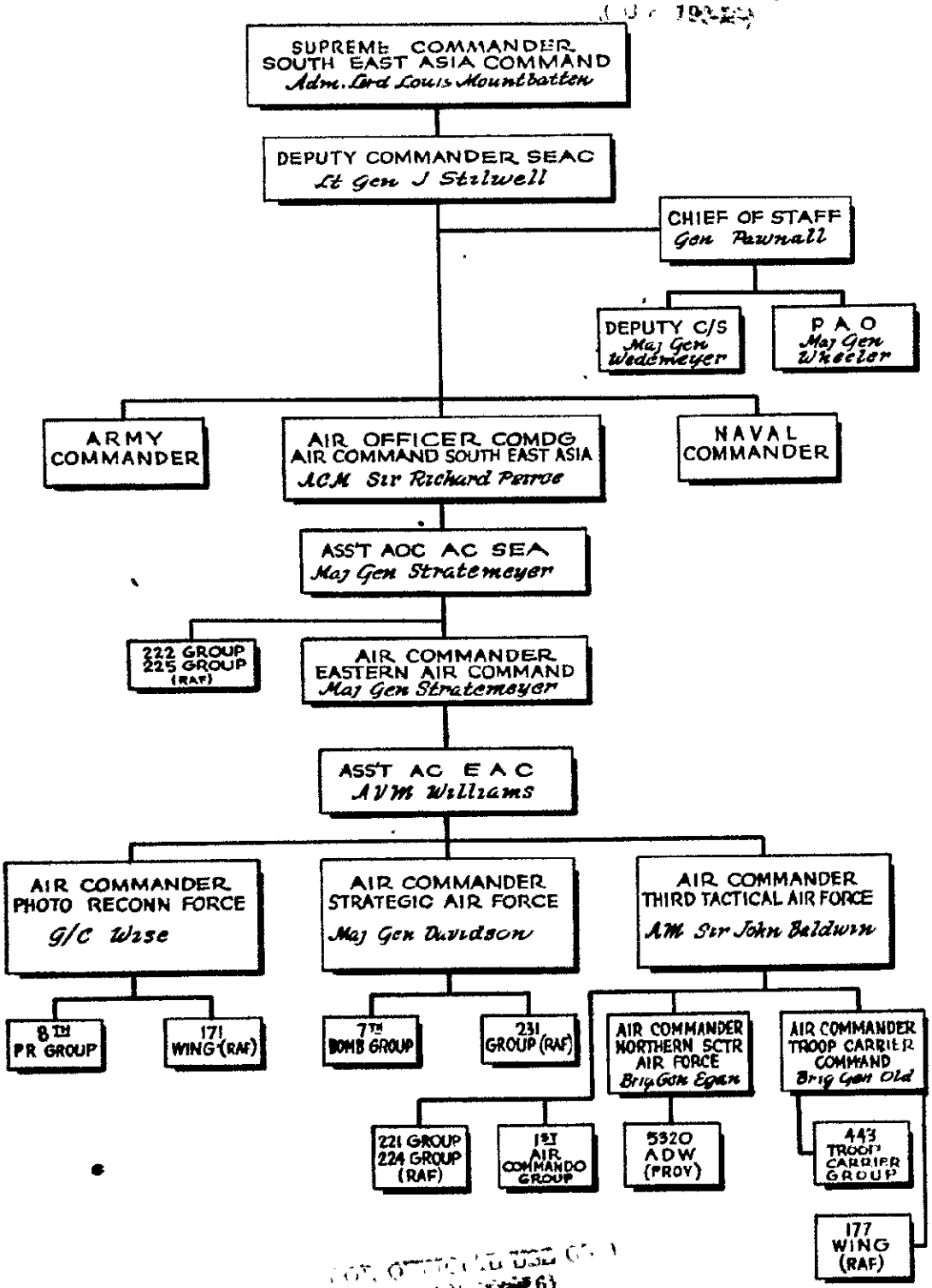
operate from China. A foundation for such an arrangement already existed in an American command in the China-Burma-India theater under Lt. Gen. Joseph W. Stilwell. General Stilwell, like most commanders in the theater, held several offices. He was Chief of Staff to Chiang Kai-shek and Deputy Commander to Mountbatten. And as CG, USAF, CBI, he was forced to bridge a psychological barrier between two allies which was as formidable as the physical barrier of the Himalayas. The Chinese had no representation in the CCS, and high-policy decisions frequently were carried by their leader directly to the President of the United States without regard for military channels. Chinese forces were commanded by the Generalissimo Chiang Kai-shek, head of both civil and military affairs. His most obvious military objective was to drive the Japanese out of China, but that task was complicated by the necessity of maintaining his political party in power and by his fear of Chinese Communists in the north.

The British were interested only incidentally in China's war against Japan. Their chief objectives were to protect India from Japanese invasion, to reconquer Burma and Malaysia, to curb civil discord among the natives in India, and to regain the prestige they had lost in the Far East through successive defeats at the hands of Japan. Their operations in 1942 and early 1943 had lacked aggressiveness, and any reform in that respect was hindered by the non-cooperation of native India and by a complicated chain of command, divided between British Army Headquarters, India, and the forces dedicated to offensive war in Burma. Between British and Chinese little love was lost: the Chinese

were suspicious of British political aims and were loath to stake too much in combined operations in North Burma with an ally whose previous efforts had been so languid; the British in India still held a traditional disregard for the fighting qualities of a "native" army.

General Stilwell's mission was to keep China in the war as an active ally and as a potential base for future large-scale operations against Japan. Essentially this involved equipping, supplying, and training the Chinese Army rather than the active participation of large American armies. It was in effect the continuation of a policy begun through lend-lease before the United States was a belligerent. After the Japanese captured the Burma Road, China could be supplied only by a LOC stretching from a port in Northeast India to Kunming. In 1943 supply was entirely by air transport, but the Ledo Road was being pushed as a high priority project, and ground operations planned for North Burma were to serve both the air and ground routes. Hence it was that General Stilwell, by training and by temperament an exponent of ground warfare, headed an American command largely made up of air and service forces. His real mission lay in China; India was for him only a terminus for his LOC, Burma the site of its route.

Two U. S. Army air forces were assigned to General Stilwell--the Tenth in India and the Fourteenth in China. Their common mission was to protect the LOC to China and the bases at either end. Together their meager forces were hardly sufficient to constitute even an average air force, but separation had been dictated by differences in policy between China and India. In China General Stilwell as Chief



SOUTHEAST [redacted] COMMAND

of Staff for the Generalissimo led Chinese armies as well as commanding American forces. But the commander of the Fourteenth Air Force in China, Maj. Gen. Claire L. Chennault, was Air Adviser to Chiang Kai-shek and commander of the Chinese Air Force; the long and intimate association between those leaders had resulted in a close rapport which was sometimes embarrassing to General Stilwell. And one factor must have been constantly in the mind of the Air Planners in Washington: that neither "Vinegar Joe," who slogged through the muck of Burma with his Chinese infantry, nor Chennault, a brilliant innovator in fighter tactics and hit-and-run bombing, was suited by experience or interests to conduct, without higher control, a sustained program of VLR strategic bombardment.

Such was the situation at the time of QUADRANT, when the CCS instituted certain changes in India in anticipation of a more aggressive operational policy. The British Army in India was left to the Commander in Chief, India (General Auchinleck); and all other forces were united under the South East Asia Command, with specified geographical boundaries. Louis Lord Mountbatten was named Supreme Allied Commander, with General Stilwell as his deputy. The theater organization was supposedly modelled after that which had proved so successful in North Africa, with combined air, army, and naval commands;[47] but the results were less happy.

Lord Mountbatten quite rightly insisted that all air operations in and from the SEAC be under his control through his Air Commander in Chief. Because the U. S. air mission in India differed so sharply from that of the British this control was hard to achieve. Simultaneously

with the creation of SEAC came a reorganization of U. S. Air forces in Asia. On 20 August the AAF India-Burma Sector, CBI was activated at New Delhi under Maj. Gen. George E. Stratemeyer.[48] This gave General Stratemeyer direct control over the Tenth Air Force and X Air Service Command, which were under over-all command of Lord Mountbatten through his Air Commander in Chief. But General Stratemeyer was also Air Adviser to General Stilwell and as such he had certain responsibilities which lay outside SACSEA's jurisdiction: supply and maintenance for the Fourteenth Air Force, training of Chinese pilots in the AFTC at Karachi, coordination of the activities of the India-China Wing of ATC (whose command channels ran direct to Washington), and protection of the latter's over-the-Hump operations.

In announcing the organizational changes effected at QUADRANT, General Arnold had written to General Stratemeyer:[49]

> This new command setup and your relationships with Generals Stilwell, Mountbatten and Chennault, is somewhat complicated and will have to be worked out among yourselves. . . . The success of this complicated command setup depends in great measure on personalities. If a true spirit of cooperation is engendered throughout the command, it will work. If the reverse is true, it is doomed to failure.

General Stratemeyer did not lack that "spirit of cooperation" but several months of valiant work on the part of Americans and British did not achieve the smooth-running organization desired. In spite of the fact that U. S. air forces, both actual and contemplated, were more numerous than those of the RAF, Mountbatten had named as his Air Commander in Chief Air Chief Marshal Sir Richard Peirce. General Stratemeyer feared

that if the MATTERHORN project were approved, that its needs would be subordinated to those of the planned operations in Burma, and he was anxious that at SEXTANT some definitive agreement be reached which would ensure a sound logistical support for the VLR bombardment program.[50] The final decision as to MATTERHORN stipulated, it will be remembered, that its supply should not interfere with planned operations; and an effort was made to clarify the air command in SEAC. An agreement in this respect was reached at SEXTANT between Generals Marshall and Arnold, Sir Charles Portal, and Lord Mountbatten. After Mountbatten returned to India he established the Eastern Air Command, SEAC. This was an integrated operational force consisting of the Tenth Air Force and the Bengal Air Command, RAF. General Stratemeyer was named commander, but inasmuch as his channels ran through Sir Richard Peirce (Air Commander, SEAC) to Lord Louis, Stratemeyer could still enjoy no independent control over his AAF units.[51]

It is only when viewed against this background that the difficulties involved in establishing a system of control for the XX Bomber Command can be appreciated. If the web of command relationships was so tangled as to defy the most ingenious draughter of organizational charts, the addition of a VLR strategic force would inevitably snarl the web further. For regardless of principles of operational command adopted in Washington, some practical solution had to be devised for the CBI which would divide administrative and logistic responsibilities between sectors bound by the tenuous bond of an American command but separated by geography and by local relations with mutually suspicious allies.

When in November 1943 the MATTERHORN plan was evolved, the Air Planners had stipulated that administrative command of the B-29 force, including maintenance and service, should be vested in the CG, AAF IBS (Stratemeyer), and that operational control and security of advanced bases should be the responsibility of the CG, Fourteenth Air Force (Chennault).[52] This proposed arrangement ignored entirely the relationship of General Stratemeyer to SACSEA. Whether deliberate or not, the omission was in accord with current AAF sentiment both in the theater and in Washington,[53] and it reflected the fears entertained by General Stratemeyer that the VLR program would be subordinated to SACSEA's operations. That sentiment was not shared by SACSEA. In describing the formation of the Eastern Air Command on 15 December, General Stratemeyer wrote to General Giles:[54]

> We are most anxious to know what decisions were finally made as to who will control Twilight /MATTERHORN/. Lord Louis naturally takes the position that any operations based in India must come under his Command. I am still hoping, however, that General Arnold can sustain the position that Twilight should be an all American show.

Lord Mountbatten must have realized after SEXTANT, if not before, that he would not be given operational control over VLR operations. His concern was rather with administration and coordination of those operations with the activities of his own air command, and whatever its purpose, the establishment of the Eastern Air Command after his return did little to simplify his problems. General Stratemeyer held that the planning and executing of VLR missions was a responsibility which fell outside the purview of Mountbatten's air commander, Sir

Richard Peirce.[55] The latter agreed to this, so far as missions in China were concerned, but insisted that "the actual building up expansion and operation of any Air Force within the South East Asia area must initially, under our Allied Air Command, fall to be my responsibility."[56] That division of responsibilities was to be decided however from outside the theater.

When MATTERHORN was adopted at SEXTANT, the command system which had been advocated in the original plan--divided responsibility between Stratemeyer and Chennault without reference to Stilwell or Mountbatten--had not been acceptable. The utility of maintaining control of all VLR units in the hands of the Joint Chiefs had become apparent, and on 5 January General Marshall informed General Stilwell of a plan for control of the XX Bomber Command then under consideration. Because of the unique situation which made B-29 operations absolutely dependent on both the SEAC and the China theater, it was proposed that the XX Bomber Command be not assigned to either--in fact, that it not be assigned permanently to any theater. That organization was to operate under general directives of the JCS; and in Asia, Stilwell, as CG, USAF CBI, would exercise direct command and control, utilizing facilities of the Tenth and Fourteenth Air Forces in fulfilling his directives. General Stilwell's comments were requested.[57]

After consulting with Generals Stratemeyer, Chennault, and Sultan, General Stilwell voiced the opinion that in spite of difficulties the arrangement was feasible. He proposed to delegate his responsibility for direct command and control to his Air Adviser Stratemeyer and to

charge Chennault, through Stratemeyer, with responsibility for fighter defense of staging areas, for fighter escort in China-based missions, and for airdrome construction and supply. When missions were directed against targets in SEA with the B-29's not staging through China, fighter support should come from Stratemeyer's Tenth Air Force.[58]

On receipt of this reply, General Marshall presented to the JCS a memo quoting the two cables and recommending that the command scheme as outlined in them be adopted.[59] The proposed plan was informally approved by the Joint Chiefs on 18 January.[60] In effect, this left the cable of 5 January as the directive under which General Stilwell would command the VLR bomber force. The manner in which he would exercise his authority to utilize the facilities of the two air forces in the theater was left to his own discretion.

On 13 January General Wolfe arrived at New Delhi with advance elements of his XX Bomber Command staff. After he had conferred with General Stratemeyer and others at Rear Echelon Headquarters, USA, CBI, but before he had seen General Stilwell, that headquarters issued over Stilwell's name on 30 January, G.O. No. 13, describing the command set-up for the XX Bomber Command.[61] The order announced briefly that the XX Bomber Command would operate under the general directives of the JCS, with direct command and control vested in the CG, USAF CBI. The latter designated his Air Adviser General Stratemeyer to exercise command and control in his behalf, and directed him to make arrangements with the appropriate headquarters of the theater. This then avoided any specific assignment of tasks to the Tenth and Fourteenth Air Forces; it omitted

any reference to General Chennault; and it referred to General Stratemeyer as Air Adviser to CG, USAF CBI, not as CG, AAF IBS. In that former capacity and under the power thus vested in him, Stratemeyer immediately issued a directive to Chennault regarding the initial B-29 combat missions and the method of administration and supply of B-29's in China.[62]

On 23 January General Wolfe left India to discuss with General Stilwell the problems MATTERHORN faced in China.[63] Shortly thereafter General Stratemeyer wrote General Arnold that "entirely satisfactory" meetings between Generals Wolfe, Chennault, Stilwell, and himself had resulted in a complete mutual understanding of the responsibilities of each in respect to supply, administration, and operational control under JCS directives.[64] It does not seem, however, that Chennault was entirely satisfied. At any rate, he had written on 26 January to General Arnold, "as a member of the JCS," an unfavorable critique of MATTERHORN as currently conceived. It was natural that Chennault should be more interested in operations of the Fourteenth Air Force than of the XX Bomber Command; he was attempting to secure approval of staging bases in the Kweilin area from which both B-29's and his own aircraft could operate, and he displayed anxiety concerning the coordination of tactical and strategic operations and of the supply agencies upon which they depended. This could be assured only by establishing "a unified air command to consist of all Air Forces and supporting services operating in China."[65] No suggestion was made as to who the commander should be, but the inference was clear enough.

This letter had skipped a couple of echelons in the normal channel of communications, and it is evident that Chennault had used his influence with Chiang Kai-shek to accomplish the same end by appeal to even higher authority.[66] General Arnold liked neither the idea nor the approach, but in the theater itself a new statement of Chennault's relation to the XX Bomber Command was promulgated.

In his peregrinations around the theater, General Wolfe arrived on 11 February at General Stilwell's advanced headquarters in the North Burma jungle. There on the following day the directive of 30 January was disapproved, and a new one was prepared (General Order #16), flown out by Wolfe, and published at New Delhi on 15 February.[67] In this order General Stilwell formally rescinded General Order #13 and allocated specific responsibilities to his air officers. He charged Stratemeyer, as CG, AAF IBS, with responsibility for logistics and administration of the XX Bomber Command in India and for efficiency of transportation facilities from India to China, and directed him to make recommendations to CG, CBI, after consulting with CG, XX Bomber Command for missions to be flown in SEAC. Stilwell likewise charged the CG, Fourteenth Air Force, with responsibility for fighter defense of the advanced bases, for complete support of the XX Bomber Command when operating from China (including construction and supply), and for recommendations to himself through his Air Adviser and after consultation with the bomber commander, concerning missions to be flown from China. This followed, in respect to allocation of duties, Stilwell's cable of 5 January to the Chief of Staff, but it differed from that message in

two details: it did not delegate to Stratemeyer "responsibility for direct command and control," and the duties which were stipulated for him were by virtue of his command of AAF IBS and as Air Adviser to the theater commander. General Stilwell, not General Stratemeyer, was to be the coordinator between the theater sectors. Thus when the latter issued his first directive on administrative procedure to General Wolfe it referred only to stations and personnel in India.[68]

Washington was informed of the contents of the new directive[69] and apparently found it acceptable. The Supreme Allied Commander at New Delhi was not informed immediately and when he did see the directive he was displeased both by its contents and by the manner in which it had been issued. His protest was an important factor in shaping the final arrangements for control of the XX Bomber Command.

It has been said above[70] that Lord Mountbatten had participated in discussions on the VLR project at SEXTANT but had left before a final decision was reached. After his departure alternative proposals were entertained--to continue with large-scale operations planned for SEAC in Burma, or to scratch those operations and concentrate on augmenting Hump tonnage with the view of increasing air attacks out of China, particularly by B-29's. A choice between these alternatives was deferred pending an opinion from Mountbatten and Chiang Kai-shek.[71] Lord Louis apparently was more inclined toward the latter plan. He wished to curtail operations in North Burma and to carry the Ledo Road (which he said was "out of step with global strategy") only to Myitkyina. For the balance of 1944 he advocated putting all resources into building

up operations of the Fourteenth Air Force (which he praised highly) and of MATTERHORN; later he expected to move southeastward toward Sumatra, and the B-29's were to play an important role in this campaign.[72] For reasons not pertinent here these suggestions could not be accepted in full; what is of immediate concern is his attitude toward the B-29's.

Soon after his arrival at New Delhi, on 14 January, General Wolfe had conferred with Lord Mountbatten and General Stratemeyer. Lord Mountbatten had suggested that the XX Bomber Command perform VLR reconnaissance in his theater and conduct missions against Bangkok.[73] It would seem that the AAF commanders must have informed him of their mission and have explained to him the command relationships as defined in their directive of 5 January.

In spite of the known interest of Mountbatten and his Air Commander in the relation of VLR bomber units to their chain of command, no mention of SACSEA had occurred in that directive, in Stilwell's answering cable of 9 January, or in either of the two general orders emanating from Stilwell's New Delhi headquarters. Nor apparently had any of those documents been formally presented to SACSEA. The desire to keep MATTERHORN "an all American show" was eminently sound; failure to consult with Mountbatten was not politic.

When he received belatedly a copy of General Order #16 Lord Louis was disgruntled at not having been consulted before it was framed and perturbed in respect to its neglect of his command. He dispatched to the British Chiefs of Staff a message quoting the order in full and outlining his reactions thereto.[74] Lord Louis expressed his appreciation

[redacted]

SECRET

of the assignment of the B-29's to his theater and of the difficulty of coordinating their operations in India and China under general directives of the JCS. He deplored however the fact that General Stilwell had not conferred with him before issuing General Order #16; and to insure proper correlation of priorities involved in B-29 and other theater operations, as well as adequate defense of B-29's based in SEAC, he suggested certain modifications in that order. The JCS, commanding all VLR units, should issue mission directives simultaneously to the theater commander of the B-29's (Stilwell) and to the commanders of those theaters in which the planes were based, over which they were to fly, and in which they would bomb. Stilwell would be responsible for coordination and for issuing mission orders. Local fighter defense would be a responsibility of the pertinent theater commander; in SEAC Mountbatten would exercise this responsibility through his Air Commander (Peirce) who would delegate his authority to the CG, Eastern Air Command (Stratemeyer) and because of the latter's position as Stilwell's Air Adviser, this would leave control in one hand.

General Marshall was immediately informed by the theater of the contents of this cable,[75] and on 28 February the British Chiefs of Staff referred the message, with an accompanying memo, to the CCS.[76] The British Chiefs were convinced of the impracticability of giving to Stratemeyer, a subordinate to Mountbatten and Peirce, control over air forces based partly in China and operating, under the JCS and Stilwell, independently of SEAC. To achieve the proper coordination in operations and administration, they requested acceptance of the modifications

[redacted]

suggested by SACSEA, and the addition of "such instructions as may be necessary to cover a serious threat to the air route or to the security of the base."

This formal statement was seconded by a personal request from Sir Charles Portal to General Arnold that he lend his influence to securing the measures suggested therein, and Sir Charles was assured by the latter of the AAF's desire "to arrange for smooth coordination."[77] Several days later General Arnold received a message from General Kuter, who was then on a mission to the CBI and who had just conferred with Lord Louis and General Stratemeyer at New Delhi. General Kuter informed General Arnold of the seriousness of the oversight of the JCS in not having provided SACSEA immediately with a copy of their original directive (of 5 January) to Stilwell. An apology was due, and in the future Mountbatten would be content with information copies of all directives and orders to the XX Bomber Command.[78] Pending formal action by the Joint Chiefs, General Arnold cabled General Stilwell, expressing regret concerning the oversight toward Mountbatten and promising that in the future information copies would be furnished him. As to the matter of command relations, the JCS were currently revising their directive, and Stilwell was informed for planning purposes only, of its tentative contents.[79]

Concurrently with this difficulty over details in the theater, the problem of over-all command of all VLR forces had been under discussion in Washington, and it seems likely that the situation in the CBI, the only theater of immediate practical concern, must have influenced

decisions on the broader question. At any rate, when the comprehensive plan on Optimum Use . . . of VLR Bombers was submitted to the Joint Chiefs on 2 March, it contained a recommendation that control of VLR units "be retained directly under the Joint Chiefs of Staff."[80] This differed sharply from the directive of 5 January which had provided that the XX Bomber Command operate under the general directives of the JCS, but under the direct command and control of Stilwell.

The preliminary description of the new directive which General Arnold sent General Stilwell had been prepared by the AAF in consonance with this new principle and was presented in a memo to the Joint Chiefs on 6 March. The AAF agreed with the British Chiefs of Staff that VLR operations in SEAC should be coordinated with the Supreme Allied Commander. Hence it was proposed that a new directive (draft inclosed) be sent Stilwell, and the British Chiefs be asked to direct Lord Mountbatten to cooperate with the terms of that directive. An apology to the latter was also included. Briefly, Stilwell was informed that as CG, USAF CBI, he would command U. S. Strategic Air Forces (VLR) in his theater, conducting missions under the operational control of the JCS. Stilwell would coordinate operations in China with the CG, Fourteenth Air Force and Chinese Air Force (Chennault). In operations from, or in the area of responsibility of, SEAC, Stilwell would coordinate with SACSEA. When unresolvable conflicts arose, the two commanders would refer them to their respective chiefs of staff. Defense of air bases and routes would devolve upon Stilwell and Mountbatten in their respective theaters, and Stilwell would render maximum logistical support to

the VLR project. The JCS might move units from the theater at any time.[81]

The Joint Chiefs approved this memo and the appended directives on 7 March and presented it to the CCS for consideration.[82] General Stilwell was given a copy of his directive with the information that it had been accepted by the JCS and was being considered by the CCS. This time he was requested to "have Stratemeyer keep Mountbatten informed."[83] On 13 March minor verbal changes were made in the directives; on the 25th the revision was adopted by the Combined Chiefs,[84] and Stilwell and Mountbatten were so informed.[85]

Lord Mountbatten accepted the new arrangement apparently with little enthusiasm. He and Sir Richard Peirce considered the "command and control set-up for VLR bombers unusual" (which no one could deny); they asked for information copies on all important decisions (which had been promised), and they requested, through General Sultan, that General Arnold "not send instructions to Wolfe direct."[86] This latter request could not be granted in the light of current plans.

It will be recalled that on 28 March the Joint Chiefs had decided to establish the Twentieth Air Force and that immediately thereafter they had approved a command system for that organization and its constituent units. The main features of that system have already been described:[87] in effect, the decision of the JCS to retain direct control of all VLR units and to operate them through General Arnold had lessened the responsibilities of the theater commanders. On 3 April the Chief of Staff announced to General Stilwell the decision to establish the

CBI THEATER

LEGEND
COMMAND ——
ADMINISTRATIVE & LOGISTICAL SUPPORT ----

WAR DEPARTMENT

COMMANDING GENERAL US ARMY FORCES CHINA-BURMA-INDIA
Lt Gen Stillwell

COMMANDING GENERAL USAAF & XX AIR FORCE
Gen H H Arnold

CHIEF OF STAFF
Brig Gen Evans

DEPUTY COMMANDING GENERAL USAF-CBI
Maj Gen Sultan

THEATER AIR OFFICER AND AIR ADVISOR
Maj Gen Stratemeyer

CHINESE LIAISON
Maj Gen. Hearne

COMMANDING GEN US AAF AIR TRANSPORT CMD
Maj Gen George

AACS

ORGS
I C A
S S
BRANCH JAG

COMMANDING GEN SERVICES OF SUPPLY
Maj Gen Covell

COMMANDING GEN USAAF - INDIA BURMA SECTOR CBI
Maj Gen Stratemeyer

CAS
Brig Gen Stone

GROUND FORCES

COMMANDING GEN 9TH AIR SERVICE COMMAND
Maj Gen Hanley

COMMANDING GEN AIR FORCES TRAINING CMD
Brig Gen Haddon

COMMANDING GEN 10TH U S ARMY AIR FORCE
Maj Gen Davidson

MISC UNITS
27TH S C U
10TH WEATHER SQ
1ST AIR COMMANDO GP

COMMANDING GEN 14TH U S AIR FORCE
Maj Gen Chennault

COMMANDING GEN XX BOMBER COMMAND
Brig Gen Wolfe

COMMANDING GEN INDIA CHINA WING ATC
Brig Gen Gordon

ASIATIC AIR[illegible] COMMUNICATION AREA

5380 AIR SERVICE AREA CMD
Brig Gen Hood

5309 AIR SERVICE AREA COMMAND

5317 A S A C

C/S
Brig Gen Spry

5220 A D W
Brig Gen Egan

COMBAT UNITS

CAS
Brig Gen Morse

COMBAT UNITS

CAS
Brig Gen Glenn

OTHER AIR CORPS GENERAL OFFICERS
(NOT SHOWN ABOVE)

Brig Gen Hoffman — AIR SURGEON (USAF, USAAF, AAF)
" McClure — LIAISON S/S
" Roebe — "
" Clark — AIR INSPECTOR (14TH, 10TH)
" Old — AIR COMMANDER XX BOMBER COMMAND
" Gilkeson — CG 69TH FIGHTER WING 14 AF - XX BC
" Weston — AB XX BC
" Saunders — CG 58TH COMPOSITE WING XX BC

indicated
Twentieth and that he might expect further revisions in his directive.[88] After the new air force had been formed and the detailed statement of its policies had been formally approved, the JCS dispatched to Stilwell by courier a copy of that statement (JCS 742/6, 6 April 1944) and a cable describing briefly his role under the new arrangement.[89] Since the XX Bomber Command was assigned to the Twentieth Air Force, all major decisions regarding deployment, missions, and target objectives in the CBI, as elsewhere, would be made by the JCS and executed by the CG, AAF. General Stilwell was directed to effect the necessary local coordination between VLR missions and other operations in the CBI, consulting with Mountbatten insofar as the missions affected his theater and informing the Generalissimo, to the extent that security permitted, concerning directives on missions from China bases. Provision and defense of bases in SEAC would be a responsibility of Mountbatten's, in China, of Stilwell's. General Stilwell had also the duty of providing logistic support of all components of the XX Bomber Command operating from his area. If conflicts between Stilwell and Mountbatten should arise, they should be referred to the appropriate chiefs of staff. In case of a tactical or strategic emergency, Stilwell might divert the B-29's from their strategic program, instantly informing the JCS of that act. As an afterthought, the name of the Commander in Chief, India, was added to that of SACSEA in the appropriate sections.[90]

This directive then included some provisions which had been suggested by the British Chiefs of Staff on 28 February. It did not, however, acquiesce in Mountbatten's protest over channels of communication

between the JCS and Wolfe; direct communication between the CG, AAF, and the VLR bomber commander was specifically authorized. A memorandum describing this arrangement was presented to the British Chiefs of Staff, and they were requested to instruct Mountbatten and Commander in Chief, India, to fulfill those obligations which had been stipulated for them.[91] This memo provoked the unsuccessful attempt on the part of the British to remove over-all control of VLR units from the JCS to the CCS which has already been described.[92] Actually, however, the command policy for the XX Bomber Command which was described to General Stilwell by the cables of 20 April and by courier dispatch was that under which VLR missions were initiated.

One further incident remains to be told. There had been some justification from a purely military point of view of Lord Mountbatten's desire to arrive at a clear understanding in respect to responsibilities for logistics, coordination, and base defense within his theater: port and transportation priorities for the B-29 project inevitably would conflict with those for other planned operations, and, as events had recently shown, the Calcutta area was not immune to Japanese air attack. But it is probable that considerations of prestige were not wholly absent. The British had lost "face" in the oriental world, and if they were to regain their former ascendancy in South East Asia, their own efforts should not be overshadowed by those of the Americans. And hence command prerogatives were perhaps more jealously defended than in Europe. The attitude held in China toward the VLR bomber force was also colored by similar non-military considerations.

If the interpretation advanced in an earlier chapter be correct, the choice of China as a theater of operations for the B-29 was importantly influenced by the desire to strengthen the war effort of the Chungking government. The Generalissimo had accepted the proffer of this aid and had cooperated, not without profit, in the construction of the bases. It has already been indicated that Chiang Kai-shek had attempted at highest level to secure control of the B-29's, as well as of the Fourteenth Air Force, for General Chennault; in which case the Generalissimo's close relations with that leader might have given the former some influence in their direction. That effort fortunately had not been successful. The pressure from the Japanese in East China led General Chennault to suggest to General Stilwell in April the temporary diversion of MATTERHORN air transport capacity in favor of the Fourteenth Air Force's defensive needs and, in an emergency, the diversion of "all Matterhorn resources to tactical rather than strategic purposes, using VLR's to pulverize main Japanese bases," and employing the transport capacity released by short-range use of B-29's to supply the Fourteenth Air Force and the Chinese ground army.[93] The Japanese threat was not an idle one, but the suggested diversion, within Stilwell's power, would have thwarted the very purpose for which the B-29's had been allocated to the CBI.

A few days later General Stilwell advised General Marshall that the Generalissimo was insisting that he command the VLR project in China, with his relation over the XX Bomber Command identical to that which he enjoyed (as Supreme Commander in China) over the Fourteenth

Air Force. It was Stilwell's impression that this demand was primarily motivated by Chiang Kai-shek's concern over "face" and might be met by an explanation of the command set-up newly provided for the Twentieth Air Force. General Marshall passed on this information to the President, with a draft message for dispatch to the Generalissimo.[94] On the 12th the President cabled Chiang Kai-shek, acknowledging receipt, via Stilwell, of the Generalissimo's views on command of VLR bombers. But all VLR units in all areas were to be under General Arnold for the JCS. The Supreme Commander in each theater would have the responsibility of coordinating VLR with other operations; in China, this would be the Generalissimo, and he would be informed concerning directives pertinent to VLR bombers based in areas under his jurisdiction.[95]

A few days later General Marshall cabled for a review of the accomplishments of the Fourteenth Air Force in terms of the "terrible price" we were paying.[96] Apparently the Chief of Staff was seriously considering the possibility of moving that force from China. The Chief of Air Staff reported that the Fourteenth had done as well as could be expected with current strength and supplies and advocated no let-up in air operations in China until the "success or failure of MATTERHORN is established" and until further progress was made in the Pacific.[97] Perhaps it was only coincidental that General Marshall's inquiry into the combat record of the Fourteenth followed so rapidly the effort of Chennault and the Generalissimo to gain a freer hand with air units in China, but a natural inference is that he was not pleased with the methods which had been followed. But the command of the XX Bomber

Command was maintained in American hands and no drastic steps were taken. The arrangement described in the President's cable put Chiang Kai-shek on the same level as Lord Mountbatten and there was no longer any question of a slight to the Chinese. When Stilwell's revised directive was issued on 19 April it instructed him to keep the Generalissimo informed on VLR operations, but it left to Stilwell the responsibility for coordination.

It was late in April, then, before final agreements had been reached as to how the Twentieth Air Force should be commanded and how it should exercise control over its constituent forces. The nature of those command principles was not announced to the public until 15 June, when the first B-29 attack on Japan proper lifted security regulations.[98] The final arrangements had been long in the making, but throughout all the changes in status of the several theater commanders, the actual work of preparing the airfields, the facilities, and the supply system had been in progress. It is refreshing to be able now to turn from the conference table and the headquarters desks to the ports of India and the air strips of China in an effort to describe those preparations.

[redacted]

Chapter VII

THE BASES

> The value of a base of operations will, therefore, seldom determine the choice of an undertaking in the first instance. Mere difficulties which may arise in this respect must be set aside and compared with the other effective means. Obstacles of this kind often vanish before the force of decisive victories.
>
> Karl von Clausewitz, On War.

Introduction

The statement that the air war of today is one of bases and logistics as well as of aircraft and crews has become trite through constant repetition, but like many another truism it should be often reiterated, however obvious it may seem. That statement takes on a special significance when applied to the strategic bombardment of Japan by VLR aircraft.

In principle the plan for those operations was fundamentally akin to the plan for the Combined Bomber Offensive in Europe. The material foundations of the air war in Europe and in the Asiatic-Pacific areas however differed sharply. In northwestern Europe, until D-day, AAF bases were all in the United Kingdom. Generally they had been built by the British--of materials, by methods, and to standards comparable to our own. Operational fields and supply and maintenance depots were, as wartime army installations go, permanent; they operated in a civilized, industrial community. Supply routes, both by sea and rail, were as highly developed as any in the world. True, the sea-line was long and vulnerable to submarine attack, the railways choked with munitions,

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port facilities damaged by air attack, and labor and materials scanty--but the communications network was a going concern subject only to interruptions, and the bases by field standards were luxurious.

In the invasion of North Africa, Sicily, and Italy tactical air units were forced to use temporary strips and improvised methods of supply and maintenance, but from earliest days heavy bomber units were able to employ captured airfields and facilities. After settling in Italy the strategic forces operated from permanent bases under conditions which were adequate if not ideal. Throughout the ETO, then, it was more often a question of extending and repairing existing facilities than of creating.

In the war against Japan, operations had been limited by lack of proper bases and by difficulties inherent in the supply situation fully as much as by the small size of the forces available. From the outset in the Pacific war only infinite toil and skillful improvization had made possible the slowly mounting weight of aerial warfare. Air strips had been hacked out of jungles, scraped off the coral tops of atolls, or seized in bad condition from the enemy. Often they were subject to aerial attack and ground infiltration, occasionally to naval bombardment. Low shipping priorities, the excessively long supply line, and the absence of any local facilities kept our bases unbelievably primitive by U. S. or European standards. Their remoteness from Japan and the accelerating forward movement of our battle line discouraged any effort at permanence.

The availability of VLR bombers for the war against Japan reduced somewhat the handicap imposed by the distance of our bases from Japan.

but under average conditions obtaining in the Pacific the B-29 could hardly have operated. A pierced-steel matting flung on a beach, a handful of tools and Yankee know-how, and gasoline drums floated inshore might keep a fighter squadron in the air; they could not sustain a persistent bombardment program by the heaviest, largest, greediest, and most complicated bomber in existence. The Air Planners in Washington were fully aware of these factors. They rejected the Darwin area in Australia because of its distance from Japan and its impractical LOC; small island bases were out of the question. The Marianas were promising both in respect to position and logistical possibilities, but they would not be available until autumn 1944.

The decision to operate from the CBI was made because the contiguity of China bases to the Japanese Inner Zone offered opportunity for early initiation of strategic bombardment and because of certain considerations which were not wholly military. It was made with full knowledge of the logistical difficulties and in the face of numerous protests which those difficulties evoked. As compared to most Pacific areas the CBI did offer certain advantages. Base areas did not have to be seized in expensive operations and if properly chosen could enjoy a fair degree of security. Native manpower was abundant and native materials were not limited to palm logs, coral, and beach sand--and both were important considerations in a theater so distant from U. S. ports. But the 12,000- to 15,000-mile haul by water, the overtaxed port and transportation systems in India, the absence of any railway network in China, and above all, the fantastically difficult LOC from

India into China--these factors constituted powerful arguments against the proposed MATTERHORN scheme. At best the construction of airfields and depots and the establishment of an air transport route capable of building and maintaining an adequate stock pile would have constituted a formidable task. In the face of the target dates set and the restrictions imposed on the B-29 by conflicting priorities, the task might well have seemed impossible.

The bases were built, not wholly on schedule, but in such fashion that operations could be launched in June 1944. The problem of transporting a sufficient amount of supplies to the China bases however was never satisfactorily solved. Distance, weather, terrain, and the inherent inefficiency of an air transport system with fuel available at only one end of its route, might have been conquered. But the pressure of rival operations in the CBI proved too much of a handicap, and the quickening tempo of war in the Pacific was to lead eventually to the abandonment of MATTERHORN bases for others less frightfully expensive in effort.

The next chapter will deal with the establishment of the supply lines and in a subsequent volume it will be shown how straitly the operations of the XX Bomber Command were limited by the inadequacies of that system. Here must be told the story of the bases. In describing the early planning and the preliminary negotiations, the problems of India and China may be considered together. The actual construction however was done independently by separate agencies,

PLAN	VLR PERMANENT BASES				VLR STAGING AIRFIELDS				TRANSPORT AIRFIELDS				
	LOCATION	NO.	SPECIFICATIONS	DUE DATE	LOCATION	NO.	SPECIFICATIONS	DUE DATE	LOCATION	NO.	SPECIFICATIONS	DUE DATE	LOCATIO
SUNSET (COS 323, 20 August 1943) as modified by CBI in CM-IN-9027 (11 Sep 43), Acquila 2106EA, 11 Sep 43.	Changsha Area	20	6500' runways, to accommodate 1 gp., 28 A/C each	10 by 1 Oct 44, 20 by 1 May 45					Calcutta Area Kunming Area Assam	45 50 30	To accommodate B-29 C-57's		Kweilin A
TWILIGHT (CM-IN-9027 (11 Sep 43), Acquila 2106EA, 11 Sep 43.	Calcutta Area	5	6500' runways, to accommodate 2 gps., 56 A/C each	1 Nov 44	Kweilin Area	5	6500' runways	1 Apr 45	Calcutta Area Kunming Area	3 2	2 parallel 6000' runways each; A/D's to accommodate 100 A/C each Top-off A/D's, runways 6500'	1 Nov 44	Calcutta Kweilin A
WOLFE PLAN (11 October 1943).	Calcutta Area	10	To accommodate 1 gp. each	5 by 1 Mar 44 10 by 1 Sep 44	Kweilin or Chengtu Area	5	To accommodate 40 A/C each	1 Mar 44					Kweilin A
MATTERHORN (JPS 320, 9 November 1943).	Calcutta Area	8	To accommodate 150 B-29's by 1 Mar 300 B-29's by 1 Sep	4 by 1 Mar 44 4 by 1 Sep 44	Chengtu Area	5		1 Mar 44					Chengtu Ar

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	VTR FIELDMENT BASES				VTR STAGING AIRFIELDS				TROOP-SUPPORT AIRFIELDS				OTHER AIRFIELDS			
	LOCATION	NO.	SPECIFICATIONS	DUE DATE	NO.	SPECIFICATIONS	DUE DATE	LOCATION	NO.	SPECIFICATIONS	DUE DATE	LOCATION	NO.	SPECIFICATIONS	DUE DATE
23, 30 Jan Indian O.-Feb 43), 4, 11 Sep	Chengdu Area	20	6500' runways, to accommodate 1 sq., 28 A/C each	10 Oct 43 20 May 44				Calcutta Area Kunming Area Assam	45 50 50	To accommodate 1009 C-87's	1 Mar 44	Kweilin Area "		Fields to accommodate following units: 5 fighter sqs. 10 fighter sqs. 4 HB sqs. 1 ES Sq.	4 by 1 Mar 1 by 1 Jul 1 Feb 44 1 May 44 1 May 44
IT-ong27 Acquila 30 Ap.	Calcutta Area	5	6500' runways, to accommodate 2 sqs., 56 A/C each	1 Nov	5	6500' runways	1 Apr 45	Calcutta Area Kunming Area	45 3 2	2 parallel 6000' runways each; A/D's to accommodate 100 A/C each Hop-off A/D's, runways 6500'	1 Mar 44	Calcutta Area	1	Base depot A/D for high echelon maintenance	1 Mar 44
1 October	Calcutta Area	10	No accommodate 1 sq. each	5 Mar 44 10 Nov 44 Sep 44	5	To accommodate 40 A/C each	1 Mar 44					Kweilin Area	15 2	4000' fighter strips Service sq. A/D's for fighters	1 Aug 44 to 1 Dec 44
(AS 320, 43).	Calcutta Area	8	No accommodate 150 B-29's by 1 Mar 300 B-29's by 1 Sep	4 by 1 Mar 4 by 1 Sep	5		1 Mar 44					Chengtu Area	2	Through fighter strips to accommodate 5 fighter sqs. of 12th Air Force	1 Mar 44

using different methods and materials, and there is then a separate story for the Calcutta and the Chengtu area. A brief statement on the staging fields in Ceylon is thrown in as a sort of epilogue. The over-all task called into play Chinese coolies working in methods hallowed by ancient traditions, an Anglo-Indian force combining native manpower and techniques with some modern machinery, and U. S. Army engineering units using partly improvised methods, partly heavy machinery. The contrast, revealing as it did something of basic national characteristics, is instructive. It was not a task of the Twentieth Air Force, this building of airfields, but it was absolutely essential to the mission of bombing Japan, and there was in it something of the epic quality of the 1,600-mile strikes against Kyushu. One chapter of the story of the Twentieth was written, then, in the sweat of coolies from Szechwan and Bengal and Ceylon, and of aviation engineers from Iowa and Alabama and Oregon as truly as were subsequent chapters written in the blood of B-29 combat crews.

Preliminary Plans and Negotiations

In a previous chapter[1] a brief description was given of the strategic implications of several plans for the employment of B-29's from the CBI. The chart on the opposite page summarizes the main features of each in respect to its provisions for air bases. The plans had these features in common: that they called for two sets of bases, one in Bengal, one in China (Changsha, Kweilin, or Chengtu areas); that the two areas should be linked by air transport alone; and that

the bases should be built, so far as was possible, by manpower and from materials locally available. A glance at the chart will indicate a progressive diminution in the number of fields demanded and a tendency on the part of plans made in Washington to prefer an earlier target date than those advanced by the theater. Both these factors were conditioned by over-all strategic planning which in effect had two objectives--early use of B-29's from China, regardless of costs, to bolster Chinese resistance; and a long-term program of bombardment from bases more suitably located, which eventually diverted most of the VLR units from the CBI to the Marianas.

Earlier passages have shown how consideration of the CBI as the theater for initial VLR operations was begun at QUADRANT in August 1943 and how a definitive decision was reached only at SEXTANT in December. In the meanwhile no firm decision could be made in respect to the location and construction of the bases, and hence negotiations had to be carried on, as it were, in the subjunctive mood. But if the fields were to be ready for operations, which General Arnold had promised the President should begin in April, preliminary measures and even actual construction could not tarry for the final settlement. This lack of certainty inevitably lent to the initial phases of plans and construction an air of confusion unusual even in war.

Actual on-the-spot investigation of the problems of VLR airfield construction in the CBI was initiated late in August 1943 by the announcement to the theater of the Air Planners' SETTING SUN project and the accompanying request for comments and counter-proposals.[2]

Appropriate officers from the staffs of the CBI headquarters and of the AAF and the SOS in China and India made a hurried survey of the airfield possibilities in the theater, formulated a critique of SETTING SUN and submitted an alternative plan, TWILIGHT. These general assumptions governed their thinking: that fields could be built in China without recourse to U. S. aid other than financial and technical advice; that some advantages would be gained in India by using airdromes then in existence or under construction; that the India bases could be built on schedule only by importing certain materials (cement, reinforcement steel, bitumen, pipe, etc.) and by the use of U. S. construction units with organizational equipment, aided by local labor. Specifically it was estimated that one engineer aviation battalion could complete one airfield in 4 months.[3]

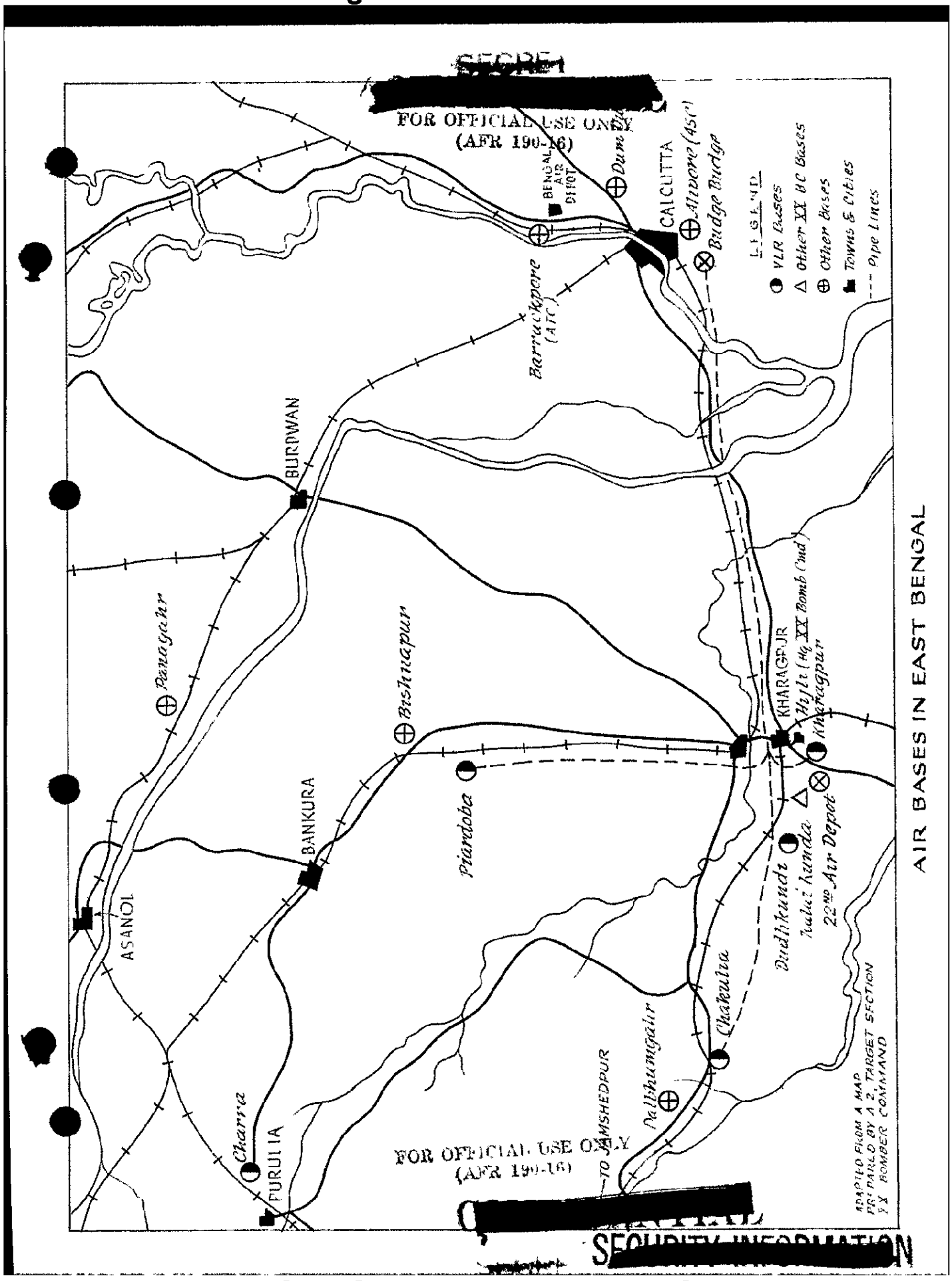
When the TWILIGHT plan was rejected in Washington in favor of the less ambitious and more expeditious MATTERHORN scheme, the theater assumptions in respect to airfields were accepted as a working basis for that latter plan. That is, it was accepted that, given U. S. advisory personnel, the Chengtu fields could be completed according to this schedule: two within 2 months after work began, two others in 4 months, five within 6 months.[4] For India, however, construction units in the number suggested by the theater must be provided. To meet the "by March" dateline of MATTERHORN, then, it was necessary immediately to secure the consent and cooperation of the British in India and of the Chinese government, and to ship to India those forces and materials required. There was no delay or difficulty in enlisting

the aid of the two allied governments, and since the negotiations were soon consummated they may be described briefly here. The allocation and deployment of the construction units however entailed many practical difficulties, and since that problem pertained only to the India-Burma Sector it will be discussed in a later section.[5]

When MATTERHORN was presented to the Joint Planners on 9 November, they were not prepared to accept it without further study; but they did instruct their air member, General Hansell, to request the JCS to secure approval of the construction of the desired bases in the event that the plan was finally accepted.[6] This request took the form of a JPS memo, suggesting that the JCS recommend to the Combined Chiefs that the latter authorize that four airfields be made available in the Calcutta area and that the proper U. S. authorities initiate measures requisite to insure the construction of five airdromes in the Chengtu area. Target date was "by May."[7] Such action had already been taken. The President, who had approved in principle the MATTERHORN project, had on 10 November dispatched cables to the Prime Minister and the Generalissimo, announcing the possibility of VLR operations from the CBI and requesting cooperation in obtaining and constructing the airfields under the general conditions described in MATTERHORN.[8] The Chinese authorities had not previously been informed of any of the VLR plans,[9] but the British in India had been consulted by the theater officers who drew up the TWILIGHT plan. While GHQ India was "not unsympathetic," the British were not overly enthusiastic toward a plan which threatened to compete with construction

and logistics for their own operations, and they were inclined to be most conservative in their estimation of completion dates.[10] This negative attitude was not shared by the Prime Minister, who concurred in the President's request and instructed the Commander in Chief, India, "to render every possible assistance in the construction of the four air bases in India."[11] The Generalissimo was equally compliant, promising that China would furnish the material and labor and requesting that U. S. technical advisers and engineers be sent out at once.[12]

In view of these tentative agreements made at the governmental level, action by the Combined Chiefs of Staff, pending final acceptance of MATTERHORN, was only a matter of form. So when the Joint Chiefs presented to the CCS the memorandum recommending approval of the airfields,[13] the British members could only refer to the Prime Minister's action, add their own approval, and point out that U. S. construction units should be in place by 15 January if the fields were to be completed by 1 April, when all facilities would have to be thrown into construction of air strips for the Ledo Road.[14] The final decision was reached only with the agreement at SEXTANT to mount MATTERHORN, with its Calcutta and Chengtu bases, "without materially affecting other approved operations."[15] This latter ruling was so interpreted that it permitted the temporary diversion of certain "resources" from the Ledo Road in order that target dates for the VLR bases in India might be met.[16] But the "resources" included only some construction equipment (notably dump trucks) and



not the all-important engineer units. The agreement assumed the arrival in the CBI of such units by 15 January, and the accomplishment of certain preliminary phases of the work by local British agencies. The following pages will indicate how difficult was the task of providing at an early date the U. S. forces which were required and how in consequence target dates were never fully met.

The Indian Bases

Selection of sites. The actual selection of the sites for the airdromes in India was made by theater authorities. The specific localities were subject to many changes, but there was never any thought but what the general area would be in that part of Bengal lying near Calcutta. The choice of this area was dictated by its location vis-à-vis China, by the fact that Calcutta was the only adequate port in northeast India, and by rail and road communications that were, as Indian routes went, good. Those same factors had governed the choice of the same area for the siting of heavy bomber bases for the Eastern Air Command. In the region surrounding Midnapore, some 70 miles west of Calcutta and in rolling plains at the edge of the Ganges alluvial plain, there were some 27 airdromes completed or under construction, and 23 satellite air strips.[17] The fields were built to accommodate two squadrons of B-24's each, usually with 6,000-foot paved runways and it was thought that by extending and strengthening runways and increasing the facilities these could be made suitable for B-29's.

General Stratemeyer appointed in the theater a "Twilight Committee"

under Gen. Robert Oliver, CG, ASC. This committee made a survey of existing fields with representatives of the RAF, and by 17 November had tentatively decided on the following locations: Bishnapur, Piardoba, Kharagpur, Kalaikunda, and Chakulia.[18] Early in December an advance party from the XX Bomber Command arrived in India,[19] and the engineer officer, Major Freret, made an inspection of the sites chosen. For some reason Bishnapur was abandoned in favor of Dudhkundi, and preliminary work was inaugurated.[20] When General Wolfe arrived in India (13 January) he in turn inspected the airfields and, after considering for a while Panagarh, finally selected Kharagpur as his headquarters base. Kharagpur was the most important rail junction in the region, located on the mainline Bengal-Nagpur railway 65 miles west of Calcutta, and with a branch line which served most of the other proposed airfields. Not the least important factor in his decision was the existence at Hijli, an adjacent village, of a large new building, the Collectorate (designed as a political prison), which housed the XX Bomber Command Headquarters.[21]

General Stratemeyer had planned to construct nine airfields--one transport field and eight one-group B-29 fields--four of the bomber fields to be ready in April, four others in September. Pending final selection of the latter four it was planned to use Kharagpur as a headquarters and transport field, and to build the first four B-29 fields to two-group standards (56 hardstands each). Construction was to be in two phases so that each airdrome could accommodate 28 aircraft by April,

56 by September.[22] When it became apparent that schedules on the five fields could not be met, it was decided that efforts should be concentrated on making Kharagpur (as a B-29 base) and Chakulia partly operational by 15 March and housing two groups temporarily at other fields,[23] Charra and Gaya.[24] When the B-29's were somewhat delayed in arriving in India, it was possible to drop Gaya from the list and the four groups were based at Kharagpur (468th), Chakulia (40th), Piardoba (462d), and Charra (444th). The last field had only a 6,000-foot runway which was extended by two 900-foot steel mats.[25] On 1 July, the 444th Group moved from Charra to Dudhkundi, and in May the transport field at Kalaikunda was opened.[26] The problem of selecting the other four fields was in time simplified by decisions made outside the CBI.

The suggested expedient of operating two groups from each field had not been satisfactory to General Wolfe, nor was he content with the additional fields which had been considered. He wished to obtain other sites east and north of Kharagpur in less congested areas.[27] By 26 February, those four fields had been selected and SOS had given the necessary orders for construction.[28] These included, in addition to Charra and Gaya, Jargram and Gidhni, localities at which no construction had been done.[29] When it became evident in Washington that the full deployment of two B-29 wings in the CBI would not be consummated, General Arnold warned Stratemeyer of the probable change in plans.[30] Then on 11 April Stratemeyer was informed of the JCS decision to divert the 73d Wing to the Marianas and instructed, in view of the lesser need, to pick five fields for completion.[31] In response to this directive

the CBI chose Kharagpur, Dudhkundi, Chakulia, Piardoba, and Charra as operational fields, with Kalaikunda as the transport field.[32] Later, as a previous passage has shown, Charra was dropped from the list and never brought up to B-29 standards.

Construction personnel. Accepting the dictum of the CBI that airfields in India could be built only with the aid of U. S. engineer forces and equipment and some materials, the AAF was faced with the task of getting those men and supplies into the theater in time to meet target dates. Time was short and the route to India was long--6 weeks or more by ship. Complications were many--the delay in arriving at a firm decision to mount MATTERHORN, the scarcity of engineer aviation units, and the fact that the responsible leaders were scattered in India, Burma, Cairo, and Washington. From the beginning the target dates were impracticable to achieve, and the restrictions placed on the project were such that it was only by compromise and improvization that the unfinished fields were able to receive the B-29's in April.

Originally it had been supposed that airfield construction in the CBI should be a responsibility of the CG, AAF IBS. General Oliver as head of the TWILIGHT Committee and project officer had begun the selection of the fields, and General Stratemeyer requested by name some 16 engineer officers to aid the theater committee in constructing the fields.[33] General Stilwell however vested Maj. Gen. W. E. R. Covell, CG, SOS in CBI, with responsibility for the construction. Brig. Gen. S. C. Godfrey, the Air Engineer, was sent to the theater

to take charge, under General Covell, of the actual building both in China and India.[34] As a result of this change in the responsible agency, General Stratemeyer cancelled his requisition,[35] and instead key personnel of engineer aviation units assigned to the project were sent ahead by air to assist in preliminary planning.[36]

It has been shown[37] that the XX Bomber Command was represented in planning by Major Freret, the engineer officer of its advance echelon, and by General Wolfe himself. The actual construction work was directed by Col. L. E. Seeman,[38] who reported to Colonel Farrell, Chief Engineer of SOS in CBI.

MATTERHORN called for the completion in India of four one-group VLR fields "by March," eight by September. The CBI's estimate of the construction forces required was slightly modified by General Godfrey, who had visited the theater while TWILIGHT was still being considered. He recommended one engineer aviation regiment (less three battalions) for administration, four regular and one airborne engineer aviation battalions, four dump truck companies and two petroleum distribution companies.[39] This calculation was incorporated into the MATTERHORN plan.[40] It was understood that the construction units would have to be diverted from other assignments and that extraordinary measures must be taken to provide the troop lift and shipping required. According to the accepted rate of production, the units must be on the job by the beginning of December. This obviously was impossible, but the AAF did make strenuous efforts to get the units moving at once.

General Arnold on 8 November initiated action within the Air Staff preparatory to the assignment of the required units.[41] When on the following day MATTERHORN was presented to the Joint Planners, objection was raised to the proposed temporary diversion of the aviation engineers previously allocated to other theaters.[42] As one of the interim measures to be taken while the plan was under consideration, General Arnold recommended to the Chief of Staff the assignment for shipment on 15 December of the following designated units:[43]

Units	Diverted from
930th Eng. Av. Rgt. (less 3 battalions)	SOWESPAC
879th Eng. Av. Bn. (Airborne)	UK
1906th Eng. Av. Bn.	SOWESPAC
1875th Eng. Av. Bn.	SOWESPAC
1877th Eng. Av. Bn.	AAFTAC
4 dump truck companies	unit and source
2 pet. dist. companies	not specified

This request, which was one battalion short of the original estimate, was approved by Lt. Gen. J. T. McNarney, Deputy Chief of Staff, on 13 November, and four days later by the JCS, then at sea en route to SEXTANT.[44] By direction of the Chief of Staff, General McNarney alerted those units designated by name; the pipe line companies were to be taken from five such units already assigned to the CBI,[45] and the diverted engineer units were to be replaced by newly activated organizations.

The Joint Chiefs however had imposed certain restrictions on the dispatch of these troops: diversion of committed units and replacement by newly activated units was not to upset existing shipping schedules, and troop lift for the force was to be held within the capabilities of

the CBI, plus any additional shipping which might be granted at SEXTANT.[46] Within those restrictions shipping on 15 December could be found only for the skeleton regiment, two regular and one airborne battalions; the balance of the force would have to wait for a later convoy.[47]

General Stilwell had been informed on 9 November of the construction units designated by the MATTERHORN plan.[48] Because of other scheduled operations the CBI had need for several additional engineer battalions; theater requisitions in this respect and the attendant demands for troop lift were in open competition with the MATTERHORN priorities.[49] On request from Washington,[50] however, General Stilwell granted priorities for those units which could be shipped on 15 December under the JCS restrictions.[51] This would exhaust troop spaces on the 15 December convoy--a fact to which the theater objected--and the voyage would be slow because of the necessity of transshipment in North Africa. The Combined Chiefs of Staff at SEXTANT were anxious that the fields be completed by 1 April in order that the time schedule of other SEAC operations should not be interrupted. This would require the arrival of the engineers by 15 January.[52] Although action was being taken to expedite the transshipment of the troops in North Africa,[53] the arrival of even the incomplete force sailing on 15 December could not be expected by mid-January.

Faced with an early target date and a delayed and reduced schedule for construction forces, the theater was hard put. Preliminary work

could be done by Indian labor working under British supervision,[54] and a program of such construction was inaugurated with the expectation of completion of that phase by 15 January. To aid in this task, some 300 trucks were borrowed from the China Defense Service and 200 from the Ledo Road and driven by AAF casuals.[55] There was however a desperate need for U. S. aviation engineers. General Stratemeyer had proposed that two battalions be borrowed from the Ledo Road project, pending the arrival of the units assigned to MATTERHORN.[56] When this proposal had first been made, the ETA of the engineers was optimistically calculated for mid-January; by Christmas he had learned that a more realistic estimate would place the date at February or later.[57] This revised schedule of arrivals made even more attractive the prospect of borrowing construction forces already in the theater.

When General Stratemeyer requested from General Stilwell the loan of an engineer aviation battalion which had recently arrived in the CBI for assignment to the Ledo Road, his request was denied. General Stilwell considered that his directive gave top priority to the Ledo project, and that directive was fortified by a strong personal interest in the establishment of a land LOC to China. At a Christmas Day conference between Maj. Gen. L. R. Lutes, General Godfrey, and other interested officers it was decided that more borrowed trucks should be put on the airfield job and that the question of diversion of units from the Ledo Road should be referred to Washington.[58] Specifically, General Lutes wished that Stilwell and Mountbatten should be authorized to make the desired diversion,[59] an act which would have necessitated

a change in their directives. Stilwell, on inquiry from the Chief of Staff, expressed the opinion that the "overland route to China is imperative," and recommended that no units be diverted from that project.[60] When General Marshall inquired as to the estimated dates of completion of the airdromes with the forces currently assigned, he learned that the theater SOS were now thinking in terms of a drastically retarded schedule: one field barely operational by 31 March; a second by 30 April; four ready for limited operations by 30 June; five complete by 30 September. Under these conditions, the theater proposed to divert two battalions from amphibious operations previously scheduled for SEAC.[61] This was agreeable to Stilwell inasmuch as the operations were not to take place until after the monsoon (i.e., September 1944), and apparently to Lord Mountbatten in light of his current concept of future operations. Indeed, since he now considered that "the project of the Ledo Road is out of step with global strategy" and advocated the abandonment of amphibious operations in Burma and the curtailment of the campaign in north Burma, and since he hoped to use the B-29's in his move toward the southeast,[62] Lord Louis must have been willing to provide for MATTERHORN aviation engineers assigned to either of the projects in question. Under those conditions General Marshall assigned to MATTERHORN the 1888th Engineer Aviation Battalion, then under orders for movement to the CBI in February.[63]

Nothing was done about the Ledo Road units, and the 1888th could not be expected in the theater until the beginning of April. Consequently, the U. S. Chiefs of Staff were forced to present to

the British members of the CCS the retarded schedule for airdrome completion.[64] General Arnold and the Air Staff naturally had favored extending to MATTERHORN a higher priority in allocations and shipping, and specifically the diversion of the Ledo Road units by a change in Stilwell's directive;[65] the only alternative seemed to be a revision of the target date for B-29 operations to 30 June.[66] The Chief of Staff still did not favor any interruption of the Ledo Road construction,[67] but a sudden reversal came from the theater itself.

On 16 January General Covell went to Stilwell's advance headquarters in Burma to make another attempt to secure the desired engineer battalions.[68] Why Stilwell was willing to reconsider is not apparent, but the mission was successful. On 20 January Stratemeyer was able to announce to General Arnold that he had obtained a reinforced battalion (1,100 men) which would be in place by the first of February.[69] This would materially improve target dates: two fields should be barely operational by 15 March; by using two temporary fields as auxiliaries, the four groups of B-29's could be accommodated[70] by mid-March, the planned time of arrival, but full-scale operations would be delayed.

In an effort further to expedite the schedule on the first 4 fields and to insure the prompt construction of those required in September for the second B-29 wing, the Air Staff again requested the assignment of two additional engineer aviation battalions to MATTERHORN. This request was not favorably entertained by the Chief of Staff.[71] When the theater seconded this appeal by asking that an additional battalion be assigned to the project,[72] that request also was refused,

but General Marshall did grant permission to use, for MATTERHORN, units scheduled for March shipment to the CBI.[73] This was acceptable to the theater,[74] and it appeared for a short time as if there would be an adequate force on hand by late spring. The change in deployment plans which was to send the 73d Wing to the Marianas, however, held up the shipment of the additional units,[75] and on 11 April General Strateneyer was informed of the definite decision to send those units with the combat wing.[76] This relieved the CBI of the duty of building the four other fields, but it also meant that the first five fields must be completed with engineers now in the theater--of which one battalion was to be reassigned in July to an air commando operation.

So much for the negotiations, the description of which has lost touch with the units which actually did the work. Those troops which were shipped in mid-December arrived in North Africa on 3 January, were transhipped, and landed in western India before 22 February. They were assigned in this fashion: 930th Regiment (less 3 battalions), Kalaikunda; 1875th Battalion, Dudhkundi; 1877th Battalion, Chakulia; 879th Battalion (Airborne), Piardoba. The 382d Engineer Construction Battalion (Separate) moved from the Ledo Road by air, was already on the job at Kharagpur; and the 853d Engineer Aviation Battalion was at Chakulia.[77] This latter unit had arrived in India on 1 February and, though not assigned to MATTERHORN, had apparently been put on the job by General Stilwell. The 1888th Battalion sailed from the West Coast of the United States late in February, arrived in India on 31 March, and was assigned to Piardoba.

From the evidence available it is not apparent whether the 879th was actually put on the job or not; its light-weight equipment was not well adapted to heavy concrete construction,[78] and it seems logical to suppose that it may have been exchanged for the 853d.[79] Several changes were made during the course of construction, and in July the 382d and the 1888th were reassigned to Burma.[80] Actually, then, the work was done largely by 5 battalions as the original plans had called for; the schedule however was never approximated.

Organization of construction forces. In all, the forces employed in building the five airdromes included some 6,000 U. S. troops and 27,000 Indian civilians.[81] The work of those two forces overlapped somewhat, but in general the nature of their tasks was dictated by their respective skills. Until the arrival of the aviation engineers late in February most of the work was done by the Anglo-Indian force. The construction agency was the Central Public Works Department (CPWD), which furnished the administrative and supervisory personnel. Actual work was done by contract native labor. CPWD was informed of U. S. requirements, and accomplished those through their own methods. The process of requisitioning was somewhat complicated, involving approval of the government of India and reverse lend-lease accounting. This fact and the traditional slowness of Indian methods required much "expediting" on the part of the Americans. While the Indians were doing most of the work the project officer, Colonel Seaman, was essentially a liaison officer between the Anglo-Indian organization and the CG, Construction Service, SOS.

With the arrival of the U. S. troops, the theater Engineer Department set up an organization consisting of Division 1 (headquarters at Calcutta), with Engineer District #10 (headquarters at Kalaikunda) in charge of airdrome construction and District #12 in charge of pipe line laying. One battalion was assigned to each field. In general the British were responsible for those tasks which could be done by hand labor (road building, housing, etc.), the Americans for those tasks requiring skilled labor and heavy machinery (earth moving, paving, utilities, structural steel, etc.).

The pipe-line system. The progress chart on p. 157 indicates that the pipe line system was pushed through in advance of the airfields which it served. This was the natural order of construction, and it was made possible by the early arrival of adequate construction forces. Early plans had called for the assignment of two petroleum distribution companies to be diverted from five such units en route to India for other projects.[82] This force was deemed inadequate by the theater SOS, and by 9 January three such companies had been assigned and were unloading equipment in the Kalaikunda neighborhood.[83] In all, four companies worked on the project—the 707th, 700th, 708th, and 709th. These units arrived ahead of their equipment and were handicapped by being forced to work with borrowed substitutes.

To furnish fuel for the B-29's, transports, and motor vehicles, plans called for a pipe line from Budge-Budge, on the far side of the Hoogly River near Calcutta, to the several fields. A six-inch pipe was to be laid to the vicinity of Dudhkundi (about 70 miles from the

terminus) and thence four-inch pipes were to extend to each of the five fields.[84] Within each field pipes were to carry the gas to the various using agencies. Light-weight "Invasion" type pipe was used, with victaulic couplings. There were three main pumping stations. Bolted steel tankage was provided at each field--a total of 191,000 barrels for aviation and motor fuel in the five.

Because the line ran through a thickly-populated district, the pipe was buried to avoid injury from accident or native curiosity. Ditching was done by native contract labor. Four major submarine river crossings were made. In spite of these precautions the light-weight pipe developed some leaks; it became necessary to maintain a careful check by walkers and by telephone reports from the pumps, and to replace some sections with welded steel pipe. Trouble was also occasioned by the accumulation of rust and scale in the on-field distribution pipes, and on request from the XX Bomber Command that system was abandoned in favor of truck deliveries. Some difficulty in the erection of steel tanks was occasioned by the loss or delay in transit of some of the plates.

Pipe-line construction was begun on 15 January, with a 15 March target date. Because Kharagpur and Chakulia were scheduled for earliest completion, work was pushed most rapidly on those fields. By 26 February the line to those stations had been finished and checked.[85] When the target date arrived, the fuel was being pumped to three fields then scheduled to receive the B-29's (fuel was hauled to Charra by truck), though the system was finished some time later.

Grading and paving. The airdromes selected for completion had been designed to RAF heavy-bomber specifications, with 6,000-foot concrete or macadam runways and parking and service facilities, highly dispersed, for two squadrons of B-24's. It was decided to extend the runways to 7,500 feet (instead of the 8,500 feet originally demanded).[86] Since tests showed the B-24 paving inadequate,[87] the existing strips were to be reinforced with 7 inches of concrete, with 10-inch concrete pavement on the extensions. Later experience was to prove these specifications acceptable, but over-conservative in respect to thickness and somewhat dangerous in respect to length.[88] In spite of the danger of air attack--Calcutta was bombed by the Japs in December 1943--the British system of dispersal was abandoned in favor of a more convenient concentration of facilities. The lay-out on the several fields differed, with hardstands of both the chevron and figure-eight types being used; eventually rectangular parking areas with over-all paving were added.

In spite of the theater's request for early shipment of equipment and supplies,[89] the tight shipping situation and the uncertain status of movement plans for the engineer units added to the perennial difficulty of synchronizing the shipment of troops and materiel, and the construction forces arrived in advance of their unit equipment. They were forced then to borrow from the British,[90] with consequent loss of efficiency in using unfamiliar machinery and in changing over on the arrival of the U. S. items. In some cases--as in crushing and screening units at Indrabil--the U. S. machines were simply added to those British ones already in use.[91]

The whole job entailed the moving of some 1,700,000 cubic yards of earth. More than half of this was in connection with grading runway shoulders and filling for runway extensions. Heavy equipment, either borrowed or organizational, was available for this. Heavy rains during the monsoon period hampered this job, but the terrain offered no particular handicaps and in general the earth-moving proved a less complicated task than concrete production.

Although the airfields were supposed to be built of materials locally available, it was early apparent that cement in sufficient quantities could not be had in the CBI.[92] U. S. cement was imported to supplement the inadequate supply. Indian cement proved inferior, and because it was impossible to maintain a rational schedule of shipment it was difficult to maintain a stock pile.

Other materials were locally available. Sand for fine aggregate was found in streams easily accessible to each field, though because of floods during the monsoon it was necessary to stock-pile it in advance. Coarse aggregate was something more of a problem.[93] Production of this item for all fields was assigned to the 853d Engineer Aviation Battalion. Both gravel and crushed trap rock were used--the gravel from pits at Chakulia and Dhalbumgarh, the rock from basalt boulders at Indrabil. In the early days the gravel was used without washing and the clay showed up in the concrete, but otherwise the materials proved satisfactory. Between February and September some 450,000 cubic yards of coarse aggregate were produced and distributed. Distribution of about 125 cars per day on a congested railway system required no little ingenuity.[94]

Production of concrete was by the engineer battalions stationed at the several fields, and it differed with local conditions and the equipment and facilities available at each. At Kharagpur, where the 382d arrived without heavy equipment, stationary mixers were used and much native labor with wheelbarrows. At Chakulia and Piardoba batching was done in dump trucks loaded by bucket loaders and gravity feed. At Dudhkundi an ingenious volumetric batching plant was constructed which produced 85,000 yards in 73 days, reaching a peak of 2,015 yards in a single day. When paving began at Kalaikundi in mid-July, full modern equipment was available, and though the output never reached that accomplished at Dudhkundi, the work required fewer man hours and the concrete was superior.[95]

On all but the last field, concrete was spread by hand by native labor. Wooden forms, locally produced, were used. Concrete was laid with expansion joints, not habitually used in India but shown necessary by buckling at Kharagpur. Curing was rendered difficult by poor water-distribution systems and the high rate of evaporation.

Personnel and technical housing. Housing was planned to take full advantage of existing facilities and local materials and labor techniques. The choice of Kharagpur (or rather, of its suburb Hijli) as the site of the XX Bomber Command Headquarters was largely determined, as a previous statement has shown, by the existence there of the as yet unused Collectorate building. Much work had to be done to modify this building for its new purpose[96] and to provide new housing there and at the other fields. Tented housing was much in vogue in the early

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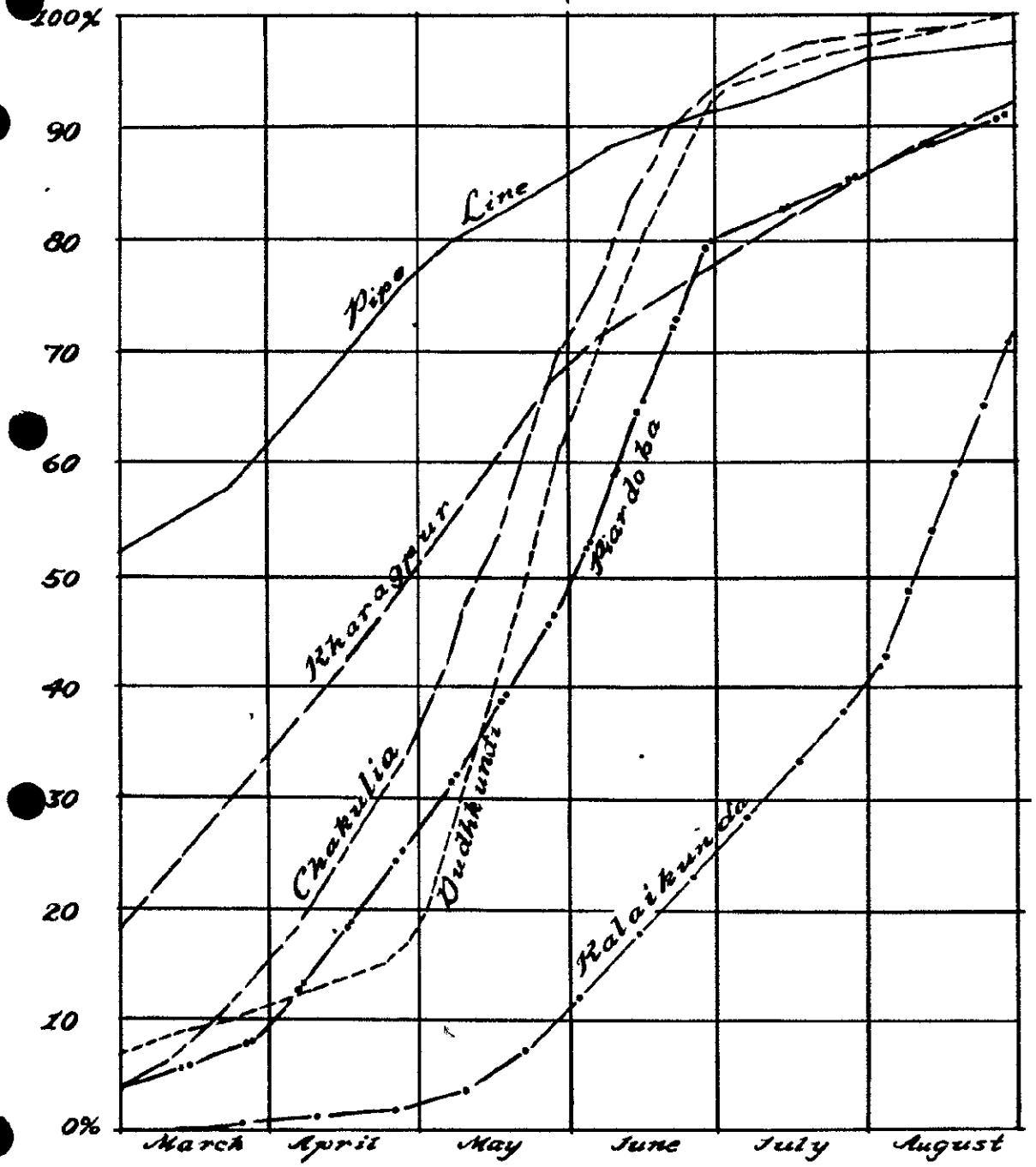

PROGRESS CHART
V L R FIELDS

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FROM FINAL REPORT
B-29 BASES IN INDIA
NOV., 1944

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days. Hutments were largely of native "Basha" construction (hard earth or concrete floors, bamboo and plaster walls, thatch roofs). Administrative and technical buildings included a wide assortment of types--Basha for the small buildings, and for the larger, U. S. plywood prefabricated, Nissens borrowed from the British, and some Italian prefabs imported by ASC from Eritrea, slightly shopworn and bullet marked. Mac Comber shops with overhead travelling cranes were erected by U. S. engineers, but with no little difficulty owing to damage and loss of structural steel parts. Butler hangars with steel frames and canvas covers proved serviceable for a variety of uses.[97]

Much of the housing was built by native labor, as well as the internal road systems within the fields. Most of the utilities--water and electric systems--were constructed by U. S. engineers.

The chart on p.157 will give some idea of the progress of airfield construction, but it is apt to be misleading. The fields were not completed until September, and although fortnightly reports to Washington were apt to report "work progressing on schedule," that schedule was far in arrears of early plans. But what is of most importance is that the fields were able to receive the B-29's when they arrived. This entailed the use (until July) of the B-24 field at Charra and a great number of temporary and irritating expedients. But the fields could be used, even if they were "barely operational."

The cost of the fields, because of the several agencies concerned, is difficult to determine precisely; perhaps $20,000,000 would be a fair estimate, with $2,000,000 of that going for the pipe-line system.[98]

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The China Bases

A casual reference to the fortnightly progress reports on the MATTERHORN airfields in the winter of 1943-44 will show that responsible officers in the CBI were always more optimistic about meeting schedules at Chengtu than at Calcutta. That attitude had been manifested early in the game and events were to prove it wholly justified. In Bengal, for reasons which have been shown, construction lagged behind original schedules; in China those were at least approximated. The Indian fields had the advantage of the earlier start, and eventually of U. S. Army engineers and heavy machinery, but their progress had been determined inexorably by shipping schedules. It is ironical that in China, where air operations had always been limited by a logistical situation so restricted that incoming supplies had to be measured almost by the pound, the shipping problem had no direct bearing on the construction of VLR fields. There was no impatient sweating-out of overdue engineer units and equipment. The fields were built of literally local--that is, neighborhood--materials and by the "hand, muscle and goodwill on the part of 300,000 to 500,000 farmers." The story of that building is, as a correspondent wrote, "a saga of the nameless little people of China."[99] Such difficulties as the Americans experienced were financial, and Americanshad long since exhibited a willingness to exchange billions for a few months saved here or there.

Selection of the bases. The TWILIGHT plan, submitted by the CBI on 11 September 1943, had called for the construction of VLR bases and protective fighter strips in the Kweilin area and transport fields at

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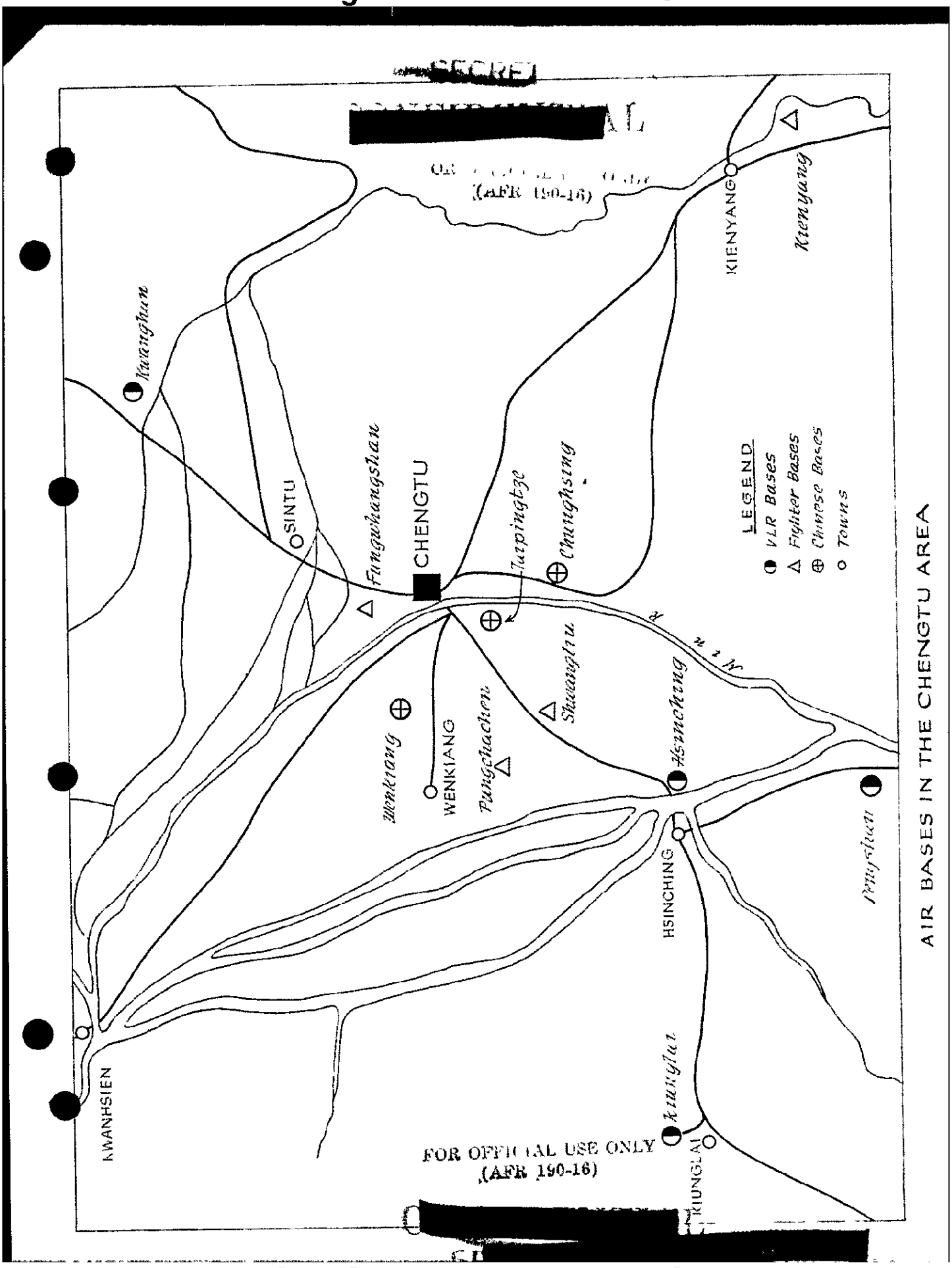
Kunming. Materials and labor were to be found locally. The CBI accepted the Air Planners' suggestion, eventually to be incorporated into MATTERHORN, that the Chengtu area be substituted for Kweilin, though that latter area was not forgotten.

This change had been effected because of the inordinate ground force (50 U. S.-trained-and-equipped Chinese divisions) which General Stilwell required for defense of Kweilin.[100] Chengtu bases would be further from the intended targets, and missions from them would be vulnerable to interception longer than if Kweilin were used, but it was commonly accepted that the more westerly bases would probably be immune from ground attack.

Chengtu was the capitol of the province of Szechwan. It was located about 200 miles northwest of Chungking and some 400 miles north of the Hump terminal at Kunming. An ancient city, a seat of commerce and of culture, its importance had been enhanced by Japanese seizure of more populous cities to the east and by floods of emigres from that region. Chengtu lay in the valley of the Min River. About 2,200 years ago a semi-mythological engineer, one Li Ping, had harnessed the river as it burst from the mountains northwest of the city and had diverted it into several large canals and a myriad of smaller ones. His ingenious irrigation system, still operated with due respects to beneficent deities, made of the valley a sort of artificial delta of extraordinary fertility. This delta or plain, no more than 70 miles long and some 1,700 square miles in extent, supported a population of about 2,200 persons to the square mile, one of the world's most densely



inhabited areas.[101] The plain was admirably suited for VLR fields; some 1,600 feet above sea level, its climate was much better than that of Calcutta, its weather not bad for flight. There were no sudden elevations closer than the rugged mountains which rose some fifty miles to the west and north; materials of the sort intended were abundant. But the very fertility of the valley and its teeming population meant that airfields could be sited only at the expense of some economic and social dislocation, and there were serious political implications which proved worse in anticipation than in actuality.

Chiang Kai-shek's acceptance of the President's proposal to base VLR bombers in the Chengtu area made it possible in mid-November for the CBI to initiate a study of possible airdrome sites, with a view of completing four fields by 1 April and a fifth by 1 May[102] if U. S. advisory personnel were available on time. Engineers of General Oliver's TWILIGHT Committee made a survey of the region, and by 28 November they had tentatively selected the sites.[103] There were already in the region several Chinese bomber and fighter fields, some of which might be extended for VLR requirements; other fields had to be built from scratch. Plans for the fields were prepared for submission to the Generalissimo,[104] who on 16 December approved the layouts for five VLR fields near Chengtu, and, in principle, of other fields in the Kweilin area and at Kunming.[105] The specific sites were: Hsinching, Kuanglai, Wenkiang, Chinghsing, and Sintua in the Chengtu area; Niuchan as a ferrying base near Kunming; and Kweilin and Suichwan as the proposed bases in the east.[106] This selection passed over two existing fields at Chengtu and within a fortnight the

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list was changed somewhat; in order of ease of construction, these fields were named: Hsinching, Kiunglai, Kwanghan (a virgin site), Pengshan, and Chungchingchow. Selection was made with an eye on contiguity of materials and availability of conscript labor and on the attendant interference with the irrigation system.[107] This selection was approved by the advance echelon of the XX Bomber Command staff in a visit to Kunming about 11 January and by General Wolfe himself, who inspected the proposed sites a fortnight later.[108] Soon afterwards it was decided to defer construction of Chungchingchow to allow fighter field construction to be synchronized with that of the VLR bases; that is, four fighter fields operational by 31 March, with paving completed by 15 May; and two VLR fields completed by 31 March, two more by 30 April.[109] By the time work on the fighter fields was finished, however, the Joint Chiefs had decided to divert the 73d Wing to the Marianas and the fifth VLR field was never built.

The fighter fields were selected by General Chennault, who was responsible for air defense of the VLR bases. Four were in the immediate neighborhood of the Chengtu fields: Fungwhangshan, Shwangliu, Pungchacheng, and Kwanghan, which was a combined VLR and fighter base. Then in an effort to establish a wider defensive perimeter, Chennault sought and obtained permission to build three additional fighter fields, located somewhat farther from Chengtu.[110] These fields were Mienyang, Kienyang, and Suinning.

The CBI's reference on 19 December to airfields at Kweilin and Kunming and the statement on 9 January that the Generalissimo was

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considering planned layouts in those regions[111] was somewhat confusing to Washington. In AAF Headquarters it seemed that the theater was continuing with the now defunct TWILIGHT-DRAKE plan, and General Arnold was not in favor of financing those fields from MATTERHORN funds.[112] The CBI made it clear that the fields were a part of the MATTERHORN plan--those at Kweilin to give greater operational flexibility, and that at Kunming to be used as an emergency field on B-29 shuttle flights--and pressed for permission to make the necessary arrangements.[113] The request came from General Stratemeyer, and apparently represented his opinion,[114] but General Chennault had a special interest in the Kweilin area. He had consented to the change from TWILIGHT to MATTERHORN, but he now wrote to General Arnold, pointing out that except for ground security Kweilin possessed every advantage over Chengtu and urging that the additional bases be built in Kwangsi Province.[115] General Arnold considered that the improvement of fields at Kweilin and Kunming was a matter for General Stilwell to decide and that the War Department would not act without his recommendation.[116] At the instigation of Stratemeyer and Chennault, Stilwell submitted to the Generalissimo the request for extension of runways of three fields at Kweilin and one at Kunming.[117] The Generalissimo's consent was held up pending solution of financial problems which will be described directly, but eventually the extension of half a dozen B-24 fields to B-29 standards was approved. By July construction had been finished, begun, or planned for the following fields: Chengkung and

Luliang near Kunming; Kweilin-Li Chia Chen and Liuchow in Kwangsi Province; Sincheng and Suichwan in Kiangsi.[118] Plans for Chengkung and Suichwan were not executed; Kweilin-Li Chia Chen and Liuchow were destroyed to prevent their use by the enemy when the Japanese overran the region in the autumn of 1944. By November, only Luliang (usable) and Sincheng (under construction) remained of the six.[119] The operations of the XX Bomber Command were conducted, as had originally been planned, from the Chengtu bases.

Organization for construction. It had been the President's original suggestion to Chiang Kai-shek that the MATTERHORN fields should be built of local materials by Chinese labor, with the aid of U. S. technicians and engineers and lend-lease funds. It was on this basis that the Generalissimo accepted the plan, immediately in its tentative form and later at SEXTANT in a definitive fashion. There was never any question of relinquishing the general terms of the agreement, but as in so many other features of the plan, there was some difficulty of interpretation of details. This was especially true of financial aid. The matter of the advisory personnel entailed little more than routine difficulties, and essentially the organization of construction forces was a Chinese rather than American problem.

The responsibility for supervision of airdrome construction in China was vested in the CG, Fourteenth Air Force, but his engineers were not sufficiently numerous to assume the MATTERHORN project in addition to their normal duties. Hence it was recognized that the advisory personnel promised by the President must be found from the States and that their early arrival was an absolute prerequisite for the timely completion of the VLR bases.[120] The War Department requested a list of the theater's requirements;[121] but whereas a few specialists were desired immediately,[122] no accurate estimate of the personnel needed could be made until after a survey of prospective fields had been made and the theater engineers were better acquainted with the specifications demanded for B-29 fields.[123] When on 28 November General Oliver's TWILIGHT Committee engineers had completed a survey of the fields, the CBI requested the dispatch by air priority #2 of a small advance echelon of specialists--15 officers and 31 men.[124] These specialists were quickly assembled and were sent to the theater early in December when General Godfrey went out as project officer for the MATTERHORN fields.[125] When General Godfrey arrived in New Delhi on 11 December the total requirements had still not been finally agreed upon.[126] He went on to China, where some engineers were transferred from the SOS CBI to General Oliver's ASC for the Chengtu project; the final requisition for specialist personnel was dispatched to Washington and the construction organization was set up.[127] These specialists were later sent by air priority.[128]

The Chengtu airdromes lay in Engineer District No. 2, China Air Service Area Command. Over-all supervision of airfield construction fell to the Fourteenth Air Force's Engineer, Col. H. A. Byroads, who as a member of the TWILIGHT Committee had helped select the fields. General Godfrey continued to coordinate construction activities both in the Calcutta and Chengtu areas.[129] With him he had brought from the States Lt. Col. W. I. Kennerson, who took charge of the U. S. Army engineers on the Chengtu bases. Liaison with the Chinese engineers was effected through a Chinese civilian.[130]

The small force of U. S. Army engineers, it must be recognized, were for planning and supervisory purposes only; the actual direction of the horde of coolies was done by Chinese engineers. Airfield construction in China was a responsibility of the Minister of Communications, American-educated Dr. Tseng Yang-Fu. He aided in the selection of fields and in establishing general policies, though direction of the work was passed on to his Deputy Commissioner of the Engineering Commission and to the Chief Engineer. Some problems connected with the airfields came within the purview of the Ministers of Finance and of Defense. After construction was under way, a Chengtu Office of the Chinese Engineering Office was set up, with its director assisting in administrative and financial rather than technical affairs.[131]

Late in December Dr. Tseng Yang-Fu and his subordinates selected the executive engineers who were to direct the actual construction. Few of them had ever built an airfield, most of them coming directly from railroad jobs. But early in January they came up from Kunming,

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each bringing his own equipment and staff, some 300 in all.[132] One engineer was put in charge of each B-29 base, and one over all of the fighter fields then planned. During the fortnight after their arrival the Chinese engineers were briefed by Colonel Kennerson and his staff on the specifications for B-29 fields. With this orientation, the Chinese were able to take over their job, making their own detailed drawings from layout and cross-section sketches.[133]

The labor problem was handled forthrightly and with little concern for those most intimately concerned. China's greatest source of strength lay in her inexhaustible reservoir of manpower--unskilled by western standards and wholly lacking in modern machinery, but patient and sturdy and bound by a social organization that could be transferred directly to the new task. The Chungking government proposed to tap this great resource by the simple and custom-hallowed process of conscripting farmers from the Min valley for the heavy construction work; housing was to be erected by skilled contract labor. The western world had marvelled at the earlier building of the Burma Road by masses of Chinese coolies; this new project was to challenge credulity by the magnitude of the force involved. Those who described the project sought analogies in the building of the Great Wall of China or Herodotus' account of the building of the great pyramid of Cheops. But whereas the Chengtu project was accomplished by methods and tools not dissimilar to those used on the ancient works, the time element was entirely different--the time schedule on the China bases was characteristically American.

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In early January the Chinese directors and Colonel Kennerson made an estimate of the labor force required, setting the figure at 240,000 and assigning to the executive engineer of each field the number required.[134] Actual conscription was a responsibility of the Governor of Szechwan, who promised to draft the men for 11 January.[135] Within 2 weeks something like 200,000 had appeared and by 24 January work had begun on most of the fields.[136] In mid-February, when it appeared that schedules could not be met, the Governor agreed to draft 60,000 additional laborers, and in March, 30,000 more for the fighter fields in the outer circle--some 330,000 conscripts in all. At the peak, 96,000 were working on Pengshan alone. In addition, there were some 75,000 contract workers employed. Reports from various American observers differ in regard to the total number of men involved in the project, and it is dubious that Chinese statistics were meticulously accurate; but with the inevitable turnover, there may well have been nearly half a million Chinese employed on the job.[137]

The laborers were drawn from villages within a radius of 150 miles from Chengtu. The original draft was on the basis of 50 workers from each 100 households, and on the job the coolies were organized into units of 200, still preserving something of the village structure with local officials keeping the pay rolls.

Financial problems. An enterprise conducted on such a scale could hardly fail to effect a sharp economic and social reaction. The Chengtu area had been chosen as a site for VLR bases because of its remoteness from the war. That remoteness was psychological and

political as well as geographic. Szechwan has been compared with our pre-Pearl Harbor Middle West: seemingly immune to Japanese attack, the province was "isolationist," apathetic toward the war, and, potentially at least, "anti-foreign." Its warlords still enjoyed a real power and looked on the MATTERHORN project as a scheme whereby the Chungking government could encroach upon their quasi-autonomy. Men of property feared, needlessly, that their lands would be seized without recompense, and with more justification that the building of the fields and the feeding of the U. S. forces (always exaggerated in size) would add to current inflation. The whole populace feared that the establishment of the fields would bring Japanese bombers to Chengtu, and they were apprehensive of disorderly conduct by American soldiers.[138] The little man knew that he was being torn from his home during the New Year holiday season and that he might be kept at work past the season for rice planting--in fact, his anxiety to return in time for that seasonal chore has been accepted as the incentive which drove him to meet the target dates.[139] Only the Chungking government, the politicians, and the contractors stood to gain by the project.

The role of the Chungking government does not appear, from the incomplete evidence available, a noble one. When on 10 November the President had first proposed to the Generalissimo the building of the fields, he had indicated that the United States would make funds available through lend-lease. No specific statement was made as to the amount or the terms of this financial aid. When MATTERHORN was

formally accepted at SEXTANT, negotiations in China had made little progress, and it was evident to the theater commanders that some measure would have to be exerted from Washington.[140] Chiang Kai-shek originally set the cost of the fields at "over ₱2,000,000,000" Chinese National currency[141] and asked the President for a guarantee of that amount. This meant that the United States would bear all the costs of construction, which the administration was willing to do, but it was naturally interested in the rate of exchange. Currently the blackmarket open rate in China was in the neighborhood of 100 CN dollars to one dollar, U. S. currency. The Chinese government, in the interest of controlling inflation, had arbitrarily set the rate at 20 to 1. At the open rate, the cost of the fields would have been high but "not unreasonable"; at the official rate the cost would have been exhorbitant--something approaching $125,000,000 U. S.[142]

The negotiations dragged on for several months, and inasmuch as agencies other than the War Department (State and Treasury Departments and lend-lease) were concerned, the documents available to this author allow only a fragmentary account. The Treasury Department, being interested in the broader problem of U. S.-Chinese financial relations as well as in the Chengtu fields, wanted to hold out for the 100 to 1 rate, though willing to act as military necessity demanded. The War Department was anxious to secure the fields at a reasonable rate, but, in the face of Chinese insistence on the official exchange, was willing to act on a compromise suggested by Generals Somervell and Clay--whereby the 20 to 1 rate would be maintained, but the Chinese

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would deposit $80 CN for each $20 CN advanced by the United States.[143]

Chiang Kai-shek realized that the urgency of the target dates made it difficult for the War Department, through Stilwell, to bargain effectively, and while holding fast to his demand for the official rate he began to point out that failure to agree on terms--meaning his terms--would cause a delay in construction.[144] One does not speak of blackmail on the part of an ally, but at best this was very shrewd trading. To ensure that the project could go on, General Stilwell had to guarantee payment of the sum demanded at a rate which should be decided by current negotiations.[145] The Generalissimo did promise to do his utmost to expedite construction of the airfields, but for the time being all funds in China were frozen and it was difficult to secure money for the Chengtu project.[146]

Negotiations were further complicated by several factors. First, there was the question of the shortage, real or pretended, of CN notes in China. American officials believed there were $10,000,000,000 CN notes in reserve in China, but Dr. Kung, Chinese Minister of Finance, insisted that there was a shortage and to get notes for current needs it was necessary for the ATC to fly them out of India.[147] Two hundred million dollars in small bills bulks up--as one observer put it, hauling Chinese currency was "definitely a factor in the tonnage operation over the Hump."[148] Second, there was the matter of the additional fighter fields and the extension of fields at Kweilin and Kunming. Those had not been counted in the original estimates. The Chinese had been building those at Kweilin for B-24 bases but now wished to have

them paid for along with the Chengtu bases. The War Department was willing to finance the additional fighter fields as a part of MATTERHORN--and did--but not the other bases.[149] Finally, there was the matter of Chiang Kai-shek's request for a loan of $1,000,000,000 CN over and above the payments for MATTERHORN. Theater officers thought that there was no valid need for the loan, the demand for which had been motivated by desire for prestige and the Generalissimo's postwar plans.[150] But the refusal to grant this loan made Chiang Kai-shek more obdurate in his refusal to accept a reasonable solution to the question of the exchange rate.[151]

Hence it was that negotiations continued through January and February and into March, with numerous proposals and counter-proposals and all the involved procedure customary in oriental diplomacy. Fortunately enough currency was advanced from time to time without a definite agreement as to the rates; the amounts were often inadequate but this did allow construction to go on. What the final settlement was this author has not been able to learn. In early March the estimated cost of the bases--four VLR and six fighter fields--had risen to $4,450,000,000 CN and the rate had not yet been determined.[152] One later source speaks of an "official (U. S. government) rate" of 40 to 1[153] and that may have been the rate at which the settlement was made. One estimate may be hazarded with little fear of contradiction--that the fields cost too much and that their cost, added to that of the necessarily extravagant logistical system, made MATTERHORN operations, per ton of bombs delivered, among the most costly of the war.

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Such profits as accrued to China were not very equitably spread, and the building program did result in some local hardships. Landowners, in spite of fears based on earlier experiences with the Chinese government, did receive compensation for their fields, though not at the rate paid for by the United States and not very promptly: because of the dispute over finances and the graft and inefficiency of officials the settlements were not complete on 8 February, long after work had begun.[154] Inflation was aggravated, as had been anticipated, and landowners who had to sell on a rising market lost. To prevent the inflation from interfering too greatly with the flow of building materials to the contract builders (some $400,000,000 were involved), ceiling prices on those articles were fixed by the Governor and his negotiation board,[155] but the measure was only partly successful.

The little men who built the fields suffered most. They were paid on a sort of piecework basis, with a possibility of earning $50 CN per day. Few reached that figure--perhaps $25 CN was an average wage. With the rise in food costs, that was hardly enough to feed the laborers and many of them had to be partially supported by their families.[156]

In spite of these difficulties, the disorders which some had anticipated did not occur. There was much grumbling and a few small riots, occasioned in one instance by U. S. engineers proceeding too precipitately before lands had actually been purchased. But the fields were built and there was no general resistance on the part of

the Chengtu citizens; in fact, they came eventually to take some proprietary pride in the B-29 project.

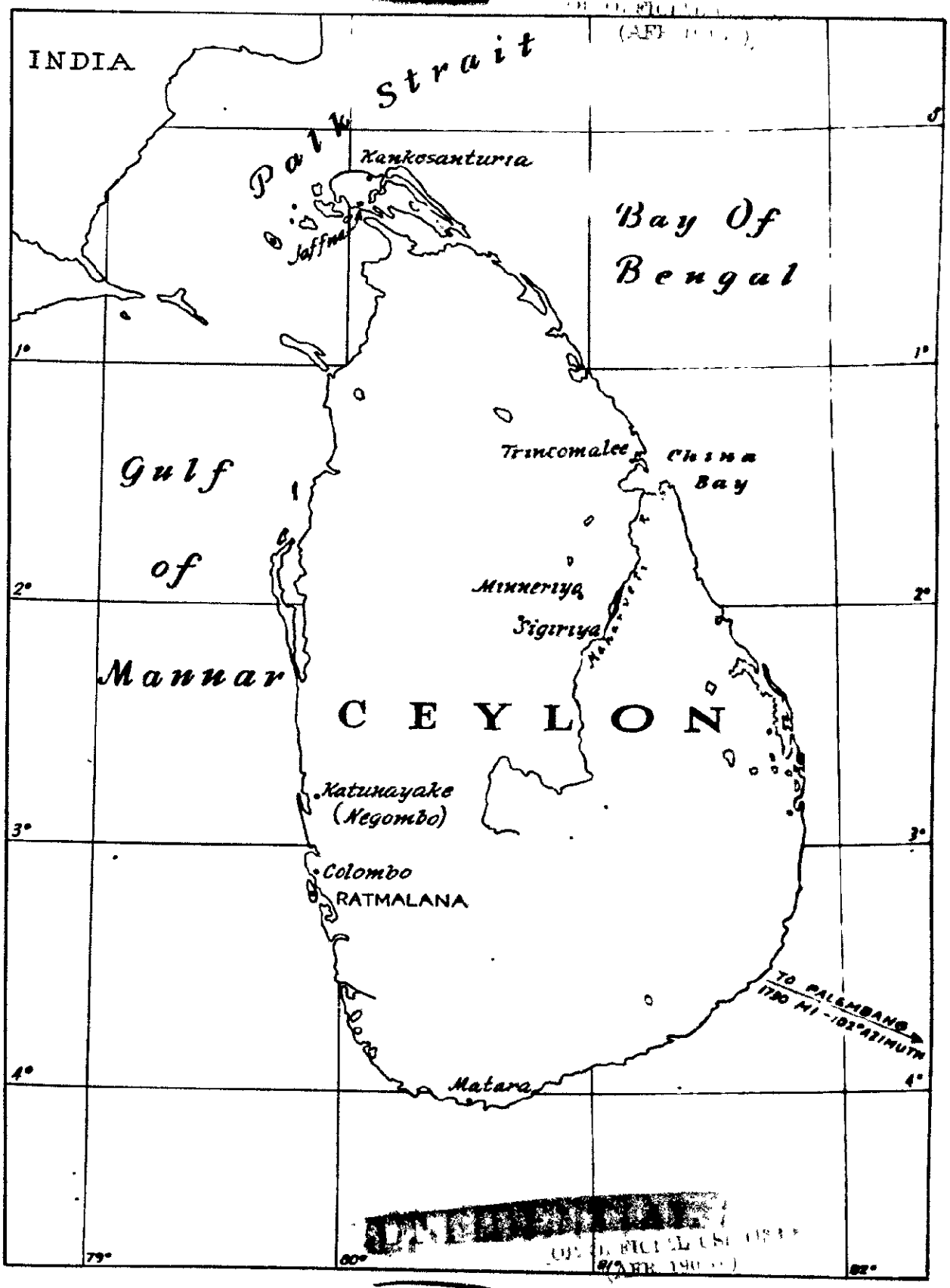
Construction. The necessity of building the Chengtu fields from materials in the immediate vicinity eliminated of course the possibility of either concrete or asphalt runways. The Chinese under American supervision had built fields adequate for Chennault's B-25's and B-24's, but the B-29 required a sturdier construction. When the CBI learned of the probable adoption of MATTERHORN, Chennault requested specific information as to the specification of flexible pavements for VLR runways.[157] Full information for gravel and rock runways was given, with a minimum length of 7,000 feet at sea level.[158] Actually the four VLR fields were built with single runways roughly 8,500 feet (2,600 meters) long, 200 feet (61 meters) broad, and 20 inches (50 centimeters) thick. Fifty-two hardstands were provided on each. Fighter fields were single strips 4,600 feet by 150 feet (1,400 meters by 45 meters), with thickness varying from 20 to 30 centimeters, and four to eight hardstands.[159] The base course was laid with rounded waterborne rock, sand and gravel, wet and rolled. The wearing course was a sort of native concrete called "slurry," a mixture of crushed rock, sand, clay, and water; rolled and finished, this gave a texture and tensile strength not unlike the adobe construction of the Southwest. The fields were almost literally "handmade." Materials were carried from nearby streams in buckets or baskets slung from yokes, in the wooden-wheeled, squeaky wheelbarrows of the district, or less often in

mule carts. Excavation was by rude hoes. Rocks were laid individually by hand; the crushed rock was beat out patiently with little hammers. The rollers were drawn by man (and woman) power, the slurry mixed in pits by barefoot men and boys.[160]

The first task--draining the rice paddies preparatory to excavation--began on some fields on 24 January. At that time it was thought that two VLR fields would be operationally complete by 31 March, the other two by 30 April.[161] By mid-March, financial and other difficulties had retarded the expected completion dates to 15 April for Hsinching, and 5 May for the other three fields, though the former field was already open for the delivery of supplies, and all fields should be in early April.[162] Four fighter strips were supposed to be ready for limited operations before 1 April, the others later in the month.[163] Schedules for the fighter fields were maintained, but the VLR fields were again somewhat delayed by unusual rains, some labor turnover with the approach of the planting season, and the perennial troubles with funds.[164]

On 24 April, General Saunders of the 58th Wing brought the first B-29 to Kwanghan. This was three months to the day after the paddy walls had been broken. By 1 May the four VLR fields were open to B-29 traffic.[165] By 10 May the runways on all fields, VLR and fighter, were complete and some of the fields were completely operational.[166]

General Kuter, who visited the fields while they were being built, reported to General Arnold: "Construction at Chengtu without doubt represents one of the truly great efforts of the war."[167] The historian



AIR BASES ON CEYLON

of the XX Bomber Command, whose account has been liberally used in this chapter, wrote:[168]

> It is to be doubted that a project of the magnitude of the Chengtu airfields could have been accomplished in any other country but China under the conditions that prevailed. The Chinese coolies--the John Q Public of the Chengtu Plain--demonstrated effectively the best features of their nation.

The Ceylon Fields

It will be recalled that opponents of the MATTERHORN plan within the JPS had stressed, in the winter of 1943-4, the importance as strategic targets of oil refineries and depots in the NEI, and had advocated the use of VLR bases in North Australia from which to strike. The proponents of MATTERHORN had, as a compromise, suggested the possibility of bombing Palembang, the most important oil objective in Sumatra, by India-based B-29's staging through fields in Ceylon.[169] This alternative was accepted in principle and on 2 March incorporated into the plan for Optimun Use, etc. This plan was not accepted until 10 April, but on 5 March General Stilwell was informed that his directive, when approved, would probably call for one or more missions against Palembang from Ceylon airdromes.[170] Operational plans called for the first such mission to be performed by 15-20 July.[171]

When the possible use of Ceylon airfields was broached at SEXTANT, British sources had indicated that there existed on the island three bomber fields: one for B-24's at Sigiriya and a 4,500-foot field at Trincomalee, both being extended; and a 6,000-foot field at Ratmalana, incapable of further lengthening. Under construction were two other

fields (unidentified in the report); planned for VHB requirements with 9,000-foot runways, they could be ready by 15 June.[172] Ceylon presented, on a small scale, problems of airfield siting and construction no less complex than those of India and China. Ceylon was a large island with poor internal communications. From its nearest point to Palembang was a distance of some 1,730 miles, a long haul even for the B-29. RAF bases, having been chosen without regard for Palembang, were even more distant from that target. Primitive transportation would make difficult any building in the area most favorably oriented in respect to Palembang. Construction would be a responsibility of SACSEA and would have to be done without U. S. aid, with the limited equipment and leisurely methods prevalent in Ceylon, and in the face of formidable difficulties imposed by terrain and inadequate communications.

Although Lord Mountbatten had known since SEXTANT of the tentative plans for operations from Ceylon, he had made no serious effort to provide the required fields while deployment plans were in a state of flux. On 5 March General Kuter, then in India on a mission which concerned, among other matters, the MATTERHORN project, conferred with Lord Louis. When the latter expressed willingness to initiate a building program when officially requested, General Kuter recommended to Washington that SACSEA be informed of the current status of plans for Ceylon.[173] Stilwell's directive, which came directly thereafter, was specific in its reference to the need for the Ceylon fields; and though Lord Louis was somewhat piqued at the way in which that directive was

promulgated,[174] he turned immediately to the required task.[175]

En route to Australia, General Kuter stopped off at Colombo, where he met with the Commander in Chief, Ceylon, and with Sir Richard Peirce and other RAF officers. He learned that the British were currently working on two VLR fields: (1) Kankesanturai on the north end of the island near the port of Jaffna (completion, October 1944); and (2) Katunayake (Negombo), near Colombo (completion, April 1945). When he pointed out that the localities lay at the extreme B-29 range from NEI targets, the British offered as alternatives airdromes at China Bay and Minneriya. These were somewhat less distant, but still would permit missions only with a reduced bomb load. General Kuter proposed the use of sites in the southeast part of the island, fifty miles from the railroad terminus at Matara. He met the "usual objections," not wholly unjustified, concerning the shortage of labor, equipment, and materials and the early target date (July 1944). RAF officials realized that Ceylon might be used as a staging base against Singapore, which was an attractive prospect, but Kuter thought that their apathy might be cured by further enlightenment concerning MATTERHORN plans, by a gentle hint that B-29's might be used from Australia rather than Ceylon, and by the loan of engineer equipment.[176]

The inaccessibility of the area designated by General Kuter and the time factor, however, made the southern fields impractical, and his suggestion was rejected in favor of the four fields mentioned above, with China Bay and Minneriya scheduled for earliest completion--probably by July with the over-riding priority [redacted] batten had given them.[177]

Designs called for accommodations for 26 B-29's on each field in order that 50-plane missions could be staged through Ceylon. By mid-April it was apparent that the July target date could not be met and General Stratemeyer requested permission to abandon work on all fields save China Bay, and there increase facilities to a capacity of 56 B-29's.[178] The Joint Chiefs requested the British to increase their efforts in Ceylon;[179] but Lord Mountbatten, on the advice of Stratemeyer and Wolfe, had already temporarily suspended work at Minneriya, and with the concurrence of the British Chiefs of Staff the JCS consented to the temporary concentration on China Bay alone.[180] Presumably Minneriya was to be completed later, but the status of Kankesanturai and Katunayake was uncertain.[181] By mid-July a 7,200-foot runway, the hardstands, and the fuel distribution system at China Bay were 100 per cent complete, and by the time of the first mission out of Ceylon on 10 August the field was wholly operational.[182]

Chapter VIII

THE TRANSPORT PROBLEM

> Remember, too, that every single goddam thing that we send into China has to be flown in.
>
> Letter from a member of XX Bomber Command's Advance Echelon

When in January 1944 the Joint Intelligence Committee made a comparative study of the suitability of some half-dozen areas as potential bases for the employment of the B-29 against Japan, they rated Chengtu as the locality offering the greatest logistical difficulties.[1] Few persons in the MATTERHORN planning staff would have challenged that judgment.[2] AAF Headquarters had learned from bitter experience the cost of any operations in China. General Arnold had recently stated for public information that "To supply our growing air strength in that country has been perhaps the greatest single challenge to the efficiency of the Air Forces,"[3] and the B-29 project promised to aggravate a very complex situation. It cannot be emphasized too strongly that the MATTERHORN plan had been formulated deliberately in the face of recognized difficulties and had been adopted at highest levels for reasons which seemed at the time to transcend ordinary standards of economy of effort.

Planners in Washington and Cairo of course could not anticipate all the troubles which would result from the precipitate commitment to combat of an untried plane in a theater where primitive facilities,

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GLOBAL SUPPLY ROUTES

Legend

——— SURFACE SHIPS

– – – – ORIGINAL B-29 MOVEMENT

····· ATC "FIREBALL" ROUTE

– · – · – BLEND ROUTE

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(AFR 205-16)

[redacted]

tangled command systems, and a fluid tactical situation conspired to invalidate commonly accepted planning factors. Generally the Washington estimates of target dates and available resources were on the optimistic side, a tendency not infrequently ascribed by theater officers to distant headquarters. But there was no failure on the part of the Washington planners to consider in their calculations the fundamental problems involved in nourishing a bombardment program from China bases.

Basically most of those problems stemmed from distance and its concomitant factor time, and from the competitive demands of the numerous operations in a global war.[4] The bases in China were to be the most distant from the United States of all those in our far-flung battle line. The B-29's could be flown out by their combat crews, a mere matter of 11,500 miles by the route chosen. All other personnel and materiel must be moved by water or by air transport. Highest priority passengers and freight could go out by ATC via Natal, Khartoum, and Karachi--a trip which might be made in 6 days with luck but which for some XX Bomber Command personnel consumed a month or more. Eventually the XX Bomber Command employed a special "Blend" service--surface ship from Newark to Casablanca and ATC shuttle Casablanca to Calcutta. This gave a regular but limited service for important supplies and for passengers of lower priorities; passage required three to five weeks. But the great bulk of troops and supplies had to be moved by water. In the early troop movements some units went via the Mediterranean and the Suez, transshipping in North Africa in British vessels. Other units and most supplies went westward, however, either

from Pacific POE's or from the Atlantic and out through the Panama Canal. From either coast ships rounded the southern shores of Australia; supply vessels then went up the Bay of Bengal to Calcutta but troops regularly landed at Bombay and went back east to the Kharagpur area in an unpleasant week of travel by Indian railroads. One fortunate troop shipment made the voyage from Los Angeles to Bombay in 34 days; most units were 8 to 10 weeks in passage from the United States to their Bengal stations. A Liberty cargo ship could be counted on to make the trip out in 60 days and accomplish two turn-arounds in a year. Under the best of circumstances communications by sea would have been slow. With the CBI rating lower shipping priorities than either the European or Pacific theaters, tonnage and troop lift were straitly limited and within the theater the VLR project had to compete with numerous other commitments.

Difficulties did not end with the arrival of supplies within the theater. Ports were limited in number, overtaxed, and by U. S. standards inefficiently operated; as an early emissary for MATTERHORN put it, Calcutta was "a good port with bad habits." Within India rail transportation was slow and uncertain, highways hopelessly inadequate for a major war. Ground communications between the several China bases were practically non-existent.

But the crucial stage in the transport network lay between Calcutta and Chengtu. After the Japanese had cut the Burma Road in late spring of 1942 all supplies had been carried into China by air. In the winter

of 1943-44 General Stilwell was trying to drive through a new land LOC--the road from Ledo which was later to bear his name, and an accompanying pipe-line--but those projects did not promise any early aid to MATTERHORN: rather, since they were in open competition for shipping and personnel, they constituted only an additional impediment. The life line to China then was the celebrated over-the-Hump air route from Assam bases to Kunming, nourished from Bengal by a complicated mixture of rail, river, and air routes. ATC's India-China Wing had gradually built up its operations until by the end of 1943 it was hauling more than 12,000 tons per month. That amount however was pitifully inadequate for existing requirements--the Fourteenth Air Force alone needed 10,000 tons--and every ton claimed in allocation had to be justified by dire necessity. During 1944 the capacity of that route increased and eventually MATTERHORN profited by the expansion. But in the beginning the VLR project was not supposed to infringe upon ATC allocation of tonnage to other agencies, and such aid as the XX Bomber Command did receive in the early months of 1944 was neither substantial nor dependable.

In spite of all these handicaps the XX Bomber Command was able to accumulate in China enough supplies to support a limited bomber offensive. The time schedule originally conceived was never even closely approximated. Delays in the combat readiness of the B-29's contributed to this failure, as did delays in the overseas movement of men and supplies and in the build-up of a stock pile in China. In a long and intensive bombardment campaign the 2 months which were lost might not

have been significant: the Eighth Air Force had also got off to a slow start. But the logistical factors which contributed to the tardy initiation of combat operations were inherent in the geographical, industrial, and tactical situation in the CBI theater, and those factors were to continue to condition all operations of the XX Bomber Command until its move to Pacific bases.

In this chapter an effort is made to describe only briefly the overseas movement of the planes, equipment, and personnel of the Command, but a fuller treatment is given to the efforts of the command to establish an adequate and dependable supply line between Calcutta and Chengtu. In general the beginning of combat activities in mid-June has been taken as a rough chronological terminus for this study. Because at that time, however, the problems of over-the-Hump transportation were reaching a climax, the story is in this chapter carried somewhat further--to September 1944 when a solution of sorts was evolved.

Logistical Plans

Recognition by the air staffs in Washington and the CBI of those logistical difficulties which have been enumerated, sharply affected each of the successive plans for VLR operations which emanated from their respective offices in 1943. Specifically each plan offered some expedient whereby operations from China bases might be nourished by air transport from Calcutta in such wise that there would be no infringement on air lift allocated to current operations. Those plans

have been described earlier in respect to their strategic implications; here it may be useful to review those sections which dealt exclusively with logistics.

The ambitious SETTING SUN plan had called for the delivery to Calcutta by ship of 590,000 tons per month, of which appropriate items were to be ferried to forward bases in the Changsha area by C-87's allotted to the project at the rate of 200 per group of B-29's--in all some 4,000 C-87's for the 20 combat groups contemplated.[5] The counter-proposal which came from the theater in the guise of the TWILIGHT plan scaled down somewhat these extravagant estimates.[6] For 10 groups running some 500 combat sorties per month from the Kweilin area it was estimated that 58,000 tons of dry cargo, plus sufficient POL, should be shipped each month to Calcutta. Bombs should be hauled to Kweilin by 45 B-24's converted for the purpose, and other supplies by 367 C-54's or C-87's. Those aircraft would fly direct to Kweilin, but on the return would stage via Kunming, where it was expected that fuel would be available by pipe line (after July 1944). B-29's were to fly from Calcutta to Kweilin with an extra load of gas but no bombs, bomb up at Kweilin, and after the mission refuel there for the return flight to the rear area.

Two features of TWILIGHT were of great significance for later plans and operations: the idea of using the China area for staging fields rather than permanent bases, and the suggestion that the B-29's contribute to the support of their own operations by hauling part of

the required fuel. The source of the latter suggestion is not apparent. It had been one of the conditions under which General Chennault's first heavy bombardment group had been assigned that the unit should be self-supporting as far as transport was concerned; and that group, the 308th, had been eminently successful in its operations since March 1943. About the time the TWILIGHT plan was formulated Col. L. F. Harman, Deputy of the 58th Wing, was at Chennault's headquarters. He and Chennault and Col. E. H. Beebe of the 308th Group drew up a brief logistical plan for possible operations of the 58th Wing, along lines similar in concept to TWILIGHT but on a much smaller scale. It seems plausible to assume that the self-support idea stemmed from a combination of Colonel Beebe's experiences and Colonel Harman's estimate of B-29 capabilities.[7] At any rate the skeleton plan sketched in Chennault's headquarters was incorporated into the plan which Wolfe presented to General Arnold on 11 October.[8]

General Wolfe's plan, it will be recalled, was designed for more immediate execution than either of its predecessors, and it therefore involved the use of a smaller force and of a lesser amount of supplies. The plan was based on the employment of two VHB wings with a total assignment of 300 B-29's, and it made no special provision for the period (April to September 1944) when only one wing would be in place. Assuming that "abnormal logistics required in this area necessitates employment of the B-29 bomber as a combat transport," Wolfe proposed to use 120 aircraft on combat missions and 180 (maintained in combat condition) as transports flying Calcutta to Chengtu. His calculations

were based on these figures: transport sorties per month, 2,160; pay load, 5 tons; total monthly tonnage, 10,800. Using a planning factor of 30 tons per combat mission, he could thus count on three 100-sortie strikes per month from the forward area (9,000 tons), and still enjoy a comfortable margin of safety. To support the fighter groups which would be attached to the Fourteenth Air Force for his airdrome defense and to assist in building the initial stock pile for the B-29's, Wolfe proposed to employ 20 C-87's. These were to come out with the 58th Wing and were to be attached to the 308th Bombardment Group (H), but were to operate exclusively for the VLR project.

The MATTERHORN plan was essentially like Wolfe's in the system of air transport recommended, though since it provided for the initial deployment only of the 58th Wing with its 150 B-29's it was based on an estimate of only one 100-sortie mission per month from April to September. The central core of the plan was still that by virtue of the transport activities of the B-29's (and the 20 C-87's), ". . . no drain will be imposed upon the facilities or services allocated to other operations in the theater."[9] It is dubious that MATTERHORN would have been adopted at SEXTANT without this provision, and the CCS specifically qualified their approval by the restriction that MATTERHORN should be mounted "without materially affecting other approved operations."[10]

Unfortunately that clause was subject to a variety of interpretations. Obviously it could not mean that MATTERHORN was to receive no

logistical support whatever--in fact the Joint Chiefs had already faced the necessity of securing troop lift and cargo space for the project. In respect to air transport from India to China, theater commanders were inclined toward a literal reading of the SEXTANT qualification; but in the face of logistical realities it was soon necessary to modify the restrictions by a number of expedients, none of them wholly satisfactory to any of the interested parties. With a more leisurely time schedule for initiation of combat missions the air transport scheme formulated by General Wolfe might have worked. The strong desire in Washington to make good the D-day promised by General Arnold to the President, however, plus delays by agencies other than the XX Bomber Command in meeting commitments, made it necessary to provide logistical support in addition to that originally contemplated. And, even so, operations were inevitably postponed.

The Overseas Movement: Shipping

MATTERHORN was not, by standards of the ETO, a tremendous undertaking but the problem of finding bottoms to move troops and supplies in time to meet the accepted target dates was a difficult one: as a radio message from SEXTANT put it, "shipping is bottleneck."[11] Fortunately submarine losses in the last quarter of 1943 were not so heavy as had been anticipated, and in spite of heavy movements to the ETO the shipping situation was elastic enough to allow, with the exercise of some ingenuity and with some inevitable delays, the assignment of tonnage and troop spaces to the VLR project. As between troop transports

and cargo vessels it was the former which caused the most concern.

The first troops for which transportation had to be provided were the construction units for the India air bases; the story of how they were shipped, in large part out of troop lift regularly assigned to the CBI, has already been told.[12] General Stilwell was willing to make this concession to MATTERHORN, perhaps in part because the engineer units could be used for other theater projects once the VLR bases were complete; but it had been his understanding that extra shipping would be provided for XX Bomber Command needs, which he could hardly be expected to carry from a shipping budget already badly strained.[13]

In the discussion of MATTERHORN at the SEXTANT conference the problem of shipping was one of the crucial issues. The logistics tables provided in the plan submitted called for shipping to accommodate some 20,000 troop spaces and some 200,000 tons of dry cargo between 1 January and 30 June, and more than 20,000 tons POL per month after 1 April. This provision was for the XX Bomber Command with its first wing only; as the second wing moved out into combat, tonnage requirements would increase.[14] These figures of course were not firm, but they had served as a guide whereby logistical planners had begun to set up the necessary shipping.[15] The proviso that MATTERHORN should not affect materially other approved operations complicated this task. Current estimates indicated that shipping for all accepted projects in the CBI was available, and the postponement of operation TARZAN, then thought probable, would release some allocated shipping during the first quarter of 1944. Troop lift was more difficult to obtain than

cargo vessels, but it was thought that, by moving units from Newport News to North Africa in U. S. ships and transhipping them there in British ships for the run to Bombay, adequate provision might be made.[16]

On the basis of agreements made in the final sessions at SEXTANT additional troop lift of 3,000 spaces was allotted to the CBI for January, and with General Stilwell's consent was assigned to XX Bomber Command use. This capacity cared for two service groups, an air depot group and various smaller units.[17] This troop movement was made possible by transfer of a ship from the United States - United Kingdom run, a transfer made without seriously disturbing the build-up of the invasion force.[18] With planning aimed at taking advantage of all vacancies in ships,[19] allocation was made by Christmas for shipping for all MATTERHORN personnel and materiel needs through July 1944.[20]

This allocation did not insure the prompt arrival of troops and supplies. Of 20,370 tons of initial organizational equipment, 11,280 tons were scheduled for shipment by 1 January.[21] Of ASC items, amounting in bulk to some 4,800 tons, 98 per cent were on the seas or awaiting dispatch at Newark by 15 January.[22] ASF items did not receive such prompt treatment, apparently because ASF had not been instructed by OPD to push MATTERHORN shipments. That condition was remedied by giving to the project first priority for the month of February.[23] By 19 February 52,000 tons of ASF equipment and supplies had been shipped and the backlog awaiting in port was only 4,000 tons.[24] The late date at which shipping was made available and the failure to push

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the project made it difficult to synchronize the arrival of organizational equipment and the troop units. Something of the hardships occasioned by this bad timing has been mentioned earlier in connection with the engineer battalions, and reports from other types of organizations indicate that few of them found on their arrival the equipment needed.

Before the end of February the majority of units scheduled for movement by surface craft were at sea, with arrivals estimated for late March or early April.[25] One large contingent, including seven bomb maintenance squadrons with a combined T/O strength of 119/2053, embarked in Liberty ships at Newport News and sailed on 12 February in a large convoy bound for Oran. There they were transferred to the Champollion, a former French liner operated by the British, and on 1 April they reached Bombay, having been 50 days in passage from the United States. Other units left in a convoy for Casablanca on 22 February and transshipped at Oran to the Vollendam, a Dutch liner in British service; they did not arrive at Bombay until 25 April. More fortunate were those units including eight bomb maintenance squadrons, which sailed from Los Angeles on 27 February in U. S. S. Mt. Vernon. With only a single stop at Melbourne, where they picked up Royal Navy convoy, they reached Bombay on 31 March. Not only was their voyage much faster, but they avoided some of the discomforts suffered by other units which had come through the Mediterranean.[26]

Other organizations continued to arrive at Bombay during April, and were sent on by rail to the Bengal stations--a trip of 5 to 7 days.

At the end of March fewer than 4,000 men of the command were in place. By mid-April some 8,688 had arrived, with most of the others scheduled for arrival by the end of the month. A station list of 10 May shows 21,930 in place. This covered all units assigned and attached to the command, including some CBI and a few British troops who had already been in the theater, and it included also XX Bomber Command personnel which had arrived by air. But in all something like 20,000 men had arrived in India during April, had been processed and put to work--and the majority of them had come by sea.[27]

Air Transport to the Theater

Because of the pressure of time, air transport was of more than usual importance in moving personnel and high priority freight of the XX Bomber Command to the theater. Other than small advance parties, which made their way out by ATC, the first important movement was made in the 20 C-87's which had been assigned to the command. These planes, led by General Wolfe himself, carried certain key personnel and some equipment. They left Morrison Field on 5 January and arrived at New Delhi on the 13th.[28] Originally it had been planned that the B-29's themselves would carry all combat crews, regular and extra, and other passengers, but that plan was scrapped. Because of the untried nature of the R-3350 engine it was thought necessary to provide along the route and in the theater a larger percentage of spares than was customary for other bombardment units. The large size of the engines made them difficult to handle in some transport planes, and so it was

decided to carry one spare in each B-29 by eliminating passengers. Even this expedient would not satisfy engine requirements, and it reduced considerably the number of men which the command could itself move by air. This meant, if schedules were to be maintained, that a considerable amount of aid must be had from ATC, and in view of the control of ATC allocations to India by the CBI and the restrictions placed on MATTERHORN by the CCS, the situation offered real difficulties.

In early February AAF Headquarters estimated that the XX Bomber Command would require from ATC the following allocations: February, 90 tons; March, 130; April, 240; May, 230.[29] On request General Stilwell expressed willingness to underwrite these amounts from his allotment.[30] Passengers would number 1,252.[31] On 30 February began the movement via South America and Central Africa of personnel from the several headquarters--command, wing, groups, and squadrons. Because of low priorities held by some of these shipments, some members were as long as 35 days en route.[32]

Meanwhile it became obvious that estimates which had been agreed on were not adequate. The chief difficulty was with R-3350 engines, and when efforts to reduce transport requirements by increasing engine overhaul potentials in the theater failed,[33] it became necessary to make other arrangements. The new plan was to establish a water-air route, with passengers and freight proceeding from the United States to Casablanca by surface craft, and thence to Calcutta by ATC. By this means it was hoped to deliver 500 to 550 tons during the crucial

months of April and May.[34] This was acceptable to General Stilwell, through whose headquarters priorities were to be cleared.[35] To accomplish the task, 27 C-54's were to be assigned (actually only 25 were), which should make 175 trips, hauling a total of 786 passengers and 350 engines.[36]

The movement, known to ATC's North African Wing as Mission 10, proved to be the largest single project which had been executed by that organization. The shuttle service began with a flight from Casablanca on 8 April, a few days earlier than had been expected, and was completed on 1 June. Approximately the specified number of engines were hauled, but passengers carried numbered 1,325. The C-54's carried normally 2 R-2800 engines, 12 passengers with excess baggage, and 1,500 to 1,800 pounds of additional freight. Time in passage varied, but was usually around 3 to 4 weeks. Thus combat crews starting from the United States on 19 March began to arrive at Chakulia on 11 April.[37]

From its inception this method was recognized as a temporary stopgap to be utilized only during April and May. In mid-March General Arnold announced to General Wolfe that three Bomber Support Squadrons, with initial equipment of 18 C-46's each, were being organized to provide additional air transport for MATTERHORN. It was suggested that the first unit, scheduled for delivery in March, be utilized to augment Navy tonnage and that the other squadrons, to move out in April and May respectively, should be turned over to ATC to be operated on the Casablanca-Calcutta shuttle until October, by which time ATC was expected to be able to support the XX from its own resources.[38]

General Wolfe submitted an operational plan which was acceptable in Washington,[39] but there was some difficulty in getting the operations under way. All the units were late in appearing. The first squadron, on its arrival in April, was put on the Hump run as had been intended. When the other units appeared later, their control presented a problem. By that time the designation of these latter units had been changed to the 1st and 2d Air Transport Squadrons (Mobile). It was evidently intended that the "mobility" should be achieved by not tying them down to normal service organizations and equipment, but the failure to supply such maintenance worked great hardships on the agency which had to operate them. Their control then and their mission became a matter of dispute between ATC and the XX Bomber Command.[40] Nevertheless ATC's North African Wing began operating the so-called "Blend" service on 6 June. This required some readjustment of their regular operational procedure because of the limited range of the C-46's.[41] The Blend service guaranteed to the XX Bomber Command 333 tons per month (including approximately 225 engines). Over-all priority was established by the North African Wing, internal priorities by the XX.[43] In late August the allocation was slightly increased for the ensuing months.[42] In addition to the Blend service, 50 tons a month all-air service from the United States to India was assigned to the command, with ATC establishing priorities on certification from the theater.[44]

Overseas Movement of the B-29's

When specific planning for the employment of the B-29 first began in the spring of 1943 it was thought that 150 of the planes would be

ready for combat by early January 1944.[45] Delays in production occurred however which handicapped training activities of the 58th Wing[46] and necessitated some revision in the plans for deployment. It was these delays which had caused the President great annoyance and had led to efforts on the part of the AAF to secure higher production priorities for the B-29 project.[47] By the time the MATTERHORN plan was presented to the Joint Chiefs it was evident that even if an over-riding priority were established for the B-29, it would be March before the 58th Wing would receive its full complement of aircraft.[48] By mid-January a part of the lag in production had been eliminated, but modification for combat (including the installation of a four-gun turret) was behind schedule.[49] At that time it was estimated that only 138 of the 150 planes could be made ready for combat by 1 March.[50] Airdrome construction in the Calcutta area had been correspondingly slow, and for a while it might have seemed that the readiness date of the fields rather than of the B-29's would be the chief factor in determining the time of departure. But by late January theater officials were more optimistic concerning the progress of construction. With Kharagpur and Chakulia estimated as "barely operational" by 15 March, and other fields which could be used temporarily if necessary, the theater was confident of being able to handle the B-29's as soon as they could be sent out.[51] In a general way, then, the beginning of March was accepted as a possible target date for the movement.

The over-all plan for the overseas flight of the B-29's included a design to send several of the planes to England before the four

groups left for India. This diversion had the dual purpose of giving the B-29 a shakedown test in a long overwater flight with a spare engine aboard, and of serving as a part of an elaborate scheme of deception. Coordination with the Eighth Air Force began in early December,[52] and details of the scheme were worked out jointly by AAF Headquarters and General Wolfe and his staff at Salina.[53] The flight was reduced to a single plane and there were many modifications in detail, but the basic elements of the scheme remained unchanged.

The utility of such a cover plan is obvious. The existence of the B-29 had long since ceased to be a secret, and on 4 January General Arnold stated for public information that "the B-29, for example, will see action in 1944."[54] Knowledge of the abnormally long runways being built at Calcutta and Chengtu could not be kept from Japanese intelligence and it required no master mind to deduce that they were not being prepared for B-24's or C-46's. When the B-29's should arrive in India their physical presence could not be long hid, and their arrival, it was feared, might indicate all too clearly the purpose of the Chengtu fields. Any means which might disguise the mission of the B-29's would aid materially in achieving tactical surprise.

Essentially the cover plan called for the dispatch of several B-29's (or one) to England, routed through Northwest Africa. In England the planes were to be shifted about from field to field until their presence should become fairly widely known and the impression should be gained by the Axis powers that VLR bombers were to add their

weight to the Combined Bomber Offensive. With this controlled leak in security there was to be coordinated a concurrent program of publicity to create the following beliefs: that the B-29, though designed for VLR operations, had not lived up to expectations; that it was being modified to serve as an armed "super-transport"; that in view of the pressing need for air lift over the Hump, several of these aircraft were being sent to India on an experimental basis; and that it was for them the new fields had been prepared.[55]

The "news" releases were made in the theater according to plan in mid-February.[56] Meanwhile the flight plan of the so-called "Pathfinder" plane to England was changed in respect to route, schedule, and other details. The date of departure had to be postponed from 10 February to early March to allow flight testing of the new R-3350 engines modified in January.[57] The plane, under command of Col. Frank Cook, flew out via Natal and Marrakech to St. Mawgan.[58] Instead of returning to Salina with the flight data, the collection of which had been one of its missions, the plane and crew remained in England until the end of March.[59] Reports submitted by radio from England however indicated no great variation in flight characteristics from those which had been observed in previous tests.[60] Early in April the Pathfinder went on to Kharagpur, arriving there on the 6th, the second B-29 to appear at an India base.[61]

Meanwhile the main body of planes had begun to move out. On 1 March, the date previously set for the departure of the initial units, General Arnold announced to the theater a new flight schedule.[62] The

first echelon (10 B-29's of the 40th Group) would leave on 10 March, and thereafter increments of 9 or 10 planes were to be dispatched daily until 25 March. Allowing 5 days for the trip, this schedule provided for the arrival of the full flight echelon at Calcutta between 15 and 31 March. The designated route was as follows:

Salina to Gander Lake	2,580 miles
Gander Lake to Marrakech	2,700
Marrakech to Cairo	2,350
Cairo to Karachi	2,400
Karachi to Calcutta	1,500
	11,580

It was expected that the various units would make no landings in India save at their respective home stations, which were designated in advance by General Stratemeyer; but Karachi became a regular station rather than an emergency field, and landings were sometimes made at other bases.[63]

On 10 March Washington announced another delay which would hold up the initial contingent until 24 March, and the departure of the other increments by 16 days each.[64] This schedule should have seen the planes arrive in India between 1 and 15 April; it was adhered to only in its early phases. The first B-29, piloted by Col. L. F. Harman, arrived at Chakulia on 2 April, several days later than anticipated.[65] By 15 April, when the whole movement should have been completed, only 32 planes were at their stations. Save for one forced landing at Presque Isle the planes had made the ocean passage without untoward

incident, but a number of accidents occurred east of the Atlantic. A total wreck at Marrakech on 13 April and a partial one at Cairo on the 15th were followed rapidly by five accidents, including two planes completely destroyed at Karachi. From 21 to 29 April all planes throughout the route were grounded. Investigation showed that accidents had resulted from engine failures, not unnatural in view of the inexperience of the crews in operating the B-29 with a heavy load and under high atmospheric temperatures.[66]

At the end of April, 95 aircraft had reached their bases.[67] The movement was more rapid thereafter. On 8 May, 148 of the 150 planes in the initial complement had reached Marrakech and 130 had arrived at their destination.[68] In spite of the long elapsed time required in many cases, actual flight time for some units averaged as low as 48 hours.[69] The flight was conducted throughout under direction of ATC, and it involved in the beginning a considerable effort in spotting spare engines and parts and fuel, and in providing necessary maintenance. The local arrangements were not perfect and ATC felt that cooperation on the part of the flight crews was not always what might have been desired,[70] but methods improved with experience. This improvement may be gauged by the safety factor. Of the original flight of 150 planes, five had been destroyed and four had suffered important damages on 8 May.[71] In March 1945 when the movement of B-29's to India had ceased, 405 planes (including F-13's) had been ferried to India with only eight lost en route.[73] The majority of these planes, as in the case of the

initial contingent, were flown by their own combat crews over the northern route, though a few were ferried by ATC crews over the southern route.[73]

In spite of the elaborate cover plan, it is evident that the Japanese were not long in the dark as to the identity or the mission of the B-29. The XX Bomber Command and ATC made mutual accusations of breaches of security along the ferry route in Africa,[74] which may not have had any deleterious effects on the project. But security in the midst of the native populace in India was difficult; the Jap had known for some time of the existence of the B-29 and on 26 April he actually had a brief test of its armament in an interception of an over-the-Hump transport mission. Japanese propaganda broadcasts even before this had commented on the airdrome construction at Chengtu, on the stockpiling of supplies at those bases, and on the presence in the theater of VLR bombers designed to strike at the Japanese homeland.[75] The fiction of the long-range armed "super transport" seems to have deceived no one.

Late in April General Arnold wrote to Wolfe: "The airplanes and crews got off to a bad start due to late production schedules, difficult modifications, inclement weather, and the sheer pressure of time necessary to meet the early commitment dates."[76] Of all factors, perhaps "sheer pressure of time" was the most important. It impinged on all phases of the overseas movement and prevented the close articulation of the several elements in the deployment plan. There was some difference of opinion at Kharagpur and at Chungking as to whether the

delay in completion of the Chengtu fields or the tardy arrival of the B-29's was the more important factor in holding up transport activities to the forward area. Each was a contributing factor, and as a later passage will show, the delay of a month or more in initiating over-the-Hump missions inevitably delayed combat operations.

Overseas Movement of the Fighter Defense Groups

The choice of Chengtu rather than Kweilin as the base area for VLR bombers had been dictated largely by the relatively greater security of the former region against both ground and air attack. It was always recognized however that the establishment of bases at Chengtu might bring sharp retaliatory air action from the Japanese and that fighter defense must be provided. The natural inclination was to vest responsibility for that defense in General Chennault, and it was always assumed that his currently inadequate forces must be strengthened to enable him to perform that additional duty. Those premises materialized in the establishment within the Fourteenth Air Force of the 313th Fighter Wing. This organization, then, was completely independent of the Twentieth Air Force, but because its logistical problems were inextricably entwined with those of the XX Bomber Command, a brief account may be given here of its organization and move to China.

Early in September 1943 General Chennault estimated that the force required should consist of "at least 1 Gp of fighters (150 P-51's recommended)."[77] In the Wolfe plan this force was calculated at two groups of P-51A's or P-63A's, and the MATTERHORN plan stipulated simply

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two fighter groups.[78] It was proposed to transfer those units from MTO, and while there was some objection to this expedient from General Eisenhower,[79] a decision was made at SEXTANT to redeploy two P-40 groups from Italy to China, re-equipping them with P-47's.[80] When informed of this decision, General Stratemeyer suggested that the P-47's be shipped, in increments of 75 each in January and February, from the United States to Karachi where the pilots should receive their transitional training.[81] This plan was acceptable to AAF Headquarters but as in almost every phase of the HATTERHOR plan, the time schedule could not be met. The fighter units themselves could not be released until after the initial phase of the Anzio operation (D-day, 22 January), and by ordinary surface shipment it was estimated that the new planes could not reach Karachi before 1 May.[82] The movement could be expedited however by sending the planes on CVE's rather than on cargo vessels, and under pleas of an emergency, the Navy was requested to undertake the ferrying job.[83] The Navy assigned the CVE's **Mission Bay** and **Wake Island** to the task. These ships could accommodate only 100 P-47's and the other 50 would have to go by cargo ship. Plans called for arrival in Karachi in mid-March; the remaining aircraft would come a month or more later.[84]

The units selected were the 33d and 81st Fighter Groups, veterans of the North African, Sicilian, and Italian campaigns. The ground echelons left Taranto by surface vessel on 6 February, proceeding by way of Egypt and Suez, and arrived at Bombay on 20 March; 10 days later they left by train for Calcutta. The flight echelons, leaving

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Italy by air between 11 and 19 February, flew out via Tunis, Cairo, and Aden to Karachi.[85] The two CVE's with the P-47's arrived at Karachi on 30 March, and transition training was begun 14 April.[86]

To provide proper control and coordination for the two groups, General Stratemeyer had requested and obtained permission to establish a new fighter wing.[87] On 13 March the 310th Fighter Wing was activated in the theater by the Fourteenth Air Force.[88] Brig. Gen. A. H. Gilkeson was designated commanding general and, proceeding by air from the United States, he assumed command on 25 March.[89] When the first B-29 landed at Chakulia the wing was only a skeleton organization, with its personnel scattered from Karachi to Chengtu and with only a few P-40's available for use.

This situation was occasion for justifiable alarm. In spite of security efforts and the elaborate cover plan for the VLR project, the difficulties in hiding the B-29 and disguising its mission were fully realized in the CBI. Theater officers were not greatly concerned with the vulnerability of the rear area bases. Calcutta had been bombed as recently as Christmas week of 1943, but that city lay at extreme bomber range from Jap bases and the Kharagpur fields were 70 to 100 miles farther west; RAF defense plus Tenth Air Force fighters if necessary were considered more than adequate protection,[90] an attitude which was illustrated by the decision to abandon in the B-29 bases the RAF principle of dispersal of facilities. The hazards in China were much more real. General Chennault grew progressively more

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pessimistic in his remarks concerning Japanese capabilities:[91] he had attempted to secure additional fighters to protect the air route from Assam to China,[92] to hasten delivery of night fighters (two squadrons of P-61's had been promised for July), and to increase the force of 150 fighters which he himself had earlier designated as sufficient for the protection of Chengtu. He also wished to re-equip his units with P-51's, more economical of fuel than P-47's, though he had accepted the latter plane for the two Chengtu groups since they were to be "self-supporting"--i.e., supported by the C-87's attached to the XX Bomber Command.[93]

When in early March it appeared that the carrier-borne P-47's could not arrive until 1 April and the others some 6 weeks later, General Stilwell wished in the interest of safety to postpone target dates for B-29 operations by 1 month.[94] When this request was refused, it was decided to send one squadron of the 33d Group to Chengtu with P-40's; and the other two squadrons, plus the 81st Group would follow only after they had been equipped with P-47's.[95] During early April the 59th Squadron moved into Szechwan province with its P-40's, and actually constituted the only local fighter defence when the B-29's began their transport activities.[96] The other two squadrons of the 33d Group (58th and 60th) followed in May, equipped with P-47's with which they had been training in the Karachi area.[97] On the 15th of that month the first flight echelon of the 81st Group arrived at Kwanghan--32 P-47's belonging to the 93d Squadron. The 91st and 93d followed, the whole of the flight echelon of the latter unit not arriving until 15 July.[98]

Japanese attacks on Chengtu did not prove to be as violent as had been feared, and the belated and piecemeal arrival of the several units of the 312th Wing did not jeopardize the fortunes of the XX Bomber Command. Because of the excessive difficulty which beset the efforts of the command in building up its own stock pile, the delay should have proved a blessing in disguise by lightening the monthly allotments of POL tonnage to the 312th during the crucial months of April and May. Actually, however, the needs of the wing, as estimated by General Chennault, were to constitute one of the most vexing factors in the XX Bomber Command's supply problem.

Transport Problems within the Theater

The difficulties encountered in moving MATTERHORN personnel, equipment, and supplies to India may be explained largely in terms of three factors: the inordinate distances involved, the necessity of finding transport capacity in competition with other approved operations, and the short lapse of time between the firm adoption of the VLR project and its accepted D-day. Similar factors conditioned MATTERHORN transport operations within the theater, and with other factors peculiar to the CBI threatened the success of the whole VLR project.

Distances involved within the theater were of course less disconcerting than those in the global supply routes leading to Calcutta. From that city to Chengtu, via the Assam Valley and Kunming, was a matter of only some 1,200 air miles. But that route, what with its formidable terrain, uncertain weather, inadequate facilities, and

vulnerability to enemy interception, was one of the most hazardous in the world; hence the distances involved were relative matters. A B-29 transport at its most economical power setting might fly from Kharagpur to Kunming in 5 hours. A shipment of supplies going from Calcutta to Assam by river-barge and rail, and flown from Assam to Kunming to Kweiyang by ATC, might be weeks from ship dock to forward area base.

Competition with other agencies for air lift was perhaps more of a limitation than competition for shipping to the theater, because of the greater elasticity of the global transport situation. MATTERHORN called for only some 300,000 tons of supplies in the first 6 months of 1944; a single moderately sized convoy could have carried that total, and by judicious juggling it had been possible to provide sufficient bottoms. Over-the-Hump transport dealt in smaller figures, and the tonnage required for MATTERHORN might easily have exhausted the total ATC potential. Even the India-China Wing had greatly increased its operations during 1943, and from SEXTANT on, there was in progress a constant study of means to extend further its lift into China. Such an increase was not simply a matter of attaching more transport planes to ATC: parallel expansion of crews, maintenance personnel, airfields, communications, and weather service would be required. And basic to all difficulties was the unalterable fact that, with airplane engines currently available, transport over a mountainous route with fuel obtainable at only one terminus was inherently inefficient. For the first half of 1944 the Hump lift would be fairly static, and its

allocation was jealously regarded by the using agencies, of which the Fourteenth Air Force was chief. The acceptance of the MATTERHORN plan in the theater had been at best unenthusiastic, and had been made possible only because the project had been presented as logistically independent. When it began to appear that the accepted D-day for operations could not be met by the transport activities of the B-29's and the 20 C-87's of the XX Bomber Command alone, relations with ATC and its using agencies in the CBI became more important and not wholly pleasant.

In the last analysis it was perhaps the time factor which was all-important. The schedule of operations against Japan adopted at [redacted] called for B-29 missions to commence on 1 May.[99] General Stilwell had earlier accepted that target date contingent upon the maintenance of the following schedule: completion of airfields in Calcutta and Chengtu areas by 15 March and 1 April respectively; arrival of B-29's in Bengal by 15 March; and initiation of over-the-Hump transport operations by 1 April.[100] It has already been shown that none of those requisite dates was met and that there were also delays in the shipment of men and supplies needed for transport operations. The effects of the successive delays were cumulative and they were aggravated by the difficulties attendant upon putting to work in a strange theater an untried plane and a new organization, so that transport operations lagged constantly behind the optimistic estimates of the early plans. This failure to meet the logistical schedule made it necessary to postpone the initial missions from China bases to

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11 June, and even that date was met only by scrapping the "self-sufficient" clause which had been LATTEMORE's most distinctive feature.

The story of transport operations in the theater is not easy to follow with available sources, which are both incomplete and discrepant. Statistics on ferry tonnage emanating from the several interested agencies show wide variations, and reports of agreements made between the several commands differ according to the reporter. AF Bomber Command documents lay most of the blame for delays upon the AAC. Both AAC and the Fourteenth Air Force were prone to look on the XX as an intruder coming in with a specious claim to independence and then levying on the strained services of the India-China Wing. During the months when the XX Bomber Command was trying to accumulate supplies in China for its first mission, several emergencies interrupted "normal" operations of the India-China Wing--a gas shortage in Assam, a call from Mountbatten for extra lift in Burma, and a Japanese offensive in east China which gave highest priority to the tactical needs of the Fourteenth. In the face of these emergencies commitments made in good faith had to be abandoned, but throughout there seemed often to have been a lack of understanding between the several interested organizations.

The first practical problem faced by General Wolfe in getting the transport program under way was the method of operating the C-87's. The Washington planners had intended that the 20 aircraft be operated

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by the 308th Bombardment Group (H) exclusively for the VLR project, and it had been in anticipation of that arrangement that Col. W. P. Fisher, Assistant A-3 of the 58th Wing, had been sent out in advance to command that group.[101] The planes were to be ferried out by ATC crews on 90 days temporary duty, but no organizational or maintenance personnel were provided and General Stratemeyer objected to the additional burden these planes would impose on the 308th, already doubling in brass by hauling its own supplies for strikes in China.[102] General Arnold was inclined to adhere to the original design but agreed that Wolfe might adjust his plans to the local situation.[103] That adjustment was soon made.

When General Wolfe arrived in India in mid-January with 19 C-87's--one had been lost in passage--the planes were temporarily based at Panagarh and a few transport missions flown.[104] After conferring with theater officers, however, Wolfe was won over to Stratemeyer's point of view and a new method of control was effected. The 19 aircraft were turned over to ATC's India-China Wing in return for a guaranteed amount of Hump tonnage for [redacted].[105] The ATC crews which had come out from the States were to continue with the C-87's until 15 April, by which time it was hoped that the stock pile should be complete and the B-29's regularly engaged in transport activities; then the C-87's should revert to the XX Bomber Command.

This arrangement marked the first slight departure from the policy of self-sufficiency, a departure none the less real because it was not explicitly so designated. Both Washington and theater officers had

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HUMP TONNAGE FOR XX BOMBER COMMAND

1944	Feb.	March	April	May	June	July	Aug.	Sep.
XX BC B-29's			14	117	280	1,162	798	707
Tactical B-29's			27	518	404	1,033		504
Tanker B-29's				22	396	753	1,106	814
C-109								415
Total XX BC			41	657	1,080	2,978	1,904	2,440
AAC	427	2,603	1,399	1,293	309	976	1,478	2,141
GRAND TOTAL	427	2,603	1,440	1,950	1,389	3,954	3,382	4,581

FACTORS AFFECTING HUMP TONNAGE DELIVERED
BY XX BOMBER COMMAND

1944	April	May	June	July	Aug.	Sep.
B-29 transport trips	7	232	164	237	116	206
C-46 transport trips		58	150	419	268	265
B-29's in commission (for transport or operations)		33%	37.5%	41.3%	41.1%	50%
B-29 abortive rates	12.3%	14.7%	18.1%	11.5%	7.5%	9%
B-29 turn-around time in China--in days		2	1.9	1.4	1.5	1.5
B-29 average net off-load per trip--in tons		3.35	4.87	7.66	9.53	6.40

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continued to reiterate the necessity of refraining from interference with AFC operations for established CBI projects. On the surface the new agreement may have seemed a fair exchange, made for the sake of convenience. But the tonnage guaranteed for February constituted a generous allotment. Wolfe was to get 1,650 tons from the first 10,250 tons hauled over the Hump and 50 per cent of all surplus up to 11,500--a possible total of 2,275 tons.[106] Since the C-87's brought with them no extra flight crews and no maintenance crews, and since there was no provision for replacements, it did not seem likely that they could carry the promised tonnage without infringing on AFC services. To make up the possible deficit the theater proposed to eliminate the February allowance for the Burma pipe-line project, a clear-cut violation of the conditions under which MATTERHORN had been approved.[107]

Actually the XX Bomber Command profited little by this arrangement for February. AFC hauled 12,920 tons over the Hump. This should have netted Wolfe 2,275 tons. He had made an agreement with Chennault, however, whereby 1,534 tons of the basic allotment of 1,650 were turned over to the Fourteenth Air Force, to be repaid from future deliveries.[108] Available statistics vary, but apparently only some 400-odd tons were delivered to Chengtu.[109]

March proved a much more prosperous month, although a great deal of confusion arose over the disposition of allotted tonnage. The AFC allocation to MATTERHORN was 1,997 tons and the India-China Wing reported that it had carried for that project 3,603 tons, the 1,606

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AIC HELP TONNAGE BY CONSIGNEE *
1944

	Total	14th	XX Bo	Other U.S.	Chinese
January	13,899	7,301	-	1,177	4,621
February	12,920	7,017	793	1,640	3,880
March	9,587	4,373	3,903	940	665
April	11,535	6,757	1,693	1,772	1,333
May	11,383	6,231	1,532	1,826	1,794
June	15,843	10,537	350	1,033	1,925
July	19,975	13,213	1,070	2,664	3,028
August	27,676	13,871	3,055	3,919	2,831
September	20,315	13,245	3,452	2,686	2,933
October	24,715	13,014	7,037	3,557	2,107
November	24,914	14,476	7,891	9,018	3,539
December	31,905	12,905	4,348	13,188	1,594
TOTAL	231,219	133,146	34,404	43,420	30,249

* From AIC, Statistical Control [redacted]

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surplus representing a repayment to the XX Bomber Command of the February diversion to Chennault's account.[110] General Wolfe's version of the transaction was quite different. Whereas 3,603 tons had been on-loaded in Assam for MATTERHORN, 682 tons had been diverted en route to "other activities" and only 2,921 tons delivered to Chengtu. Of this amount Chennault claimed 800 tons to be delivered in April, leaving a net total of only 2,121 tons.[111] The justification of Chennault's claim is not apparent from available sources, but it seems plausible to suppose that he may have claimed it by virtue of the support due his 312th Fighter Wing from the C-87's, even though the 312th had as yet no aircraft in China. Whatever the basic grounds of General Chennault's claim may have been, the immediate cause was the failure of the India-China Wing to maintain its recent rate of deliveries to China. For 3 months it had averaged about 13,000 tons; in March it carried only 9,587. The decline was due to a shortage of POL in Assam which forced ATC to haul gas from Barrackpore by air to support Hump operations, and to the diversion of 20 C-46's to support Mountbatten's operations.[112] So the Fourteenth which had received more than 7,000 tons each in January and February and had been allotted 6,600 for March, received only 4,379.[113] To maintain his current scale of operations, Chennault had to tap some other source.

Estimated by either XX Bomber Command or ATC figures, stock-piling at Chengtu was quite obviously behind schedule. In late February current planning in Washington called for two 100-sortie strikes per month from China bases.[114] The tentative directive issued to General

Stilwell on 5 March for his logistical planning stipulated one shake-down mission from Calcutta and one regular mission from Chengtu in April, and three in May.[115] This directive accelerated the operational schedule adopted at SEXTANT, yet every phase of preparations was behind expectations. As it became evident in Washington that the B-29's would arrive in India too late to contribute significantly to transport operations in April and that ATC unaided could not lay down the required supplies at Chengtu, it was understood that assistance had to be provided from sources outside the CBI. Even before General Wolfe's arrival in India, theater officers had suggested a review of MATTERHORN logistical plans and had specifically advised that the project be provided with other transports in addition to the 20 C-87's.[116] In the crisis of March, AAF Headquarters adopted that expedient by the assignment to the XX Bomber Command of the three bomber support squadrons mentioned earlier in this chapter.[117]

The original function of those squadrons may have been to augment ATC's shuttle service between Casablanca and Calcutta, but at General Arnold's suggestion Wolfe proposed to use the first squadron on the Hump route immediately and the other two after September. The first squadron was to be operated by ATC under Wolfe's control, and to avoid congestion in Assam was to be based in the Kharagpur area.[118] In spite of efforts in the States to hasten the departure of that squadron it was 10 April before the initial contingent arrived in Bengal.[119] A few of the C-46's were immediately put on the job of distributing supplies among the rear area bases.[120] The Kharagpur area had been

selected with an eye to ground communications, which were excellent by India standards. All the fields save the temporary one at Charra were on the main-line railroad from Calcutta, but service on this congested line was slow and the highway situation was deplorable--on the road to Calcutta trucks had to cross one river on the cross-ties of a railroad bridge. Under those conditions it was necessary to establish an inter-field daily shuttle and it was not until 18 April that the C-46's began their Hump operations.[131] As a consequence the squadron's April contribution to the build-up of the Chengtu stock pile was negligible--a matter of 14 tons.

The record of the B-29's for April was equally disappointing, again because of delays for which the XX Bomber Command was not responsible. Although, as an earlier passage has showed, the B-29's were late in arriving, by mid-April there were in India enough planes to have begun transport operations on a reasonably effective scale.[132] But for reasons which have been indicated, the Chengtu fields were not ready. True, the Hsinching field had never closed down while being extended to B-29 specifications, and it was there that C-46's and C-87's had off-loaded MATTERHORN supplies while construction was in progress. But it was not until 24 April that the first B-29 was able to put down there.[133] By 1 May, the original D-day, the "self-sufficient" B-29's had hauled to Chengtu a net total of 27 tons--just enough to support one combat sortie!

The ATC lift, while vastly greater than that of the XX itself, fell short of expectations. Out of a basic allowance of 2,000 tons

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from that source, General Wolfe received only 1,399 tons, the other 600 being diverted on General Stilwell's orders for nourishment of the Chinese "Y" force.[124] This was considered by Wolfe as a loan. In all, 1,440 tons were laid down at Chengtu in April.

At the end of that month General Wolfe felt that his situation was critical. The late arrival of the B-29's of course had obviated any chance of the April missions ordered by Washington in the directive of 6 March, but presumably two missions would have to be run in May and in each subsequent month. To support the initial strikes Wolfe had planned to have by 1 May a stock pile of 6,000 tons; actually he had received only about 4,000 tons (plus the 300 claimed by Chennault). The gasoline shortage was especially acute, with only 380,000 gallons on hand out of an anticipated 660,000. With the transport potentiality of the B-29's already beginning to fall below expectations, with a fixed charge of tonnage owed to the 312th Wing for each succeeding month, and with the uncertainty of ATC allocations, Wolfe believed that his present facilities would support only one 100-sortie mission per month.[125] The announcement on 8 April of the intended diversion of the 73d Wing to the Marianas promised more difficulties in the autumn, for Wolfe's earliest logistical plans had been based on the use of 180 transport B-29's to support 120 combat planes in 300 sorties per month;[126] but his chief concern was for the immediate future. To care for his present needs he requested the assignment of an additional group (four squadrons) of C-46 or C-87 aircraft.[127]

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This request was made at the end of April. At that time only one squadron of those C-46's previously designated for the command had arrived, and it was obvious that even if Washington wished to increase the number of such units the augmentation could not be effected immediately. The control of those squadrons already assigned to LATTERHORN became, then, a matter of grave importance to the XX Bomber Command The basic issue was whether the last two squadrons of C-46's should be under AIC and used on the Casablanca-Calcutta shuttle, or directly under Wolfe and used on the Hump route. Successive agreements between the XX Bomber Command and AIC's India-China Wing were made and scrapped before being given a thorough trial; but, in the long run, events in the CBI made it imperative to concentrate all of the mobile squadrons on the India-Chengtu haul.

The effort to arrive at a satisfactory system of operating the C-46's and C-87's had begun in April. AIC had looked on the operation of the C-87's as a chore from which they would be relieved by mid-April, but on the 6th Brig. Gen. T. O. Hardin of the India-China Wing wrote that it was his "impression that this will be a continuous program with ever increasing requirements."[128] That impression was correct. The second squadron of C-46's--now known as the 1st Air Transport Squadron (Mobile)--was expected late in April and General Stratemeyer proposed that the C-87's be attached to this unit and, with AIC crews, be under operational control of the XX Bomber Command.[129] This proved unsatisfactory and was modified by an agreement between Wolfe and Hardin, made early in May. AIC again agreed to deliver to

Chengtu 1,500 tons a month, using the 16 remaining C-87's. The cargo was to be hauled only from Assam, however, and the XX Bomber Command was responsible for carrying the 1,500 tons Calcutta to Assam in the 16 C-46's of the original bomber support squadron and 20 C-46's of the 1st Air Transport Squadron.[130]

This method seemed workable under current conditions, but General Hardin felt that Hump operations had reached a saturation point with existing facilities and he was anxious to arrive at a firm agreement concerning the control of the subsequent MATTERHORN C-46 squadrons. At his instigation General George sought from General Arnold a clarification of responsibilities of the two interested commands in the CBI.[131] At a conference between high-ranking officers of AAF and ATC in Washington on 12 May, a new settlement was agreed upon. The XX Bomber Command was to operate its cargo B-29's, and the 20 C-46's of the 1st Air Transport Squadron were still to be attached to it, based in the Kharagpur area, and maintained by the command. The 16 C-46's of the original bomber support squadron and the 16 C-87's were to be permanently assigned to the India-China Wing for Hump operations, in return for a guarantee to MATTERHORN of tonnage equivalent to the potential haul of 20 C-46's. The 2d and 3d Air Transport Squadrons were to be retained by ATC for the Casablanca-Calcutta shuttle.[132]

General Wolfe did not like this arrangement. He had hoped to secure full control of the 2d and 3d Squadrons and, by basing them at Malaikunda, to overcome some of the difficulties incurred from having received the other transport units without maintenance personnel. With

Hardin's guarantee of 1,500 tons and the control of all the C-46 squadrons, Wolfe had expected to step up deliveries to Chengtu to 3,500 tons per month;[133] instead the Washington agreement offered him only an indeterminate tonnage from ATC and no control of the last two squadrons. Before the end of May a compromise was worked out at General Stratemeyer's headquarters. Sixteen C-87's and 38 C-46's were to be assigned to the India-China Wing, and the 1st Air Transport Squadron (Mobile) to XX Bomber Command. ATC was to transport 1,000 tons monthly to Chengtu, of which 1,000 tons were to be carried from Calcutta to Jorhat by the XX and 500 tons by ATC.[134]

In reality all of this shuffling of control procedure was of little importance. The last arrangement was as ephemeral as those which had preceded, and since only those units which were already in India were actually affected there was no great improvement in May deliveries. General Wolfe had expected to receive from ATC his 1,500-ton guarantee plus the 600 tons "borrowed" by General Stilwell in April for the Chinese "Y" force. But only 1,293 tons were off-loaded. This constituted a deficit of 207 tons from the guarantee and included none of the 600-ton backlog. Wolfe's claim to that latter amount had been protested in Chungking where it was looked on as a permanent diversion. The low total haul seems to have been the result of a misconception of the Wolfe-Hardin agreement on the part of ATC operations officers[135]--a misunderstanding perhaps not unnatural in view of the kaleidoscopic nature of control arrangements. The C-46's operated by the XX delivered in May only 117 tons, the low net being due to lack

of experience and of proper facilities and personnel at Kalaikunda.[136]

The record of the B-29's was much better than in April, but it too fell short of expectations. Planning factors in Washington called for 535 Hump round trips per month.[137] Wolfe, more realistically, had expected to fly 308 transport sorties with a net off-load of 6 tons per plane, a total of 1,848 tons for May.[138] Actually the command flew 141 B-29 transport sorties with a total pay load of 540 tons. Some of the causes of the reduced number of missions would be eliminated later. In May there had not been a full complement of planes--it was the 13th before the last of the initial equipment B-29's arrived. Ground personnel and maintenance equipment had been late in arriving and airfields at both ends of the route were still only partly operational in May. Preparations for the shakedown mission had interrupted the transport schedule.[139]

The low net cargo also was disappointing. High ground temperatures limited the take-off weight of the B-29 to 133,000 pounds, which was considerably lighter than earlier tests had promised. Operating difficulties had resulted in excessive fuel consumption, and lack of experience (and of gauges) had caused pilots to return with too much spare gas. A shortage of auxiliary tanks made it difficult to utilize all available space and lift.[140] All in all, Wolfe had come to feel that the "use of B-29 as a cargo carrier has definite limitations and any large scale operations should be dependent upon regular cargo type aircraft for supplies," and he pointed out a factor which experience

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had already shown to be significant--that regular use of the B-29 as a transport would shorten its combat life.[141]

This new attitude was a negation of the very essence of the MATTERHORN plan. The planners in Washington must have realized always that it would be more economical to nourish B-29's by proper cargo planes than by their own efforts. But cargo planes had not been available in quantity, and sheer necessity, the desire to get the B-29 into action, and perhaps fondness for the AAF conception of the bomber unit as a mobile self-contained entity, had led to the adoption of a logistical system which had already been solidified and was now threatened with extinction. The one hopeful feature lay in the performance of those B-29's which had been converted into tanker planes. By stripping them of all combat equipment save the tail guns and a minimum of radar, Wolfe was able to haul about seven tons net instead of three tons as in the tactical planes, and even better performance was possible. This modification itself was contrary to original plans and it caused some concern in Washington, but the planes could be made combat-ready in a week's time. This process was initiated too late in May to affect greatly operations during that month, but it was to bear fruit later; and by increasing the efficiency of operations both the tankers and the tactical B-29's were to go far in justifying early predictions.

The retarded rate of build-up of the Chengtu stock pile inevitably resulted in postponement of D-day for the first VLR mission, but tactical developments in China and the Pacific in June precipitated

a crisis which could not be ignored. "ATTLEHORN" plans had always been based on the assumption that no strike at Japan proper should be made until a stock pile sufficient to support a 100-sortie mission had been accumulated, and that preferably this should be followed up soon by a similar effort. At mid-May General Wolfe calculated that two such missions would require about 4,600 tons exclusive of what was hauled by tactical B-29's.[142] This was much more than he could hope for from sources currently available. General Arnold was cognizant of the difficulties of Wolfe's problems, but he was unable to secure any further support for "ATTLEHORN" from ASC, and the efforts made at the Washington conference of 12 May had constituted no more than a reshuffling of inadequate transport units. Indeed General Arnold was considering a downward revision of the XX Bomber Command's operational directive if it should prove logistically impracticable, but even so his estimate of the command's capabilities was over-optimistic--100 to 150 sorties from Chengtu by 1 July, 150 to 200 monthly thereafter.[143] Wolfe hoped that by reaching a total of 4,840 tons in June he could stage his first mission about the 20th and begin rebuilding his stock pile for a single strike in July.[144]

Even this belated and reduced schedule could be met only by effecting the most drastic economies. The forward-area bases of the XX Bomber Command had from the beginning existed on an economy of scarcity, but in May and June articles normally considered necessities had been stricken from cargo lists in a desperate effort to build up POL stocks.[145] That policy was unpopular enough even among members of the

XX Bomber Command, who had a deep personal interest in the project. But the same policy was applied to the 312th Fighter Wing and its service organizations, and that soon became a source of friction.

General Chennault had originally estimated that the defense forces would require 3,000 tons of supplies per month. Later by agreement between Chennault and Wolfe, that amount had been scaled down to 1,400 tons. Then in May, when the real drive to build for a June mission began, the allowance was further reduced to about 1,000 tons per month. Apparently this last reduction was made on the initiative of the XX Bomber Command without full coordination with the 312th Wing and without any adequate study by that organization of its minimum needs in the existing emergency. As it was, only some 900 tons had been delivered to General Gilkeson's wing by 26 May.[146]

Then came the enemy. At the beginning of June the Japs began their long-anticipated drive for the Kunlun-Changsha railroad. On 4 June General Stilwell diverted for the support of Chennault's air force the tonnage guaranteed to MATTERHORN by ATC.[147] This emergency step was permitted by Stilwell's directive and it was sanctioned after the event by the JCS.[148] At the same time General Stilwell forwarded to the Joint Chiefs a request from the Generalissimo that in addition to this diversion of potential tonnage, the whole of the MATTERHORN stock pile be turned over to the Fourteenth Air Force. This request, one would assume, must have had Chennault's concurrence but it came without any recommendation from Stilwell and it was firmly refused by the JCS.[149] They directed that the ATC tonnage be restored to the XX

immediately the emergency was over, but for the moment that organization was really on its own. Washington requested Generals Stratemeyer and Chennault to give Wolfe such aid as they could in hauling POL,[150] but with Stratemeyer's 7th Bombardment Group (H) already diverted to transport service over the Hump and with all ATC lift assigned to the Fourteenth, no effective aid was in sight. Meanwhile the Jap offensive, while impeding Wolfe's transport schedule, made it necessary to accelerate his combat schedule.

On 5 June the XX Bomber Command staged its shakedown mission, a strike against Bangkok with 98 B-29's airborne.[151] The mission, being conducted from rear area bases, did not cut into the Chengtu stock pile directly, but it did interfere seriously with transport operations of the tactical B-29's. On the following day AAF Headquarters requested information as to the weight of attack which the XX Bomber Command could apply against Japan between 15 and 20 June. This strike was designed to relieve pressure in east China, and it was also to be coordinated with an important Pacific operation (which later proved to be the assault on Saipan).[152] Wolfe thought he could put 50 B-29's over the target on 15 June, 55 on 20 June.[153] This seemed too feeble an effort and the directive issued by the JCS on 8 June ordered a minimum strike of 70 planes on 15 June.[154] The mission, when run, barely made that minimum; of 83 B-29's in the forward area on the 15th only 68 were airborne for the attack on Yawata. Even this effort so depleted the stocks that there was not enough POL at Chengtu for all B-29's to return immediately to Calcutta.[155]

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Nor were prospects for July cheerful. In the emergency created by Stilwell's diversion of the XX Bomber Command's ATC tonnage, General Arnold had reassigned the 2d Air Transport Squadron from ATC's North African Wing to XX Bomber.[156] On 22 June he agreed also to make the same arrangement for the 3d Squadron.[157] This involved the transfer of those units from Dekheila in Egypt to Bengal, and it raised also questions of maintenance personnel, for the XX was not equipped to operate what promised to become a large transport organization.[158] This problem was settled by vesting in the India-China Wing responsibility for maintenance.[159] The 2d Squadron began operations before the end of June, the 3d on 8 July.[160] This gave an effective force of about 40 C-46's throughout the month, and of 20 more for 24 days.[161] It was with these planes and the B-29's that the XX Bomber Command's operations had to be supported until the emergency diversion of ATC tonnage could be restored.

The target directive for July was issued on 27 June, calling for a minor 15-sortie mission in early July and a major strike by 100 aircraft between the 20th and 30th.[162] The message reminded General Wolfe that this program could be carried out only by radically increasing the utilization of his B-29's and obtaining maximum performance from his C-46's. Transport operations of both types of plane were improved during July, but in the meanwhile General Wolfe attempted to increase the stock pile for B-29 missions by imposing on the advanced area bases further economies.[163] These included even more drastic

reductions for the 312th Wing. When the Yawata mission was flown, there had been on hand only enough gas for four 2-hour sorties by 60 per cent of the fighters around Chengtu.[164] General Wolfe now proposed to allot to the 312th for July only 850 tons instead of the 1,500 tons previously agreed on. To this reduction General Gilkeson raised a not unnatural protest. Wolfe's staff had estimated that 850 tons would allow 40% sufficient for 10 hours flying time per pilot and for an emergency stock.[165] The reserve was small, and the whole scheme constituted a calculated risk. The economies enforced on the 312th had this pragmatic sanction--that the fighter defense units had got by on short rations so far without disaster; but some Jap reaction seemed inevitable. The XX Bomber Command laid the 312th's complaints to the fact that its two groups, having previously been nourished in the comparative luxury of the Mediterranean theater, had no concept of the military standard of living in China.[166]

General Chennault knew from bitter experience what that standard was, but he had a promise of 1,500 tons, and was unwilling to accept Wolfe's July allotment for the 312th Wing. On 25 June he informed General Arnold of the "deplorable conditions" which restrictions on fuel had created in the 312th and stated baldly that 'under existing conditions I cannot be held responsible for defence of Chengtu."[167] His complaint resulted in an involved correspondence between Kunming and Washington as to possible changes in the equipment and deployment of the 32d and 81st Fighter Groups which is not strictly germane to

this chapter; the immediate settlement of the point at issue was effected in the theater.

The problem came under purview of General Strategyer by virtue of his logistical responsibilities for both the XX Bomber Command and the Fourteenth Air Force.[168] Messages to his headquarters in early July from Chennault and Wolfe varied sharply in details concerning agreements made and amounts of POL made available to the 312th Wing. General Chennault objected not only to the shortage of gasoline but to the inability of General Gilkeson to designate the breakdown of his tonnage and to receive any firm commitment on amounts: ". . . Gilkeson has no idea as to what he will receive and is entirely at the mercy of Wolfe who controls the purse strings and of the Twentieth Air Force who issues directives from Washington and does not consider the defense responsibility which is placed with me."[169] General Wolfe denied the validity of Chennault's claims as to the amount of gasoline furnished the 312th and stated that all amounts had been agreed on by Gilkeson and himself.[170]

In this impasse the XX Bomber Command was forced to capitulate. Chennault had stated that a firm guarantee of 1,500 tons would give pilots of the 312th Wing 10 hours flying time per month plus an operational reserve and would hence be acceptable as a minimum provision. On 3 July Wolfe agreed to furnish the 312th, in that and succeeding months, 1,500 tons of supplies, with the Fourteenth Air Force determining the breakdown on shipments.[171]

With the documents available it is difficult to determine the merits of the case. Certainly the 312th Wing felt the stringency of the restricted supply situation. The efficiency and morale of pilots in the 32d and 81st Groups were adversely affected by the limited flying time, though bad weather as well as inadequate POL supplies was a factor in grounding planes; lowered morale was the natural result of throwing experienced units with a tradition of active serviceinto a dull sector.[172] But it must be realized that scarcity was not confined to the 312th Wing. Those units had been sent to China for a single mission--to render such protection to the Chengtu bases that the B-29's could bomb Japan. If operations of the B-29's were seriously curtailed by giving the 312th priority in supplies, the whole offensive mission of the B-29's might be jeopardized. There was a feeling in the XX Bomber Command that General Chennault was less interested in the VLR strategic bombardment offensive than he was in using that program to get supplies which might be used by the Fourteenth Air Force--particularly if the XX Bomber Command should be withdrawn from China, which did not seem unlikely if logistical difficulties increased.[173]

At any rate an arrangement was effected on 7 July which seemed satisfactory to both the XX Bomber Command and the Fourteenth Air Force. The XX agreed to turn over to the Fourteenth, for support of the 312th Wing, its allotment of 1,700 tons monthly from ATC. In return the XX was to be relieved of all logistical responsibility toward the 312th and its service organizations. This arrangement was to go into effect

on 20 July, the XX Bomber Command endeavoring meanwhile to furnish 1,000 tons as the proportion to amount for the first 20 days of July.[174]

This arrangement proved an excellent one for XX BC. It ended the long and acrimonious dispute with the other agencies concerned and relieved the staff of the XX from responsibilities toward an outside organization.[175] As it was, the total lift for July was by far the greatest yet accomplished. The AFC allotment, now restored to the XX Bomber Command, amounted to 976 tons. Of the 2,979 tons delivered by the command's own efforts, 1,003 were by tactical B-29's. This was accomplished in spite of the interruption of their transport activities necessitated by two combat missions, and it is significant to note that supplies on hand allowed XX BC to stage those missions on the scale indicated in the target directive--with 18 and 96 B-29's airborne.[176] But this was approaching maximum capacity with resources available; although improvements in operations were made subsequently.[177] July marked the best month in 1944 as far as the transport operations in the XX itself were concerned. Any considerable increase would have to come from other sources. Efforts to provide such aid had been begun earlier in Washington in connection with a general program of expansion of Hump tonnage to provide for future combat operations. Those activities resulted in several important decisions in July and August, the effects of which were felt only later.

Strategic planning in spring 1944 called for an advance by Pacific forces to Formosa and Mindanao during the early part of 1945. In

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early May 1944 the Joint Chiefs vested General Stilwell with responsibility for neutralizing enemy air power in Formosa and for giving indirect support to the proposed Mindanao operation; they requested from him an estimate of his capabilities and suggested an early start on the task of stock-piling for those operations.[178] This project, known as PACKID, was to be accomplished without prejudice to MATTERHORN, and it was the opinion of logistical experts in the theater that no build-up could be begun without enlarging the forces of the India-China Wing, already strained by current needs.[179] Since the XX Bomber Command would engage in PACKID, General Wolfe participated in the over-all planning.[180] On 3 June General Stratemeyer submitted a request for strengthening the India-China Wing.[181] The immediate concern in the theater was of course for air lift to support operations of the Fourteenth Air Force and the XX Bomber Command in the current emergency, but in Washington long-term planning was perhaps of even greater significance. In the negotiations aimed at strengthening the logistical foundations of air operations in China, General Arnold took the initiative, and it seems evident that his chief concern was for the needs of the XX Bomber Command. Those needs he proposed to meet by increasing the over-all capacity of ATC's lift over the Hump, by securing to the AAF a firm guarantee of an equitable share in the tonnage, and by increasing the number of transports assigned to the command itself. In the first and third of these aims he was successful, but in the second he was at least partially blocked by the theater commander.

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On 7 July General Arnold submitted to the JCS a memo on augmentation of India-China Division, ATC.[183] This called for a progressive monthly increase in the number of transports (some long-range aircraft) assigned to that organization with a coordinate increase in Hump tonnage, which should reach a monthly total of 31,000 tons in December. The largest share of this was to go to Kunming for the use of the Fourteenth Air Force, but an increasing proportion, after August, was to be delivered at Yunnanyi or Chengtu and thus be available for VLR operations in PACAID.[184] This plan was referred to the Joint Logistics Committee for study and it remained long under consideration. Actually it did not offer any immediate relief for normal VLR operations (as distinguished from PACAID), but in the meanwhile an effort was made to effect that relief.

On 4 July General Wolfe was ordered back to Washington for an important assignment (CG, Material Command), leaving Brig. Gen. Laverne G. Saunders temporarily in command in Kharagpur. At Washington on the 10th Wolfe met with Maj. Gen. Curtis E. LeMay, heir apparent to his present command, and with the staff of the Twentieth Air Force to determine the requirements and the capabilities of the XX Bomber Command.[185] At the conference it was decided that the command should be reorganized to a unit equipment of 120 B-29's and a reserve of 60. With this force it should be possible to mount 835 sorties per month from China bases. Supplies for this effort were estimated at 7,500 tons monthly, of which 2,000 were to be for the fighter defense force

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and should not therefore be a responsibility of the XX Bomber Command. Of the remaining 5,500 tons, it was calculated that 1,000 could be carried by the C-46's attached to the command, 715 by the 20 B-29 tankers, and 1,705 by combat B-29's. This left a deficit of 2,000 tons and it was necessary to secure from the JCS some provision for this amount if the increased combat schedule was to be met.

The most practical solution lay in the assignment to the XX of additional transports, preferably with long-range characteristics. For a while there was some thought of securing 90 B-17 tankers.[185] Then plans changed, and on 13 July General Saunders was asked to provide information as to his additional needs in the way of personnel and airframes to operate 70 B-24 tankers (C-109's).[186] Saunders' original estimate on personnel was considered too high, but more satisfactory arrangements were eventually made, and the C-109's were definitely assigned to the XX before the end of July.[187] However, the conditions under which these planes were assigned still left a considerable shortage in potential lift. The Twentieth Air Force staff had revised their planning factor for 235 sorties to a figure of 4,800 tons, of which 800 could be carried by the C-46's, 2,640 by the C-109's and the balance by A.T.C.[188] But whereas at the conference of 10 July it had been assumed that tanker and tactical B-29's could account for 2,500 tons monthly, that potential was not ruled out. General Arnold had come to share the opinion earlier voiced by Wolfe, that use of B-29's as transports wore out the engines too rapidly, and he positively

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forbade the continuance of the practice once the C-109's were in place.[189] This order cut away the very core of the original MATTERHORN plan, and it meant that additional lift had to be provided by ATC. Actually this policy was changed later; the B-29 tankers continued to operate and the combat planes, removed from transport duty in August before the C-109's began operations, were put back on the Hump run the following month.[190] But in the meanwhile strenuous efforts were made to secure an increased and guaranteed tonnage from ATC capacity in the CBI.

On 15 July General Arnold had presented to the Joint Chiefs a memorandum on Strategy in China-Burma-India.[191] His plan was based on the assumptions that RAMROD should be carried through and that the greatest U. S. contributions in the CBI would be (1) maximum exploitation of MATTERHORN; (2) support of the Fourteenth Air Force and Chinese Air Force; and (3) support of Chinese ground forces. To make these contributions possible, General Arnold recommended that MATTERHORN be granted ATC tonnage beyond the transport capacity of the XX Bomber Command sufficient to support the 2785 sorties per month which had been accepted as a reasonable effort for the command; that the other air forces be granted additional supplies; and that these increases be made possible by the acceptance of his suggestions of 7 July in respect to augmentation of the India-China Wing. General Arnold's listing of the potential contributions to the war in the CBI implied a priority for XX Bomber Command operations. In order to implement his recommendation respecting that command, he now asked that General Stilwell's directive be

modified so that he would have a specific charge to provide tonnage requisite for the 225 sorties monthly.

The problem of increasing Hump tonnage, a perennial one for CBI commanders, was at the same time receiving special attention in the theater. Lt. Gen. Barney M. Giles, Chief of Air Staff, had gone to the CBI and, after consultation with General Stratemeyer and other interested commanders, he submitted to General Arnold on 2 August a plan for raising Hump tonnage to 71,320 tons per month. Of this, 1,820 tons monthly were to go into the PACAID stock pile, 19,500 to support current operations. [redacted]'s share was to be 6,300 tons, 4,800 for the B-29's and 1,500 for the fighter defense units. Of the 6,300 tons, it was suggested that 1,600 be hauled by the [redacted] in its own C-46's and tanker B-29's, and 4,300 by C-87's assigned to ATC. General Giles recommended that the Joint Chiefs allocate tonnage in this fashion if 71,320 tons were reached: (1) 6,300 tons to [redacted] (firm); (2) 17,200 to Fourteenth Air Force and other agencies; (3) 1,820 to PACAID stock pile (unless loss of east China bases made this unnecessary).[192] This provided machinery for the guaranteed deliveries General Arnold had wished, but Arnold again stated emphatically that he would no longer countenance the use of B-29's for cargo purposes, as this plan called for.[193]

General Marshall interpreted Giles' message as implying that General Stilwell had concurred in its contents; and to aid the Joint Chiefs in their consideration of General Arnold's similar proposal,

he requested confirmation of that interpretation.[194] Stilwell replied that he had confirmed Gilet's recommendation of 6,500 tons to the XX BC and 13,000 tons to other agencies (excluding PACAID) contingent upon ATC's expansion to 19,500 tons, and a proportionate division if deliveries fell short. He did not however desire a directive couched in terms of tonnage; rather, he wished a priority rating in terms of importance of XX Bomber Command operations, PACAID stock piling, and current operations in China.[195]

General Stilwell's message came on 14 August. On the same day the Joint Planners drew up a listing of priorities as Stilwell had desired,[196] and on the 16th this was sent to him as a revision of his directive concerning logistical responsibility toward the XX Bomber Command.[197] As a guide for planning he was advised that 225 sorties from China bases were considered desirable. In their claims for Hump tonnage, the several projects were rated by the JCS in the following order of importance:

a. For the air link to China to insure operations and defense of bases for PACAID

1. Supply of Fourteenth Air Force.

2. Stock-piling for the XX BC and the Fourteenth for PACAID, contingent upon holding east China bases.

b. For implementing MATTERHORN at the rate of 225 sorties monthly, with a firm guarantee of deliveries made in exchange for transports previously transferred from the XX Bomber Command to ATC [i.e., the 1,500 tons for fighter defense]

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c. Requirements of CAF and Chinese ground forces.

On the same day, the 26th, the JCS also informed Stilwell of their decision, taken the previous day, to put into operation (with reservations concerning reinforcement personnel) General Arnold's plan for augmenting the India-China Ferry.[198] This would insure a significant increase in ferry tonnage, but Stilwell's directive was not in accord with General Arnold's suggestions. Current operations of the XX were given a lower relative priority than he had desired, and that command was still left without a firm guarantee, forced to get its support from the theater, and placed in a poor competitive position in respect to the Tenth Army.

In spite of this fact the XX Bomber Command's supply situation improved. In August it received from ATC 1,470 tons, in September 3,141, and larger amounts subsequently. This was due to the increase in total lift by ATC and to the loss of east China bases which changed somewhat the nature of FACMID. With this support and its own efforts the XX got 7,002 tons in August, 4,591 in September, and the unprecedented total of 10,930 tons in October. Combat operations were stepped up proportionately, and in September for the first time approximated the desired weight of attack with 217 B-29's airborne from China bases, as against 114 and 117 sorties in July and August.[199]

From the foregoing discussion it is evident that the worst crisis in the transport problem of the XX Bomber Command had occurred in June and had passed by July; each month thereafter showed a substantial tonnage if not a steady increase. To some extent the improved

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conditions were made possible by larger allocations from ATC and the allotment of the C-109's. But the larger monthly deliveries were not wholly the result of those decisions in Washington which have been described in the foregoing pages. To a very significant degree the improvement was the result of the efforts of the XX Bomber Command itself--a matter of picking itself up by its own boot straps as one of its members remarked.[299] This was accomplished chiefly by increased efficiency in transport operations.

The amount of Hump tonnage in any single month depended upon the total number of trips made and the average net off-load per trip. Those amounts and some of the factors affecting them are shown in the table following page 209.[301] Those figures must be read however with one eye on current circumstances. The number of transport trips made by the B-29's, for instance, does not show a steady increase from month to month; it varied with the number of aircraft used in combat or training missions, and was affected sharply by the temporary withdrawal of the B-29 tactical planes from service in August. Yet each of the efficiency factors affecting the number of trips per aircraft on hand showed a marked improvement--that is, between May and September the percentage of B-29's in commission increased, the rate of abortive transport sorties and of turn-around time decreased.

The average net off-loads increased steadily, though again it is difficult to indicate that trend precisely from available statistics. The average grew from 2.35 tons per trip in May to 7.66 in July. But the rate of increase varied with the proportion of tanker trips to

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tactical B-29 trips; thus the highest rate, the 9.57 tons averaged in August, was accomplished by tankers alone and when tactical aircraft were put back on the run in September the average fell to 6.40 tons per trip. The rate of improvement by the tactical B-29's was more impressive than that of the tankers. The average net off-load of gasoline from tactical B-29's increased from 795 gallons in late May to 1,326 gallons at the end of July; from late June to early September the same average for the tankers grew from 5,048 to 5,611 gallons--a net gain of 331 and 563 gallons respectively. This gain is reflected in the decreased gasoline consumption for the round trip. For the same period the B-29's showed a decrease of 661 gallons (from 6,312 to 5,651); the tankers, from late June to the end of July, a decrease of 301 gallons (from 5,532 to 5,231). This saving in fuel came with experience, as techniques of loading, flight planning, and control improved and as crews learned more about the flight characteristics of the B-29. One important lesson is illustrated in the discrepancy between increased off-load and decreased consumption of gasoline: that the former grew more rapidly than the latter shrank is indicative of a growing familiarity with the B-29 which allowed pilots to bring back their planes with a smaller reserve of fuel.

Similarly the larger deliveries of the XX Bomber Command's C-46's must be explained in terms of a variety of factors. The number of trips varied with the number of planes assigned and in commission. Thus in July when three squadrons were assigned, they hauled 1,162 tons; in August, with the 3d Squadron turned back to ATC, only 798. A

third factor was the point of departure--i.e., whether supplies were flown from Calcutta or Jorhat, and the amount of responsibility the command shared with ATC in delivering goods to Jorhat. But whatever effects these factors may have had, there is evidence that efficiency increased, so that the average net off-load per trip rose from 3,492 pounds in early June to 4,994 pounds at the end of July.

These improvements accrued to the hard work of staff sections (particularly the Statistical Section which played an important role in transport operations)[202] and of ground and flight crews. The flight crews underwent danger as well as drudgery, what with the hazards of attack by Jap interceptors and of forced landings in a strange and terrible terrain. That danger was especially true in respect to B-29 transport operations. From April through September, 15 B-29's were lost as against 3 C-46's.[203] Casualties were not proportionately high with the B-29's only 26 men were killed, 11 listed as missing.[204] The others "walked out." The stories of their adventures are sometimes as fantastic as those of Marco Polo. Told in the matter-of-fact style of walkout reports, these stories have a stark realism seldom equalled in TFC accounts.[205]

This account of transport activities has carried well beyond the chronological limits of the other chapters. It may serve them as a background for operations which are to be described in a subsequent volume. The most important function of the chapter has been to show

how rigidly transport difficulties limited the weight of attack from the forward area. Potentially the XXI Bomber Command was a powerful striking force even after the diversion from it of the 73d Wing. Yet its assaults during the early months were neither numerous nor heavy. At the end of September it had staged seven missions from the forward area with a total of 816 aircraft airborne.[206] And even this weight of attack had been made possible only by the most strenuous efforts at stockpiling, as the foregoing pages have shown.

If those measures which were taken in July and August had promised a more liberal and consistent supply basis for the future, early difficulties could have been written off as experience. But if future prospects were brighter, they were so only by comparison with the bleak days of May and June. In mid-September General Lehay was requested to report on the feasibility of deploying additional VLR units in the CBI. Lehay's reply sums up succinctly the whole character of the "MATTERHORN" plan.[207] At present, he stated, the XXI Bomber Command was operating under conditions which were basically unsound, in that they did not permit full exploitation of the capabilities of the command. The conditions which he named as contributing factors were limited base capacity, inadequate personnel, and a difficult logistic system. The only justification for operating under such conditions had been, he thought, the lack of any other area from which B-29's could strike Japan. And so additional units should be committed to the same conditions only if there were no possible alternative.

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The second chapter of this study pointed out some of the unusual features of the Twentieth Air Force. To those another may now be added--for it is rare, if not unique, in the AAF for a commander to decline so firmly a proffer of an increase in combat units. The refusal of course is something of a measure of the commander, but it is also a concluding judgment on the difficulties which have been described in this chapter. General LeMay later was to show no reluctance to add to his VLR forces in the Marianas. The refusal from Okinawa was a terse commentary from a realist who had learned through bitter experience the fundamental weakness of the HUSKY FOUR logistical plan.

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Epilogue

This study was begun, as the introductory chapter alleges, as an attempt to provide a background for a subsequent account of the bombardment operations of the Twentieth Air Force. The design was to bring the story down only to the eve of the first Yawata mission of 15 June 1944, and in general that design has been adhered to. By that time the weapon had been forged and the strategic plans for its employment had been laid. By that time too the peculiar organization of the air force which was to guide the weapon had been determined and its initial combat unit, the XX Bomber Command, had been established in the field. Thus in the chapters dealing with those matters it seemed convenient to break off the narrative at or before the terminal point originally chosen.

In two chapters, however, that chronological limit has been disregarded. In one case the reason is obvious. Work on the air bases had not been finished by 15 June, though most of them were operational; hence it was natural to extend the account to the completion of the fields in September 1944. In the chapter on transport the account was also brought down to the end of that month. That date was arbitrarily chosen but it seemed appropriate to carry the story beyond the operational D-Day, which did not terminate the logistical problem.

The study might best be read with one eye cocked toward an as yet unwritten volume on operations--indeed under normal conditions of publication the foregoing chapters would appear only with the story of

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the bombardment campaign itself. Intrinsically these chapters have a limited importance, but it is only by reference to their content that VLR operations in the CBI can be understood. If the present study has a thesis it is that the MATTERHORN plan to bomb Japan from China bases was adopted for reasons which were not wholly military in the strictest sense, and in the face of a forbidding logistical situation. In Chapter VI it was shown that the Chengtu region was chosen, for want of a better base area, in an effort to encourage the Chinese in their war effort. And in Chapters VII and VIII something was shown of the difficulty involved in building the bases and in keeping them sufficiently stocked for a bombardment offensive. It is against such a background that the combat operations of the XX Bomber Command must be told and their success estimated. If the operations of the XX Bomber Command be evaluated without reference to its supply problem, they must seem feeble. If the results of these operations be calculated without reference to those strategic objectives which were not wholly military in character, the whole MATTERHORN project must appear ill-conceived and unsuccessful.

Something like this approach was suggested in the first report of the Evaluation Board in the CBI. The Board pointed out the difficulties of nourishing air operations from China, especially those of the XX Bomber Command, which had consumed tonnage which they thought might more profitably have been used by Chennault. But, without committing their lives, the members of the Board excluded

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> The activity of this new air force in this theater is in the nature of a shake down. It is a huge testing ground where lessons can be learned which will guide us in the operations of longer range air forces to be used in the future. . . . There is also no question but that strategic bombing pays big dividends and perhaps the diversion of such effort to the XX Bomber Command is more than justified in the big picture, all of which cannot be seen from this theater. Operations to date have, in a measure, demoralized the enemy nation, destroyed badly needed facilities, and forced him to keep a large portion of his air power engaged on purely defensive missions.

This is to say, in effect, that the operations of the XX Bomber Command must be judged by a comparison with what the Fourteenth Air Force could have done with an equivalent allocation of Hump tonnage--or for that matter, with what could have been done with a like expenditure of effort in any theater and by any agency in a global war--but that judgments must take cognizance of many factors, some direct (actual destruction wrought), some indirect (tactical lessons learned, effects on JAF deployment), and some highly intangible (effects on Chinese and Japanese morale). It is on a background for such an estimate that this study has been written. The story of operations and the judgment inherent in their degree of success should follow.

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G L O S S A R Y

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AAFTAC	Army Air Forces Tactical Center
AFAGT	Assistant Chief of Air Staff, Training
AFAMP	Assistant Chief of Air Staff, Plans
AFCC	Air Force Combat Command
AFTC	Air Force Training Center (in India)
AGF	Army Ground Forces
ASC	Air Service Command
ASF	Army Service Forces
ASW	Assistant Secretary of War
ATC	Air Transport Command
CAF	Chinese Air Force
CBI	China-Burma-India Theater
CCS	Combined Chiefs of Staff
CINCPOA	Commander in Chief Pacific Ocean Area
CINCSWPAC	Commander in Chief South West Pacific
COA	Committee of Operations Analysts
CPS (JSP)	Combined Planning Staff (Combined Staff Planners)
CPWD	Central Public Works Department
CVE	Escort Aircraft Carrier
DC/AS	Deputy Chief of Air Staff
ETO	European Theater of Operations
FEA	Foreign Economic Administration
IBS	India-Burma Sector
JAF	Japanese Air Force
JB	Joint Board
JCS	Joint Chiefs of Staff
JIC	Joint Intelligence Committee
JPS (JSP)	Joint Planners Staff (Joint Staff Planners)
JSSC	Joint Strategic Survey Committee
JAPC	Joint Air Plans Committee
LOC	Line of communications
M&D	[Asst Chief of Air Staff] Materiel, Maintenance, and Distribution
NATO	North African Theater of Operations
NEI	Netherlands East Indies
OPD	[War Department General Staff] Operations Division
OSS	Office of Strategic Services
POA	Pacific Ocean Area
POL	Petroleum, Oil, and Lubricants
SACSEA	Supreme Allied Commander South East Asia
S/AS	Secretary of the Air Staff
SEAC	South East Asia Command
S/GS	Secretary of the General Staff
SOS	Services of Supply
SOWESPAC	South West Pacific
USAF CBI	United States Army Forces in CBI Theater.
USSTAF	United States Strategic Air Force (in Europe)
VLR	Very long range
WPD	[War Department General Staff] War Plans Division

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N O T E S

Chapter II

1. These figures are taken from Tactical Planning: Characteristics and Performance Chart (ed. of 1 Sep. 1944), 9.

2. Ltr., C/AC to AS/W, Research and Development Program FY 1940--Heavy Bombardment Airplane, 10 Nov. 1939, in AAG 452.1, C, Heavy Bombers (Old).

3. Ltr., C/AC to AG, Military Characteristics of Aircraft, 10 Nov. 1939, ibid.

4. 1st ind., AS/W to C/AC, 2 Dec. 1939, to ltr. cited in n. 2.

5. A copy may be found in AAG 452.1, C, Heavy Bombers (Old).

6. Gen. Brett, Chief, Materiel Div. to C/AC, Appraisal of Heavy Bombardment Airplanes, Request for Data R40-B, 3 June 1940, ibid.

7. 1st ind., AS/W to C/AC, 28 June 1940, to ltr., C/AC to AS/W, Contracts for Design Data of a Heavy Bombardment Type Airplane, 22 June 1940, ibid.

8. AAF Materiel Command, Research and Development Projects of the Engineering Division, Wright Field (4th ed., 1 Jan. 1944), 31-34. The subsequent details on the development of these two planes, unless otherwise documented, are taken from this account.

9. 1st ind., CG GHQAF to C/AC, 15 June 1938, to ltr. of 13 May, in AAG 452.1, B, Heavy Bombers(Old).

10. Memo, Arnold to AC/S, WPD, 30 April 1940, in AAG 381, B, War Plans.

11. Ltr., AG to C/AC, Airplane Replacement and Research and Development Programs, 30 October 1939, AG 452.1(9-21-39)M-1, in AAG 452.1, C, Heavy Bombers (Old); ". . . all preliminary designs, experimental models and service tests will be completed and the new model ready for manufacture prior to the initiation of procurement."

12. Memo, Echols to DC/AS, 30 Sep. 1942, in AAG 452.1, D, Bombers.

Chapter III

1. C/AC to AG, 10 Nov. 1939, as in n. 3, Chap. II.

2. Memo, Echols to S/AS, letter to General Arnold, 6 Nov. 1943 from General Kenney, in AAG 312-1-C, Classes of Correspondence.

3. See pp. 27-28.

4. 1st ind., Gen. Westover, AC/AC to AG, 12 July 1935, to ltr., AG to AC/AC, n.d., in AAG 452.1, B, Heavy Bombers (Old).

5. Ltr., Maj. Gen. D. C. Emmons, CG GHQAF to C/AC, Commercial Manufacturers of Aircraft, 12 June 1940, in AAG 452.1, C, Heavy Bombers (Old).

6. 3d ind., Col. Knerr, C/S GHQAF, 26 July 1937, to ltr., Lt. Col. Olds to CG 2d Wing, GHQAF, in AAG 452.1, A, Heavy Bombers (Old).

7. 4th ind., 2d Bomb Gp., GHQAF to CO, Air Base, Langley Fld., 12 Nov. 1937, in AAG 452.1, A, Bombers.

8. 1st ind., Gen. Andrews, CG GHQAF to C/AC, 15 June 1938, to ltr. of 13 May, in AAG 452.1, B, Heavy Bombers (Old).

9. Staff Study . . . Augmentation in Aircraft . . . FY 1938, by Brig. Gen. G. R. Spaulding, AC/S, 25 June 1936, in AAG 452.1, A, Heavy Bombers (Old).

10. Ltr., AG to C/AC, 19 Oct. 1937, in Unclassified Files, 452.1, H. Bombardment.

11. JB No. 349, 29 June 1938, in AAG 452.1, B, Heavy Bombers (Old).

12. Report of the Air Corps Board, Study #44, Air Corps Mission under the Monroe Doctrine, 17 Oct. 1938, in AAG Bulk Files.

13. Memo for AC/S, WPD, Air Force Study, 14 March 1939, in AAG 321, Misc., Staff Corps or Dept.

14. AG to Chiefs of Arms and Services, etc. Subject: Air Board Report, 15 Sep. 1939, AG 320.2 (6-26-39) M-F-M (containing Tabs A-G of Report of Air Board appointed 23 March 1939), in AAF 334.7, A, Boards, Misc. Cf. Memo Air Board to WD Air Defense Board, Employment of Aviation in Hemisphere Defense, 24 April 1939, in AAG 381, Hemisphere Defense (Bulk).

15. Final Report of Air Corps Board on Revision to Five Year Experimental Program, 23 June 1939, in AAG 334.7, Kilmer Board (Bulk).

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16. See p. 17.

17. Memo, Lt. Col. Orlando Ward, A/C3, to Col. Loughry, Authorization of Heavy Bombardment Planes, 25 July 1939; memo, Lt. Col. George S. Warren to Col. Loughry, 27 July 1939, in AG 452.1, Al, Bombers.

18. Air Corps Materiel Division, Military Characteristics of Heavy Bombardment Airplanes Serial No. 50-425-359, 5 Oct. 1939, in AG 452.1, A, Heavy Bombers (Old).

19. Requirements Army Aviation for Hemisphere Defense, 3 June 1940, in AG 381, El, War Plans.

20. Memo, C/AC to A/C, WPD, Estimate of Air Planes Required Based on Hemisphere Defense, 30 April 1940, in AG 381, El, War Plans. The characteristics are given in the following table. The third bomber is the future XB-29 type; why its radius is scaled down is not apparent. Charts showing the different "daylight zones" accompany the table.

Type	Minimum Useful T.R.O.	High Speed	Minimum Bomb or Useful Load	Purpose
Bomber, Long Range	4,000	300	4,000	An airplane of substratosphere characteristics, capable of disrupting the launching of expeditionary forces against the Western Hemisphere.
Reconnaissance-Bomber, Heavy	2,460	300	2,000	An airplane to meet 3d Daylight Zone requirements.
Reconnaissance-Bomber, Medium Range	1,750	325	2,000	An airplane to meet 2d Daylight Zone requirements.
Reconnaissance-Bomber, Short Range	1,000	350	2,000	An airplane to meet 1st Daylight Zone requirements.
Bomber, Light	300	400	1,000	No change.

21. Requirements, as in note 19 above.

22. Report of Board of Officers (Simmons Board), 19 June 1940, in AG 334.7, Boards (Bulk). Ten types were listed; the 5,333-mile range was first, the 10,000-mile range, eighth.

23. See chart following p. 34, taken from estimate cited in n. 20 above.

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Chapter IV

1. Memo, Hansell to Col. Baker, 31 Oct. 1939, in AAG 381, Hemisphere Defense.

2. Memo, Spaatz to Arnold, Strategically Offensive Operations in the Far East, 1 September 1939, in AAG 381, Hemisphere Defense: Five Secret Studies (Bulk).

3. Estimate of Airplanes, 30 April 1940, as in note 20, Chap. III.

4. Ltr., Chaney to C/S, 4 June 1940, in AAG 452.1, A, Bombers.

5. Ltr., Arnold to Marshall, 23 July 1940, ibid.

6. Memo, Spaatz, C/AS, to AWPD, 1 Jan. 1941, in AAG 452.1, A, Bombers. The chart following p. 30 was used to illustrate the potential radius of action of the 4,000-mile plane.

7. WP D4175-18, memo, Gen. Gerow, Acting A/CS to C/AC, Data for RAINBOW NO. 5, 18 December 1940, in AAG 381, War Plans.

8. U. S.-British Staff Conversations: Short Title ABC-1, 27 March 1941. I have found no evidence that the agreements reached therein were ever accepted at the government level.

9. Joint Army-Navy Basic War Plan--RAINBOW NO. 5, JB 325 (Series 642-5), approved by S/W, 2 June 1941, by S/N, 29 May 1941.

10. The plan was largely the work of a committee consisting of Col. H. L. George, Lt. Col. Walker, and Majs. L. S. Kuter and H. S. Hansell. Eventually AWPD/1 was accepted as the AAF section of "Army and Navy Estimate of U. S. Over-all Production Requirements."

11. AWPD/1, Tabs 2 and 4.

12. AWPD/1, Tab 7.

13. AWPD/4, Tab C: 32 groups of B-29 and B-32 types, 59 groups of the 4,000-mile-radius type.

14. The Strategic Air Concept is contained in Tab A.

15. AC/AS, Plans, Division Digest, 25 March 1943.

16. CM-IN-890 (2 March 43), London to War, #115, 2 March 43. A fewweeks earlier a similar request for airdrome specifications had been dispatched to ATC in Washington: CM-IN-6464 (13 Feb. 43), USFOR to War, #4234, 12 Feb. 43.

17. CM-OUT-10085 (26 March 43), AFHQ to CG, 8th AF, #A1893, 26 March 43.

18. The plan called for heavy (B-17 and B-24) and medium (B-26) bombers according to this schedule:

	H.B.	M.B.	
First Phase	944	200	by 30 June 1943
Second Phase	1,192	400	by 30 September
Third Phase	1,746	600	by 31 December
Fourth Phase	2,702	800	by 31 March 1944

No B-29's were mentioned.

19. CM-IN-2454 (4 Dec. 43), London to War, WA-3085/508, 3 Dec. 43.

20. CM-OUT-1946 (5 Dec. 43), War to CG 8th AF, WA 4741, 5 Dec. 43.

21. AC/S, Plans, Division Digest for Week Ending 27 March 1943.

22. JCS 49/1, Planning for Operations Subsequent to TORCH, 27 Nov. 1942. Inclosure B consists of a minority report by AAF members of the subcommittee, outlining the view described above.

23. Ltr., CG AAF Antisubmarine Command to CG AAF, Priority of B-29 Airplanes for Two AAF Antisubmarine Squadrons, 17 April 1943; and 1st Ind. thereto, 28 May 1943, CG AAF to CG AAF Antisubmarine Command, in AAG 452.1, Heavy Bombers.

24. R&R, AC/S, Plans to C/S, 7 July 1943, B-29's to the Navy, in III-R Army-Navy Relations, Bk. IV, AFHRS.

25. CM-OUT-67 (24 March 42), APRBS to New Delhi, #AAF RC 211, 24 March 42. Presumably this was in reply to a cable from Brereton.

26. CM-IN-4180 (13 June 42), Ft. Shafter to WDCS., #771, 13 June 42.

27. R&R, ltr., Harmon to C/AAF, dated 20 Sep. 1942, AFHQ to AFTSC, 7 Oct. 1942, in P-IV-H-23, South Pacific, AFHRS.

28. See Chap. V.

29. CM-IN-8074 (13 June 43), Brisbane to CG AAF, #A 5312, 13 June 43.

30. Ltr., Kenney to Arnold, 28 July 1943, in AAG 312.1, E, Operations Letters.

31. See pp. 51 ff. AC/S, Plans suggested that Kenney be informed that no B-29's would be assigned to him before June 1944, and perhaps none then. R&R, AC/S, Plans to C/S, Extract of Gen. Kenney's Letter of 23 July 1943 in re B-29 Unit, 26 Aug. 1943, in AAG 312.1, E, Operations Letters.

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32. CM-OUT-10849 (25 Oct. 43), CINCSWPA #9577, 25 Oct. 43.

33. Ltr., Kenney to Arnold, 29 Oct. 1943, in AC/AS, Plans, Asiatic Theater Branch, D.2 Matterhorn.

34. Ltr., Kenney to Arnold, 6 Nov. 1943, in AAG 312, F, Operations Letters.

35. CM-OUT-5748 (14 Nov. 43), to CINCSWPA #481, 14 Nov. 43; ltr., Giles, C/AS, to Kenney, 18 Nov. 1943, in AAG 312.1, E, Operations Letters.

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1. CCS, 86th Mtg., 17 May 1943.
2. CCS 242/6, 25 May 1943. A monthly Hump tonnage of 10,000 tons was to be achieved by autumn 1943.
3. CCS 220, Strategic Plans for the Defeat of Japan.
4. CCS, 90th Mtg., 20 May 1943.
5. The target date for the paper had been set at the CCS, 102d Mtg., 16 June 1943.
6. CPS 83, par. 20.
7. CM, Opnav to Alusna, Chungking, President and Prime Minister to CKS, 25 Aug. 1943, in QUADRANT Conference, p. 390. Projected operations were discussed with Dr. T. V. Soong and a plea made for Chinese cooperation.
8. CCS 313, 18 Aug.; CCS 313/1; CCS, 113th Mtg., 20 Aug. 1943.
9. CCS 301, Specific Operations in the Pacific and Far East, 1943-44, 18 Aug. 1943; CCS, 114th Mtg., 21 Aug. This plan was accepted in part in CCS 301/3, 27 August.
10. CCS 319/5, 24 Aug. 1943.
11. CCS 323, 20 Aug. 1943.
12. JCS 600, VLR Airfields (B-29) in CBI Area, 11 Nov. 1943.
13. AC/AS, Plans, Division Digest, 25 March 1943.
14. Ibid., 31 March 1943.
15. Ibid., 10 May 1943.
16. Ibid., 31 March 1943.
17. Report of Committee of Operations Analysts, 11 Nov. 1943, p. 1.
18. First Report, 3 May 1943, quoted in History of the 58th Bomb Wing (H), First Phase, I-25.
19. Second Report, 28 May 1943, ibid., I-28; see also ltr., Giles to CG, 2d AF, B-29 Organizational Training Program, 15 May 1943, in AAG 452.1, A, B-29 Bombers.

20. Daily Diary, AC/AS, OC&R, 28 June 1943.

21. History of the 58th Bomb Wing (H), First Phase, II-1.

22. History of the 58th Bomb Wing (H), First Phase; History of the XX Bomber Comd., Second Phase (27 Nov. 1943-31 Jan. 1944); Third Phase (1 February-30 April 1944).

23. AC/AS, Plans recommended that every means be employed to push production of B-29 and B-35 [sic] aircraft (Division Digest, 5 July 1943); specifically, that production of B-29's and B-32's be increased to 450 per month by the end of 1944 by curtailing the B-17 and B-24 program as the European war waned (Ibid., 11 Aug.).

24. The use of code names in this case is confusing, but SETTING SUN seems to refer to this Air Plan. The theater copy of the plan submitted on 11 September uses both the designation SUNSET and SETTING SUN. In the cable describing the plan, however, the code TWILIGHT is used. In CM-IN-2748 (5 Oct. 43), Ammdel AG 2088, 3 Oct. 43, a distinction seems to be made between "VHB projects, such as SETTING SUN or TWILIGHT," and the Air Plan of 20 August was the only other such plan. There is no record of SETTING SUN in Joint Security Control, and whether correctly or not, that name is used in this study to designate the Air Plan of 20 August.

25. CCS, 107th Mtg., 14 Aug. 1943.

26. CCS 323, Air Plan for the Defeat of Japan, 20 Aug. 1943, par. 7.

27. Ibid., par. 11.

28. Ibid., par. 8.

29. CCS, 114th Mtg., 20 Aug. 1944.

30. See p. 51.

31. CM-IN-17502 (23 Aug. 43), Quebec to Ammisca, #126, 23 Aug. 43. Colonel Strong was to take a copy of the plan to India, study its possibilities with the theater staffs, and return to assist the CSP in making their final report.

32. CM-OUT-10990 (20 Aug. 43), Ammisca #3246, 26 Aug. 43.

33. CM-OUT-12229 (29 Aug. 43), Ammisca #3267, 29 Aug. 43.

34. CM-IN-9027 (11 Sep. 43), Aquila to War, #2106 TA, 11 Sep. 43.

35. Ibid.

36. CM-OUT-7981 (16 Sep. 43), Oliver to CG Aquila, #3350, 16 Sep. 43.

37. CPS 86/1, 13 Sep. 1943.

38. JSP (no serial number), Plans for the Defeat of Japan within 12 months after the Defeat of Germany, 16 Sep. 1943, memo from the AAF Planner, in PD 384.3, Japan (11-9-43).

39. JPS 264, Outline Plan for the Seizure of the Marianas, 6 Sep. 1943. The plan in its original form indicated only their intended use as a naval base, but a corrigendum of 10 September added the phrase quoted above.

40. C/AS to AC's/AS, Intelligence, MM&D, OC&R, and CG ATC, Special Study "Air Attack on Japan," 16 Sep. 1943, in WP-IV-B-2, Bk. II, AFAEP.

41. R&R, AC/AS, Plans to Col. E. S. O'Donnell, Air Attack on Japan, 17 Sep. 1943; O'Donnell to AC/AS, Plans, 23 Sep., in PD 384.3, Japan.

42. Memo, Board to C/AS, 20 Sep. 1943, cited in the memo from General Wolfe mentioned in note 46 below.

43. Revised 1944 B-29 Program (combat groups, cumulative by months): J, 4; F, 4; M, 4; A, 4; M, 4; J, 4; July, 4; A,6; S, 8; O, 10 B-29, 1 B-32; N, 12 B-29, 1 B-32; D, 14 B-29, 2 B-32. AC/AS, OC&R, Diary, 2 Nov. 1943.

44. This assumption is borne out by a reference in the minutes of JPS, 143d Mtg., 5 April 1944. In response to a query as to how the MATTERHORN project had come to enjoy first priority for VLR bombers, Colonel Lindsay "reminded The Planners that MATTERHORN had been placed in first priority as a VLR project by a special directive resulting from conversations between the President and General Arnold." Further confirmation may be found in the memo quoted in note 50 below, and in a memo from Arnold to the JCS in JCS 959, Strategy in CBI, 15 July 1944, a passage from which was quoted at the head of this chapter. The date of the conversations is not indicated in any of these sources. In an interview with the author of this study, Col. G. G. Carey of AC/AS, Plans, OPD, Asiatic Theater Branch, indicated that the President gave to General Arnold the verbal directive about the time of QUADRANT.

45. History of the 58th Bomb Wing (H), First Phase, II-30. This account says that Wolfe was called to Washington from Salina and directed to return within a week with a copy of the plan. No authority is cited, but the author, Maj. D. K. Lauo, made extensive use of interviews with Wolfe as a source.

46. Memo, K. B. Wolfe to C/AS, A Plan for the Employment of B-29 Airplanes against Japan during the Summer of 1944, 24 Sep. 1943, in PD 384.3, Japan.

47. K. B. Wolfe, A Plan for the Employment of the B-29 Airplane against Japan Proper, in AFSHO files.

48. K. B. Wolfe to CG AAF, Plan for the Operation of the B-29 Airplane, 12 Oct. 1943, Ibid.

49. Ibid.

50. Memo, FDR to Gen. Marshall, 15 Oct. 1943, in WP-IV-C-I China, AFAEP. This memo had been instigated by a complaint from CKS via Dr. Soong that Chennault had not received certain B-25 units promised him, a matter which Arnold hastened to correct; CM-OUT-9123 (21 Oct. 43), Ammisca #3644, 21 Oct. 43. Equally important however was the failure to achieve 10,000 tons Hump tonnage monthly which had been promised as early as Casablanca.

51. Memo, Col. W. T. Sexton, S/AS to Arnold, 16 Oct. 1943; draft reply for Gen. Marshall to FDR, 18 Oct., in WP-IV-C-1, China, AFAEP. The final message was slightly altered. Arnold also explained to Marshall in some detail the labor difficulties at the Wright plant and immediate actions taken. Memo, Arnold to C/S, 23 Oct. 1943, quoted in History of the 58th Bomb Wing, I-31.

52. CM-OUT-5183 (12 Oct. 43), Ammisca #3575, 12 Oct. 43; CM-OUT-6963 (16 Oct. 43), Ammisca #3610, 15 Oct. 43.

53. CM-IN-11422 (19 Oct. 43), Chungking to Agwar #819, 18 Oct. 43; CM-IN-15988 (27 Oct. 43), New Delhi to Agwar, #W2542, 31 Oct. 43.

54. "Chennault thinks use of Chengtu has strong potentialities for earlier effectiveness of long-range bomber plan and does not preclude development of other alternative later." Ibid.

55. CM-IN-2861 (5 Nov. 43), Chungking to Agwar, #851, 4 Nov. 43.

56. B-29 Project - Reference Data, in D-2, Matterhorn, Asiatic Theater Br., AFAEP. This undated document (between 31 October and 9 November) consists of annexes for the plan. One important change was to reduce the number of groups from 10 to eight. Annex G.

57. JPS 320, Early Sustained Bombing of Japan, 9 Nov. 1943. The code name TWILIGHT had been used by the CBI theater in its cable of 11 September to designate the Kweilin plan. The term was used loosely to describe any plan for basing B-29's in China until

its official adoption by the Joint Security Control limited it to the Kweilin plan (5 November 1943). The name MATTERHORN was officially accepted on 11 December, but to avoid confusion I have used those two terms throughout in their later significance only.

58. Memo, B. E. Meyers, AC/AS, MM&D to CG AAF, B-29 Program, 27 Oct. 1943, in AAG 452.1, A, B-29 Bombers.

59. JPS, 113th Mtg., 9 Nov. 1943.

60. JCS 600, VLR Airfields (B-29) in CBI Area, 11 Nov. 1943.

61. Memo, CG AAF to C/S, Early Sustained Bombing of Japan, 13 Nov. 1943, in D-2, Matterhorn.

62. CM-417 (10 Nov. 43), FDR to PM; CM-(number not known) (10 Nov. 43), FDR to CKS.

63. For China: CM-IN-8594 (14 Nov. 43), Chungking #876, 14 Nov. 43; for Great Britain: CCS 401/1, VLR Airfields, 23 Nov. 1943 (quotes CM from PM).

64. CM-OUT-3611 (9 Nov. 43), Aquila 3689, 9 Nov. 43; CM-OUT-4344 (11 Nov. 43), Ammisca #3815, 11 Nov. 43.

65. See Chap. VII.

66. Memo, CG AAF to AC/AS, OC&R, Wolfe Project, 8 Nov. 43, in D-2, Matterhorn.

67. See pp. 144 ff.

68. General Arnold, in the memo cited in note 66 above, directed that the stipulated actions be taken in view of the "probable approval of the Wolfe Project by necessary agencies within the next week."

69. Memo, S/JSP to S/JWPC, Early Sustained Bombing, 10 Nov. 1943, in PD 384.2, Japan.

70. JIC 148/M, Early Sustained Bombing, 13 Nov. 1943. This memo of request proposed certain general and certain specific questions, reference JPS 320. See also JIC 148/1/M, 13 Nov.

71. JIC 148/2, 17 Nov. 1943.

72. CM-OUT-7503 (19 Nov. 43), SEXTANT to Algiers, #570, 19 Nov. 43.

73. CM-OUT-8334 (20 Nov. 43), S/GS to SEXTANT, #1010, 20 Nov. 43.

74. CM-OUT-9388 (24 Nov. 43), Home Team to SEXTANT, #1061, 24 Nov. 43.

75. Wolfe to Arnold, Performance Tests of B-29 Airplane, 10 Nov. 1943, in D-2, Matterhorn; CM-OUT-2730 (6 Sep. 43), Arnold to Kuter.

76. CM-IN-15493 (25 Nov. 43), SEXTANT to Agwar, #1040.

77. CM-OUT-10506 (27 Nov. 43), SEXTANT #1099, 26 Nov. 43.

78. JWPC 129/2 (Purple Draft), 30 Nov. 1943.

79. CM-IN-1139 (2 Dec. 43), SEXTANT to Agwar, #10094, 2 Dec. 43.

80. CCS 397, Specific Operations for the Defeat of Japan, 18 Nov. 1943.

81. CCS 137th Mtg., 6 Dec. 1943; CCS 397/1, 23 Dec. 1943.

82. CCS 426/1, Report to the President and Prime Minister, 6 Dec. 1943.

83. CCS 417, Annex III, 2 Dec. 1943.

84. CCS 426/1, pars. 21, 25.

85. Memo for JSP, Plan DRAKE, with inclosure, SACSEA's Comments on DRAKE, 9 Feb. 1944, in D-2, Matterhorn.

86. See, for example, CM-OUT-4017 (11 Jan. 44), Arnold to Stratemeyer, #4254, 11 Jan. 44.

87. See pp. 162 ff.

88. CCS 397/1, 23 Dec. 1943, Appendix.

89. JWPC 147/D, Optimum Use, Timing, etc., 25 Nov. 1943.

90. CM-IN-626 (1 Dec. 43), SEXTANT #10008, 1 Dec. 43.

91. CCS 417, Over-all Plan for Defeat of Japan, 2 Dec. 1943. This report by CPS indicates that although preparations were in progress for airfields at Chengtu, study was being made on the possibilities of the Kweilin area.

92. Byron E. Gates, Brig. Gen. U.S.A.; Clayton Bissell, Maj. Gen. U.S.A., AC/AS, Intel.; H. C. Wick, Capt. U.S.N.; Thomas G. Lanphier, Col. G.S.C. (G-2); Malcolm W. Moss, Col. A.C. (A-2); Guido R. Perera, Col. A.C.; Moses W. Pettigrew, Col. G.S.C. (G-2); Francis Bitter, Comdr., U.S.N.R.; W. Barton Leach, Lt. Col. A.C.; A. E. Hindmarsh, Lt. Comdr. U.S.N.R.; Fowler Hamilton, F.E.A.; Edward S. Mason, O.S.S.; Edward M. Earle, Thomas W. Lamont, Clark H. Minor, Elihu Root, Jr., special consultants.

93. Report of Committee of Operations Analysts on Economic Objectives in the Far East, 11 Nov. 1943, p. 4. These included food, non-ferrous metals, petroleum, railway transportation, motor vehicles, machine tools and abrasives, electrical power, electrical equipment, shipbuilding, rubber, chemicals, arms and munitions, textiles. An analysis of each is given with reasons why they were not favored as targets. A copy of the report was found in the office of Maj. J. T. Lowe of AC/AS, Intelligence.

94. Ibid., p. 2.

95. Ibid., p. 3.

96. Ibid., p. 7.

97. Ibid., p. 6.

98. Early Sustained Bombing of Japan, JPS 320/1, 22 Dec. 1943, in PD 384.2, Japan. This is a memo for record analyzing the subject critique.

99. See p. 77.

100. JIC 152/M, Memo of Request, Optimum Use, etc., 4 Dec. 1943.

101. JIC 152/1, 6 Jan. 1943.

102. See n. 71 above.

103. Response to JIC 152/M, in JIC 152/1 file, Major Lowe's office.

104. Memo, AC/AS, Intel. to JIC, 12 Jan. 1943, in JIC 152/1. This action was initiated by a memo on the same subject to Gen. T. D. White, AC/AS, Intelligence, from Maj. J. T. Lowe, a member of the joint committee which had prepared the Response to JIC 152/M.

105. JIC 152/2, 18 Jan.; JIC 152/3, 25 Jan. 1943.

106. JPS 381, Optimum Use, etc., 24 Jan. 1944.

107. Memo to Holders of JPS 381, 24 Jan. 1944.

108. Memo, FSW/Wildman/ to Gen. Hansell, Optimum Use, etc., 1 Feb. 1944, in JIC 152 file.

109. JPS, 123d Mtg., 26 Jan. 1944.

110. Memo, Hansell to Joint Secretariat, Optimum Use, etc., 29 Jan. 1944, in JIC 152 file.

111. JPS, 127th Mtg., 9 Feb. 1944.

112. JPS 381/1, 15 Feb. 1944.

113. JPS, 128th Mtg., 16 Feb. 1944.

114. JCS 742, Optimum Use, etc., 2 March 1943.

115. See p. 42.

116. R&R, Attack on Matterhorn Counter-Offensive Project, 29 Jan. 1944, in D-2, Matterhorn. Drafts of several such memos were framed.

117. Division Digest, 4 Feb. 1944; memo, Gen. Kuter to CG XX Bomber Comd., Salina, 7 Feb. and memo, same subject, Gen. L. G. Saunders to Gen. Kuter, 11 Feb. 1944, in Wolfe Project file, AFAEP.

118. CM-IN-1443 (2 Feb. 44), GHQ SWPA to War, #C1217, 2 Feb. 1944. This was in answer to CM-OUT-3631, 30 Jan. 1944.

119. Teletype conference, Arnold-Richardson, 2 Feb. 1944.

120. Memo, Arnold to Giles, Conferences between General Arnold and Admiral Sherman, 6 Feb. 1944, in Asiatic Theater files, AFAEP.

121. R&R, Giles to Kuter, Conferences between General Arnold and Admiral Sherman, 8 Feb.; Kuter to Giles, 9 Feb. 1944, ibid.

122. AC/AS, Plans, Weekly Activity Report, 19 Feb. 1944.

123. JCS, 152d Mtg., 12 March 1944; JCS 713/4, Future Operations in the Pacific, 12 March 1944.

124. CM-IN-18550 (26 March 44), CINC SOWESPAC to WD, #10100, 26 March 44.

125. CM-OUT-14640 (26 March 44), War to CINC SOWESPAC, #14640, 26 March 44.

126. JCS 742/4, 27 March 1944.

127. JCS 742/6, VLR Bombers in the War Against Japan, 6 April 1944, with note: "Approved informally by JCS, 10 April 1944."

128. As late as 3 March the status report to the President on MATTERHORN had been based on the original assumption of eight groups. Memo, AC/AS, OC&R to AAF Liaison Officer to the White House, B-29 Project, 31 March 1944, in AAG 452.1, B, B-29 Bombers.

129. JPS, 117th Mtg., 22 Dec. 1943.

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Chapter VI

1. See p. 12.

2. The events connected with the formation of the RAF may be found in H. A. Jones, The War in the Air (a part of the "Official History of the /First World/ War"), VI (Oxford: 1937), pp. 1-27. For an appreciation of the causes leading to this reorganization, this chapter should be read against the background of the earlier volumes.

3. Ibid., VI, pp. 101-117. A separate volume, Appendices, contains the key documents concerning the organization of these air forces.

4. Heads of Agreement as to the Constitution of the Inter-Allied Independent Air Force, 3 Oct. 1918, ibid., p. 41.

5. William Mitchell, Winged Defense (New York: 1925), p. 30.

6. A brief evaluation of the ideas of these three theorists may be found in Edward Warner, "Douhet, Mitchell, Seversky: Theories of Air Warfare," in Edward M. Earle, Makers of Modern Strategy (Princeton: 1943), pp. 485-503. These men were prolific writers, but their chief ideas may be found in a few works: Giulio Douhet, The Command of the Air, translated by Dino Ferrari (New York: 1942); Alexander P. De Seversky, Victory through Air Power (New York: 1942); William Mitchell, Our Air Force: The Keystone of National Defense (New York: 1921); Winged Defense (New York: 1925); Skyways (Philadelphia: 1930). A critical and analytical study on Mitchell would constitute a very useful contribution to our understanding of American use of air power in this war. The "semi-official" biography, Emile Gavreau and Lester Cohen, Billy Mitchell (New York: 1942) is partisan and deals largely with the more spectacular aspects of his struggle in the 1920's. That by Isaac D. Levine, Mitchell, Pioneer of Air Power (New York: 1943) is better, but a more thorough study entailing an analysis of the roots of his ideas is needed. Certainly he must have been strongly influenced by European thought and practice, and the most original ideas he developed were those conditioned by the geographical and naval factors peculiar to this country.

7. Previous stages in the development had been the Aeronautical Division, Signal Corps (1907) and Aviation Section, Signal Corps (1914). The story of the legislative phases of the struggle in the United States for an independent air force may be found in the following AAF Historical Studies: No. 25, Organization of Military Aeronautics, 1907-35; No. 10, Organization of the Army Air Arm, 1935-43; and the forthcoming Organization of Military Aeronautics, 1935-45.

8. AR 95-5, 20 June 1941.

9. WD Circular #59, 2 March 1942.

10. The problems peculiar to command of the XXI Bomber Command will be discussed in a subsequent volume.

11. Par. 18 of AAF Plans, as cited in Chap. V, n. 38.

12. Memo for CG AAF, attached letter (Stratemeyer), 31 Oct. 1943, in WP-IV-C-1, China 1943, AFAEP.

13. See pp. 109 ff. The action which the JCS had initiated for the procurement of airfields in India had been that suggested by the AAF as in note 12 above. Nothing was said of command relations, but the process seemed to imply U. S. rather than combined control. See JCS 600, 11 Nov. and CCS 401, 18 Nov. 1943.

14. R&R, C/AS to AC/AS, Plans, Attack on Matterhorn Counter-Offensive Project, 29 Jan. 1944, in D-2, Matterhorn.

15. Memo, Arnold to C/AS, 20 Feb. 1944, in PD 384.3, Japan.

16. JPS 381/1, 15 Feb. 1944; see p. 82.

17. JCS 742 Optimum Use, etc., 2 March 1944.

18. JCS 742/1, 6 March 1944.

19. JCS 742/2, 6 March 1944.

20. JPS 381/3/D, 8 March 1943; JCS, 150th Mtg.

21. JCS 742/3, 16 March 1944; see pp. 122 ff.

22. JCS 742/4, 27 March 1944.

23. JCS, 155th Mtg., Minutes, 28 March 1944.

24. Daily Activity Report, C&JS Div., AFAEP, 29 March 1944.

25. Between 29 March and 1 April.

26. JCS 742/5, Command and Control of VLR Bombers in the War against Japan, 1 April 1944; JPS 381/5, 2 April; JCS 742/6, 6 April; and compare p. 88.

27. See pp. 83 ff.

28. CCS 501/4, 19 April 1944. [redacted]

29. CCS 501/5, Control of the Strategic Air Force (VLR), 19 May 1944.

30. JCS 742/8, App. A, 22 May 1944.

31. JCS 742/8, and App. B (the Draft Memo).

32. CCS 501/6, 31 May 1944.

33. History of the XX Bomber Comd., Third Phase, p. 38.

34. Memo, H. S. Hansell, Acting AC/AS, Plans, to All Officers, New Section to be added to Plans Division, 7 March 1944, in Col. Combs' personal 201 file. Col. J. W. Wilson and one other officer were to assist. Colonel Combs, who had had wide experience in the war against Japan, was called up from Orlando for this assignment.

35. Daily Activity Report, 31 March 1944.

36. AG (for S/W) to CG AAF, Constitution and Activation of the Headquarters, Twentieth Air Force, AG 322 (4 April 1944) OB-1-AFRPGM.

37. History of the XX Bomber Comd., Third Phase, pp. 89-94.

38. See chart following p. 106.

39. See chart following p. 107.

40. R&R, DC/AS and C/S, 20th AF to AC/AS, Plans, M&D, Personnel, Air Surgeon, Air Inspector, etc., Administrative Responsibilities, 20th Air Force, 8 April 1944, in 20th AF, Administrative Responsibility file.

41. Replies to this R&R are to be found in the same file.

42. Action Assignments, 20th AF Staff Meetings; First Meeting, 12 April; Meeting 20th AF, OPD, and Navy, in 20th AF files.

43. Memo, CG AAF to AC/AS, OC&R, Wolfe Project, 8 Nov. 1943, in D-2 Matterhorn.

44. GO #1, Hq. XX Bomber Comd., Smoky Hill Army Air Field, Salina, Kans., 27 Nov. 1943, in History of the XX Bomber Comd., Second Phase, Supporting Doc. #1.

45. For organizational charts of the command and its constituent elements, see ibid., #26-41.

46. Details on the command and organization in the CBI may be found in the following sources: The Tenth Air Force, 1 January-10 March 1943 (on command relations of the Tenth and Fourteenth Air Forces); History of USAAF, IBS, CBI; interview with Lt. Col. John B. Carey (pp. 5 & chart), WP-IV-C-1, China 1943; ltr., Maj. Edward E. Voynow to Gen. W. E. Farthing, 4 Jan. 1944 (a very lively account of firsthand impressions by a member of the advance echelon of the XX Bomber Command), in AAG 312.1, Opns. Ltrs.

47. CCS 308/3, South East Asia Command, 21 Aug. 1943.

48. GO #21, Rear Echelon USAF, 20 Aug. 1943, cited in History of USAAF, IBS, CBI, p. 14.

49. Ltr., Arnold to Stratemeyer, 28 Aug. 1943, ibid., App. I.

50. Memo, Stratemeyer to Arnold, Desired Decisions from SEXTANT Conference, 29 Nov. 1944; memo, Kuter to Arnold, Comments on General Stratemeyer's memo "Desired Decisions," 1 Dec. 1944, in AAG 312.1, Opns. Ltrs.

51. History of USAAF, IBS, CBI, p. 25. For organization, see chart following p. 112.

52. JPS 320, par. 13.

53. See, for example, memo, Giles to Arnold, attached letter (Stratemeyer) 31 Oct. 1943, and memo, Giles to Arnold, attached letter (Mountbatten), 1 Nov., WP-IV-C-1, China 1943, AFAEP. And cf. CM-IN-15125 (25 Oct. 43), Teheran to Agwar (Somervell to Marshall), #2810 KM 2683, 25 Oct. 43 (a summary of the command situation in the CBI, with recommendations, made after a visit by General Somervell).

54. Ltr., Stratemeyer to Giles, 15 Dec. 1943, in Asiatic Theater file, AFAEP.

55. Memo, Stratemeyer to Peirce, Organization of Eastern Air Command . . ., 14 Dec. 1943, in History of USAAF, IBS, CBI, App. I.

56. Ibid.

57. CM-OUT-1432 (5 Jan. 44), Ammisca #4203, 5 Jan. 44.

58. CM-IN-5429 (9 Jan. 44), Stilwell to Marshall, #23, 9 Jan. 44.

59. Memo, Lt. Col. A. L. Johnson to Col. Wolfinbarger, Command Relations, VLR Units, India-China, 13 Jan. 1944, in PD 384.2, Japan; and JCS 665, 15 Jan. (same title).

60. JCS 665/1, 18 Jan. 1944.

61. History of the XX Bomber Comd., Third Phase, pp. 40, 41. The text of GO #13 is found in Supporting Doc. II, A, #26.

62. Warning Order, XX Bomber Comd. to CG 14th AF, by command of Gen. Stilwell, Gen. G. E. Stratemeyer, Air Adviser to CG USAF CBI, 1 Feb. 1944; and Letter Order, HQ AF CBI, Office of Air Adviser, Subject: XX Bomber Command, 1 Feb. 1944, in Asiatic Theater file.

63. CM-IN-15128 (23 Jan. 44), Stratemeyer to Arnold, W208, 23 Jan. 44.

64. Ltr., Stratemeyer to Arnold, 3 Feb. 1944, in Asiatic Theater file.

65. Ltr., Chennault to Arnold, Matterhorn Project, 26 Jan. 1944, in D-2, Matterhorn.

66. See notation on letter cited in note 65: "Gen. Kuter. This looks like another one of Chennault's independent thoughts and ideas--with no coordination with Hdqr. He has already expressed these sentiments to CKS who sent them here. HHA."

67. History of XX Bomber Comd., Third Phase, p. 41; Text of GO #16 is found in Supporting Doc. II, A, #25.

68. CG AAF IBS to CG XX Bomber Comd., Letter of Instructions, 22 Feb. 1944, in AAF IBS 322, in History of USAAF, IBS, CBI, Appendix.

69. CM-IN-16362 (20 Feb. 44).

70. See p. 115.

71. CCS 426/1, par. 25, 6 Dec. 1943.

72. CM-IN-3490 (6 Jan. 44), Sultan to Marshall, AG 88, 6 Jan. 44; CM-IN-5998 (9 Jan. 44), Stilwell to Marshall, AG 163, 9 Jan. 44.

73. History of XX Bomber Comd., Third Phase, p. 40.

74. SEACOS 105, SACSEA to /British/ Chiefs of Staff, rpt., JSM Washington, 26 Feb. 1944, quoted in CCS 501, 28 Feb. Mountbatten had received the GO on the 26th.

75. CM-IN-1832 (26 Feb. 44), New Delhi to Agwar, Ammdel AG 1209, 26 Feb. 44.

76. CCS 501, Method of Control, 20th Bomber Command, 28 Feb. 1944.

77. BJSM-CCS A/M W. L. Welsh to Arnold, 1 March 1944 (relaying Portal's message); and reply, Arnold to Welsh, 6 March, in AAG 300-B, CBI.

78. CM-IN-3199 (5 March 44), New Delhi to Agwar, Aquila W 635, 5 March 44.

79. CM-OUT-2115 (6 March 44), Ammisca #4685, Arnold to Stilwell for Stratemeyer, Wolfe, Kuter, 5 March 44.

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(AFR 190-16)

80. JCS 742, par. 13b; see p. 83.

81. JCS 747, Method of Control, 20th Bomber Command, 6 March 1944.

82. CCS 501/1, 7 March 1944.

83. CM-OUT-3058 (8 March 44), Ammisca #4701, 7 March 44.

84. CCS 501/2, 24 March 1944.

85. CM-OUT-14270 (25 March 44), Marshall to Stilwell, WARX 14270, 25 March 44; CM-IN-19445 (27 March 44), COSSEA 83, COS to SACSEA, 27 March 44.

86. CM-IN-15708 (22 March 44), CG USAF CBI, RE #CR 39, Sultan to Marshall, 22 March 44.

87. See p. 101.

88. CM-OUT-18613 (4 April 44), OPD 384TS, 3 April 44.

89. CM-OUT-25553 (20 April 44), WARX 25553, 19 April 44. The chart following page 126 illustrates the position of the XX Bomber Command in the CBI.

90. CM-OUT-25703 (20 April 44), JCS to Stilwell, WARX 25703, 20 April 44.

91. CCS 501/4, 19 April 1944.

92. See pp. 104 ff.

93. Ltr., Chennault to Stilwell, 8 April 1944, in Asiatic Theater file.

94. Memo, Marshall to President, 11 April 1944, in PD 384.3, Japan.

95. Memo, Capt. C. C. Wood to Marshall, 12 April 1944 (inclosing copy of cable), ibid.

96. R&R, C/AS to AC/AS, Plans, Report on 14th Air Force, 16 April 1944, in WP-IV-C-1, China 1943.

97. Memo for C/S, Operations and Cost of Supporting the 14th Air Force, ibid.

98. Announcements from General Marshall and General Arnold, in New York Times, 16 June 1944.

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1. See pp. 51 ff.
2. See p. 56.
3. CM-IN-9027 (11 Sep. 43), Aquila 2106 TA, 11 Sep. 43.
4. CM-IN-19022 (31 Oct. 43), New Delhi to Agwar, W2542, 31 Oct. 43.
5. See pp. 144 ff.
6. JPS, 113th Mtg., 9 Nov. 1943.
7. JCS 600, VLR Airfields (B-29) in CBI Area, 11 Nov. 1943. Why this date was set, or why the India bases were reduced from five to four, is not apparent.
8. CM-OUT-417 (10 Nov. 43), President to PM; CM (number unknown) (10 Nov. 43), President to CKS, quoted in ltr., Giles to Arnold, 24 Nov. 1943, in Wolfe Project file, AFAEP.
9. CM-IN-19022 (31 Oct. 43), New Delhi to Agwar, W2542, 31 Oct. 43.
10. CM-IN-2748 (5 Oct. 43), Ammdel AG 2088, 3 Oct. 43.
11. CCS 401/1, VLR (B-29) Airfields in the CBI Area, 23 Nov. 1943. This quotes the Prime Minister's reply which had gone out earlier, perhaps on the 10th or 11th.
12. CM-IN-8594 (14 Nov. 43), Chungking to Agwar, #876, 14 Nov. 43. General Stilwell had been informed of the President's cables. CM-OUT-4344 (11 Nov. 43), Ammisca, #3815, 11 Nov. 43.
13. CCS 401, VLR Airfields (B-29) in the CBI Area, 18 Nov. 1943.
14. CCS 401/1, 23 Nov. 1943.
15. CCS 397, par. 7; CCS 426/1, Report to the President and Prime Minister, 6 Dec. 1943 (approving CCS 397).
16. CCS 401/2, 6 Dec. 1943.
17. CM-IN-9027 (11 Sep. 43), Aquila 2106 TA, 11 Sep. 43.
18. CM-OUT-10738 (17 Nov. 43), Stilwell to Agwar, AG 2882, 17 Nov. 43.
19. CM-IN-2691 (4 Dec. 43), New Delhi to Agwar, 4 Dec. 43.

20. Memo, Brig. Gen. h. A. Craig, AC/AS, OC&R to Gen. Perrin, DC/AS, Status of Matterhorn Project, 25 Dec. 1943, in AAG 452.1.

21. History of the XX Bomber Comd., Third Phase, pp. 47 ff.

22. CM-IN-8578 (14 Jan. 44), Stratemeyer to Arnold, W111, 14 Jan. 44.

23. CM-IN-16635 (25 Jan. 43), Stratemeyer to Arnold, W237, 25 Jan. 43.

24. CM-IN-2548 (4 March 44), Aquila W624, 4 March 44.

25. CM-IN-18263 (26 March 44), CG AAF IBS to WD, W870, 25 March 44.

26. History of the XX Bomber Comd., Fourth Phase: The Transport Project, p. 20.

27. CM-IN-9807 (14 Feb. 44), New Delhi to War, W421, 13 Feb. 44.

28. CM-IN-18620 (26 Feb. 44), Sultan to Marshall, AG 1193, 26 Feb. 44.

29. CM-IN-9934 (14 March 44), Aquila W741, 14 March 44.

30. CM-OUT-17231 (1 April 44), Arnold to Stratemeyer, WARX 17231, 27 March 44.

31. CM-OUT-21670 (11 April 44), Arnold to Stratemeyer, WARX 21670, 11 April 44.

32. CM-IN-9165 (13 April 44), Stratemeyer to WD, CABX 415, 13 April 44.

33. CM-IN-8800 (13 Nov. 43), Aquila W2643, 13 Nov. 43.

34. The theater had originally requested Brig. Gen. D. A. Davidson, who was not available. CM-IN-10342 (17 Nov. 43), Ammdel AG 2878, 17 Nov. 43; CM-OUT-6760 (17 Nov. 43), #3736, 17 Nov. 43; CM-OUT-9550 (24 Nov. 43), Ammisca 3911, 24 Nov. 43; CM-IN-10338 (16 Dec. 43), New Delhi to ATC, W2913, 16 Dec. 43.

35. CM-IN-14434 (24 Nov. 43), Ammdel W2717, 23 Nov. 43.

36. CM-OUT-8486 (21 Nov. 43), SEXTANT 1015, 21 Nov. 43; CM-OUT-2214 (6 Dec. 43), Aquila 3915, 6 Dec. 43.

37. See p. 142.

38. The actual construction is admirably described in Colonel Seeman's Final Report, B-29 Bases in India, Construction Service, SOS, USAF CBI, Nov. 1944 (pp.42 and charts), in office of the Air Engineer. This report forms the basis of much of the description in the following section and is hereinafter cited as Final Report.

39. B-29 Project, Reference Data (n.d. but about 7 Nov. 1943), in D-2, Matterhorn.

40. JPS 320, App. A, 9 Nov. 1943.

41. Memo, CG AAF to AC/AS, OC&R, Wolfe Project, 8 Nov. 1943, in D-2, Matterhorn.

42. JPS, 113th Mtg., 9 Nov. 1943.

43. Memo, CG AAF to C/S, Early Sustained Bombing of Japan, 13 Nov. 1943, in D-2, Matterhorn. This would involve shipping for 4,088 men, for 7,204 tons OE, 14,786 tons construction supplies, and 1,075 tons POL.

44. JCS 600/2; JCS, 124th Mtg., 17 Nov. 1943.

45. CM-IN-12478 (20 Nov. 43), SEXTANT NCR 8143, 20 Nov. 43; CM-OUT-8237 (20 Nov. 43), SEXTANT 1009, 20 Nov. 43.

46. CM-IN-15448 (25 Nov. 43), SEXTANT 10037, 25 Nov. 43.

47. CM-OUT-10879 (27 Nov. 43), SEXTANT 1113, 26 Nov. 43.

48. CM-OUT-3611 (9 Nov. 43), Ammisca 3800, 9 Nov. 43.

49. CM-IN-12066 (19 Nov. 43), Ammdel 2912, 18 Nov. 43; CM-IN-12350 (20 Nov. 43), Ammdel 2920, 20 Nov. 43; CM-OUT-8650 (22 Nov. 43), Aquila 4419, 22 Nov. 43.

50. CM-OUT-10177 (26 Nov. 43), Ammdel 4506, 25 Nov. 43; CM-OUT-10880 (27 Nov. 43), Ammdel 4538, 27 Nov. 43.

51. CM-IN-110 (1 Dec. 43), Ammdel 3085, 30 Nov. 43.

52. CCS 401/2, 6 Dec. 1943.

53. CM-OUT-1233 (3 Dec. 43), Ammdel 4669, 3 Dec. 43.

54. CM-OUT-4004 (20 Nov. 43), Ammisca 3809, 20 Nov. 43.

55. CM-IN-17764 (28 Nov. 43), Aquila W2755, 28 Nov. 43; memo, Gen. Lutes to CG ASF, Supplementary Report from CBI, 25 Dec. 1943, in D-2, Matterhorn.

56. CM-IN-13569 (22 Nov. 43), Aquila W2696, 22 Nov. 43.

57. CM-IN-15435 (24 Dec. 43), Ammdel 3517, 24 Dec. 43; CM-IN-15594 (25 Dec. 43), Tigar 1344, 24 Dec. 43; CM-OUT-9765 (26 Dec. 43), Ammdel 5129, 26 Dec. 43.

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58. Memo, Lutes to CG ASF as in n. 55 above.

59. CM-IN-16659 (27 Dec. 43), Aquila 3020, 27 Dec. 43.

60. CM-OUT-9949 (27 Dec. 43), Ammisca 4140, 28 Dec. 43; CM-IN-987 (2 Jan. 43), Stilwell to Marshall.

61. CM-OUT-1222 (4 Jan. 44), Marshall to Stilwell, 4198, 4 Jan. 44; CM-IN-6259 (10 June 44), Sultan to Marshall, AG 172, 10 Jan. 44; CM-IN-6334 (10 Jan. 44), Wedemeyer to Marshall, #97, 10 Jan. 44.

62. CM-IN-3490 (6 Jan. 44), Sultan to Marshall, AG 88, 6 Jan. 44.

63. CM-OUT-4954 (13 Jan. 44), Ammdel 5559, 12 Jan. 44.

64. JCS 600/3, 15 Jan. 1944.

65. Memo, Kuter to Arnold, Implementation of Matterhorn, 1 Jan. 1944, in D-2, Matterhorn; memo, Col. W. L. Wolfinbarger to Col. Johnson, Airfield Construction in Calcutta Area, 17 Jan., in PD 384.3, Japan.

66. Memo, Arnold to C/S, Matterhorn Airfield Construction in Calcutta (written 15 Jan. 1944), in AFAEP, Matterhorn file.

67. Memo, Lt. Col. P. L. Freeman to Col. Todd, Comments on JCS Paper, VLR Airfields in the CBI Area, 20 Jan. 1944, in PD 384.3, Japan.

68. CM-IN-10519 (16 Jan. 44), Sultan to Arnold, W146, 16 Jan. 44.

69. CM-IN-12986 (20 Feb. 44), Stratemeyer to Arnold, W176, 20 Feb. 44; CM-IN-15128 (23 Jan. 44), Stratemeyer to Arnold, W208, 23 Feb. 44.

70. CM-IN-16635 (25 Jan. 44), Stratemeyer to Arnold, W237, 25 Jan. 44.

71. Memo, Gen. Kuter to Strategy and Policy Sec., OPD, Aviation Engineer Battalions for Matterhorn (written 5 Feb. 1944), and inclosed correspondence, in D-2, Matterhorn.

72. CM-IN-18620 (20 Feb. 44), Sultan to Marshall, AG 1193, 26 Feb. 44.

73. CM-OUT-12416 (29 Feb. 44), Marshall to Sultan, 6654, 29 Feb. 44.

74. CM-IN-10766 (15 March 44), Ammdel AG 1565, 15 March 44.

75. CM-OUT-17231 (1 April 44), Arnold to Stratemeyer, WARX 17231, 27 March 44.

76. CM-OUT-21670 (11 April 44), Arnold to Stratemeyer, WARX 21670, 11 April 44.

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77. CM-IN-15155 (22 Feb. 44), New Delhi to WD 509, 22 Feb. 44.

78. CM-IN-6259 (10 Jan. 44), Sultan to Marshall, AG 172, 10 Jan. 44.

79. The Final Report lists the other units and their specific jobs but does not mention the 879th. Data on sailing dates and on assignment to the theater for the several units are given in the files of the Unit Records Branch of OC&R, but the particular job assignments are not listed. The statement is frequently made that Stilwell loaned two battalions from Ledo to MATTERHORN; the cables cited in the text above say one "reinforced" battalion (1,100 men). Whether this included the bulk of the personnel of the other unit, or whether the 853d constituted the second battalion referred to is not clear.

80. Memo, Col. Rosenblatt to C/S, 20th AF, Status of Airfields in CBI, 18 July 1944, in 20th AF files, 686, Airfields.

81. Final Report, p. 8. Most of this and the subsequent section is taken from this report which gives a clear analysis of constructional problems and methods, although it is not particularly concerned with the chronological sequence of events.

82. CM-OUT-9942 (24 Nov. 43), Ammdel 4490, 24 Nov. 43.

83. CM-IN-5843 (9 Jan. 44), Stratemeyer to Arnold, W80, 9 Jan. 44.

84. For this whole project, see Final Report, pp. 12-13, 34-35.

85. CM-IN-18559 (26 Feb. 44), Aquila W568, 26 Feb. 44.

86. CM-OUT-1234 (3 Dec. 43), Aquila 3890, 3 Dec. 43.

87. CM-IN-5843 (9 Jan. 44), Stratemeyer to Arnold, W80, 9 Jan. 44.

88. Final Report, p. 40.

89. CM-IN-12900 (21 Nov. 43), Tigar GW 1160, 20 Nov. 43; CM-IN-13730 (22 Nov. 43), New Delhi to ASC, W895, 22 Nov. 43.

90. CM-IN-16925 (24 Feb. 44), SACSEA to C/S, SEACOS 103, 23 Feb. 44.

91. Final Report, p. 26.

92. CM-IN-403 (1 Dec. 43), Tigar 1221, 1 Dec. 43; CCS 401/3, 2 Jan. 44. Other materials which had to be imported were dynamite and joint seal.

93. In mid-February it was considered the "worst construction problem." CM-IN-9807 (14 Feb. 44), New Delhi to WD, W421, 14 Feb. 44.

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94. Final Report, pp. 26-27.

95. Ibid., pp. 27-32.

96. For a description of the readying of this building for use, see History of the XX Bomber Comd., Third Phase, pp. 47-64.

97. Final Report, pp. 13-15.

98. Ibid., p. 4.

99. Brooks Atkinson, in New York Times, 17 June 1944, article dated from the Chengtu area, 9 June, and released after the first Yawata mission.

100. On all this, see pp. 66 ff.

101. For a general description of the valley, see W. C. Lowdermilk, "China Fights Erosion with U. S. Aid," National Geographic, LXXXVII (June 1945), pp. 641-81; and a very well-written appreciation by the historian of the XX Bomber Command, in History of the XX Bomber Comd., Fourth Phase: The Forward Area, pp. 3-9 (hereinafter cited as Forward Area).

102. CM-OUT-10738 (17 Nov. 43), Stilwell to Agwar, AG 2882, 17 Nov. 43.

103. CM-IN-1359 (22 Nov. 43), New Delhi to War, W2696, 22 Nov. 43; CM-IN-17764 (28 Nov. 43), New Delhi to Agwar, 28 Nov. 43.

104. CM-IN-2691 (4 Dec. 43), New Delhi to Agwar, W2807, 4 Dec. 43.

105. Ltr., Stratemeyer to Arnold, 5 Jan. 1943, in Asiatic Theater file, AFAEP.

106. CM-IN-12401 (19 Dec. 43), New Delhi to Agwar, #2945, 19 Dec. 43.

107. CM-IN-550 (1 Jan. 44), New Delhi to Agwar, W-2, 1 Jan. 44.

108. History of XX Bomber Comd., Third Phase, pp. 23, 35.

109. CM-IN-5843 (9 Jan. 44), Stratemeyer to Arnold, W80, 9 Jan. 44. This was two weeks later than Chinese officials had estimated.

110. CM-OUT-6080 (15 Jan. 44), Arnold to Stratemeyer, 4311, 15 Jan. 44, in reply to Stratemeyer's W124, 14 Jan.

111. CM-IN-5843 (9 Jan. 44), Stratemeyer to Arnold, W80, 9 Jan. 44. Fields under consideration were: Liuchow, Li Chia Chen and Sinchêng (Kwangsi Province) and Chengkung near Kunming.

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(AGF 190-16)

112. CM-OUT-4017 (11 Jan. 44), Arnold to Stratemeyer, 4254, 11 Jan. 44.

113. CM-IN-8578 (14 Jan. 44), Stratemeyer to Arnold, W111, 14 Jan. 44.

114. CM-IN-12384 (19 Jan. 44), Stratemeyer to Arnold, W164, 19 Jan. 44.

115. Ltr., Chennault to Arnold, 26 Jan. 1944, in D-2, Matterhorn.

116. CM-OUT-7878 (20 Jan. 44), Arnold to Stilwell 855, 20 Jan. 44.

117. CM-IN-15128 (23 Jan. 44), Stratemeyer to Arnold, W208, 23 Jan. 44; CM-IN-15156 (23 Jan. 44), Stilwell to Marshall, #56, 23 Jan. 44.

118. Airfields in Unoccupied China, Engineer Sec., 14th AF, 20 July 1944, in Office of the Air Engineer.

119. Airfields in China, Engineer Sec., 14th AF, 30 Nov. 1944, ibid.

120. CM-IN-10738 (17 Nov. 43), Stilwell to Agwar, AG 2882, 17 Nov. 43.

121. CM-OUT-5798 (15 Nov. 43), Ammdel 4538, 15 Nov. 43.

122. For example, a requisition was filed for a soils expert in China to advise concerning the siting of the airdromes. CM-IN-16754 (27 Nov. 43), Tigar 1199, 27 Nov. 43.

123. CM-IN-8594 (14 Nov. 43), Chungking to Agwar, 876, 14 Nov. 43; CM-IN-10174 (17 Nov. 43), COGUA W64.Q, 17 Nov. 43; CM-IN-10738 (17 Nov. 43), Stilwell to Agwar, AG 2882, 17 Nov. 43; CM-IN-13090 (21 Nov. 43), New Delhi to Agwar, W2690, 20 Nov. 43; CM-IN-14434 (24 Nov. 43), New Delhi to Agwar, W2717, 23 Nov. 43.

124. CM-IN-17578 (28 Nov. 43), Aquila 2761, 28 Nov. 43.

125. CM-OUT-311 (1 Dec. 43), Aquila 3865, 1 Dec. 43; CM-OUT-2214 (6 Dec. 43), Aquila 3915, 6 Dec. 43.

126. CM-IN-9585 (15 Dec. 43), Aquila W2908, 15 Dec. 43. Current estimates were then set at 57/75.

127. CM-IN-16398 (26 Dec. 43), Aquila W3002, 26 Dec. 43. A week earlier General Arnold had tried to get a definite list of specialists needed and had inquired if they could be furnished by the CBI. CM-OUT-7485 (19 Dec. 43), Arnold to Stratemeyer, #44, 19 Dec. 43. The final figure was set at 57/65, plus a headquarters organization.

128. CM-OUT-11552 (31 Dec. 43), Arnold to Stratemeyer, 4148, 31 Dec. 43.

129. CM-IN-15128 (23 Jan. 44), Stratemeyer to Arnold, W208, 23 Jan. 44.

130. Forward Area, p. 14.

131. Ibid., pp. 14-18.

132. CM-IN-550 (1 Jan. 44), New Delhi to Agwar, W2, 1 Jan. 44; CM-IN-351 (1 Jan. 44), Chungking to Agwar.

133. Forward Area, pp. 16, 17.

134. Forward Area, p. 15. The following assignments were made: Kwanghan, 65,000; Pengshan, 58,000; Kiunglai, 48,000; Hsinching, 23,000; Pengchacen, 7,500; Shwangliu, 6,000; Fungwangshan, 3,000--a total of 210,500.

135. Ltr., Godfrey to Col. George Mayo, 8 Jan. 44, in AAG 312.F, Opns. Ltrs.

136. Forward Area, p. 16.

137. Ibid., pp. 18-20.

138. On the local distrust of the U. S. project, see excerpts from a report of 28 February by Mr. J. S. Service of the State Department, quoted in History of the XX Bomber Command, Third Phase, pp. 161-65.

139. Memo, Col. F. K. Newcomer to General Somervell, Airfield Construction in China, 10 April 1944, 20th AF files, 686, Airfields.

140. CM-IN-1648 (3 Dec. 43), Ammisca 910, 3 Dec. 43; CM-IN-7000 (11 Dec. 43), Ammisca 927, 11 Dec. 43.

141. CM-IN-11893 (19 Dec. 43), Chungking to Agwar, 946, 19 Dec. 43.

142. CM-IN-15685 (25 Dec. 43), Aquila 2944, 25 Dec. 43; ltr., Arnold to Stratemeyer, 27 Dec. 1943, in AAG 312.1, G, Opns. Ltrs.

143. CM-OUT-8195 (19 Dec. 43), Ammisca 4100, 19 Dec. 43; Memo for the Record, 20 Dec. 1943, in D-2, Matterhorn.

144. CM-IN-351 (1 Jan. 44), Chungking to Agwar, #1, 1 Jan. 44.

145. CM-OUT-1223 (4 Jan. 44), Marshall to Stilwell, 4199, 4 Jan. 44; CM-IN-4645 (8 Jan. 44), Stilwell to Marshall, AG 16, 7 Jan. 44.

146. CM-IN-6471 (10 Jan. 43), Chiang Kai-shek to Marshall for FDR, #25; CM-IN-8835 (14 Jan. 44), Stratemeyer to Marshall, W116, 14 Jan. 44.

147. CM-IN-3024 (5 Feb. 44), Chungking to Agwar, #86, 4 Feb. 44; CM-IN-9208 (13 Feb. 43), Hearn to Somervell.

148. Ltr., Voynow to Farthing, 4 Jan. 194[illegible], in AAG 312.1, Opns. Ltrs.

149. See p. 162.

150. CM-IN-13539 (21 Jan. 44), Chungking to Agwar, #46, 19 Jan. 44.

151. CM-IN-3024 (5 Feb. 44), Chungking to Agwar, #86, 4 Feb. 44.

152. CM-IN-4096 (6 March 44), Aquila W649, 6 March 44.

153. Forward Area, p. 62.

154. History of the XX Bomber Comd., Third Phase, p. 162.

155. Forward Area, p. 18.

156. New York Times, 17 June 1944.

157. CM-IN-10174 (17 Nov. 43), COGUK W644G, 17 Nov. 43.

158. CM-OUT-6748 (17 Nov. 43), COGUA 610, 17 Nov. 43.

159. Data taken from Airfields in Unoccupied China, 20 Feb. 1944.

160. Most of the details are from the account in Forward Area, pp. 10-22. A number of good photographs in this study illustrate graphically the construction methods.

161. CM-IN-6334 (10 Jan. 44), Wedemeyer to Marshall, #97, 10 Jan. 44.

162. CM-IN-8104 (12 March 44), Aquila W719, 11 March 44.

163. CM-IN-9934 (14 March 44), Aquila W741, 14 March 44.

164. Memo, Col. F. K. Newcomer to General Somervell, Airfield Construction in China, 10 April, in 20th Air Force files, 686, Airfields; CM-IN-11079 (15 April 44), Stratemeyer to WD, 729A, 15 April 44; CM-IN-12716 (18 April 44), Chennault to WD, CATX 908, 17 April 44.

165. Forward Area, pp. 20, 21.

166. Division #1 Engineer, SOS USAF CBI to Air Engineer, CBI, ASC, Weekly Progress Report, 18 May 1944, in 20th AF files, 686, Airfields.

167. CM-IN-7262 (11 March 44), Kunming to WD, W59, 10 March 44.

168. Forward Area, p. 22.

169. See p. 82.

170. CM-OUT-2115 (6 March 44), Ammisca 4685, 5 March 44.

171. Air Estimate and Operations Plan for Matterhorn, July 1944, in 20th AF files, Matterhorn Opns.

172. Ceylon Airfields, Heavy Bomber Type: Source, Air Vice Marshal Loore, 7 Dec. 1943 (SEXTANT), in JIC file in Col. Lowe's office.

173. CM-IN-3162 (5 March 44), Aquila W634 RACS, 5 March 44.

174. See p. 121.

175. CM-IN-11904 (17 March 44), Kuter to Arnold, W161 RG, 17 March 44.

176. CM-IN-20648 (29 March 44), Kuter to Arnold from SOWESPAC hq., AX30385, 28 March 44. Kankesanturai and Katunayake seem likely to have been the two unidentified fields mentioned in note 172 above. Kuter had been briefed on the Ceylon situation while still in India, where those two fields had been considered acceptable though less desirable tactically than others situated farther south. Memo, Lt. Col. F. S. Wildman to Gen. Kuter, 22 March 1944, in D-2, Matterhorn.

177. CM-IN-21136 (29 March 44), Aquila W903, 29 March 44.

178. CM-IN-13636 (19 April 44), Stratemeyer to WD, CABX 618, 18 April 44.

179. CCS 401/5, 21 April 1944.

180. CM-IN-1747 (3 May 44), Stratemeyer to WD, 873, 29 April 44; CCS 401/6, 8 May 1944; JCS 600/5, 12 May 1944.

181. CM-IN-3899 (5 May 44), Stratemeyer to WD, CABX 997, 5 May 44.

182. Memos, Col. Rosenblatt to C/S, 20th AF, Status of Airfields in CBI, 18 July and 5 August, in 20th AF files, 686, Airfields.

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Chapter VIII

1. JIC 152/1, Optimum Use, etc., 6 Jan. 1944.

2. Although this judgment concerning Chengtu was correct, the current choice of areas available in the winter of 1943-44 was not attractive. Of the areas considered in the subject study, each had some serious flaws: the location and the weather of the Aleutians were bad; the Marianas would not be ready for operations until autumn 1944; Calcutta and Port Moresby were too far from the inner zone; the same was true of Darwin and Broome, and supply in those areas would be very difficult. As a Navy planner said of those places, "Logistic support is a terrific problem as there are no ports in Northern Australia, nor is there a railroad across the continent." JCS 123d Mtg., 15 Nov. 1943.

3. Report of the Commanding General of the Army Air Forces to the Secretary of War (4 Jan. 1944), p. 39.

4. This chapter owes much in the way of concept, information, and basic design of some charts to the History of the XX Bomber Command, Fourth Phase, Study No. 2, the Transport Project (hereinafter cited as Transport Project). Statistical information is derived partly from that study, partly from data compiled by the XX Bomber Command's Statistical Section in its Digest of Operations, 31 December 1944. For the various supply routes serving the XX, see the chart following page 179.

5. CCS 323, Incl. A, 20 Aug. 1943.

6. CM-IN-9027 (11 Sep. 43), Aquila 2106 TA, 11 Sep. 43.

7. This document, printed out by hand (for lack of a typewriter or for security?), was dated at Fourteenth Air Force Headquarters on 3 September 1943. Bearing no title save "Plan," it was initialed by Chennault, Harman, and Beebe, and later on 10 September by Stratemeyer. The original is filed with a copy of Wolfe's plan, as cited below in note 8.

8. A Plan for the Employment of the B-29 Against Japan Proper, Exhibits C and D, in Transport Project, Supporting Docs.

9. JPS 320, 9 Nov. 1944, par. 7.

10. CCS 391/1, par. 7.

11. CM-IN-4530 (7 Dec. 43), SEXTANT to Giles, 10158, 7 Dec. 43.

12. See pp. 144 ff.

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13. CM-IN-110 (1 Dec. 43), Ammdel AG 3085, 30 Nov. 43.

14. JPS 320, App. B, Shipping Requirements by months at Calcutta:

Month	Troop Lift	Dry Cargo (Short Tons)	Port Facilities	POL Short tons
Nov. 1943	None	None	Available	None
Dec.	None	None	Available	None
Jan. 1944	4,439	22,548	Available	1,075
Feb.	4,888	24,320	Available	1,095
March	7,060	35,701	Available	1,095
April	3,888	41,670	Available	20,147
May		36,712	Available	20,631
June		41,332	Available	26,831
July	4,660	24,712	Available	26,831
Aug.	4,660	29,592	Available	40,342
Sep.	4,660	29,592	Available	40,342
Oct.		27,836	Available	42,602
Nov.		27,836	Available	42,602
Dec.		27,836	Available	42,602

15. JCS 130th Mtg., 6 Dec. 1943.

16. CCS 428 (Revised), Relation of Available Resources to Agreed Operations.

17. CM-OUT-2209 (6 Dec. 43), Ammisca 3990, 6 Dec. 43; CM-OUT-2529 (7 Dec. 43), Ammdel 4739, 7 Dec. 43; CM-OUT-8157 (21 Dec. 43), War to Stilwell, 4056, 21 Dec. 43.

18. CM-IN-4303 (7 Dec. 43), SEXTANT to Agwar, 10152, 7 Dec. 43.

19. Ibid.

20. CM-OUT-8157 (21 Dec. 43), War to Stilwell, 4056, 21 Dec. 43.

21. Memo, Brig. Gen. H. A. Craig, OC&R to DC/AS, Status of Matterhorn Project, 25 Dec. 1943, in Air AG, SA3, 452.1.

22. Ltr., Maj. F. A. Thomas, Jr., A-4, to Gen. Wolfe, 15 Jan. 1944, in History of XX Bomber Comd., 27 Nov. 1943-31 Jan. 1944, Supporting Doc. #14.

23. Daily Activity Report, AFAEP, 8 Feb. 1944.

24. CM-OUT-8383 (19 Feb. 44), Aquila 4694, 19 Feb. 44.

25. Ibid.

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26. Information contained in this paragraph is digested from a large number of unit histories for February-May 1944. Those of the 16 bomb maintenance squadrons are particularly full of information on the voyage.

27. History of XX Bomber Comd., April 1944, p. 2; Station History of 10 May 1944 in Transport Project, Supporting Doc. #3.

28. CM-OUT-8157 (21 Dec. 43), Arnold to Stratemeyer, 4056, 21 Dec. 43; CM-IN-15468 (24 Dec. 43), Aquila W2988, 24 Dec. 43; CM-OUT-9755 (25 Dec. 43), Aquila 4107, 25 Dec. 43; CM-OUT-1560 (5 Jan. 44), Ammisca 4205, 5 Jan. 44; CM-IN-8970 (14 Jan. 44), New Delhi to CG AAF, W-113, 13 Jan. 44.

29. Memo, Arnold to CG ATC, ATC Requirements for Matterhorn Project, 7 Feb. 1944, in D-2, Matterhorn.

30. CM-OUT-2676 (6 Feb. 44), Ammdel 6125, 6 Feb. 44; CM-IN-9483 (14 Feb. 44), Ammdel 940, 13 Feb. 44.

31. CM-OUT-8383 (19 Feb. 44), Aquila 4694, 19 Feb. 44.

32. A long description of this movement, based in part on personal experience, may be found in History of the XX Bomber Command, Third Phase, pp. 73-88.

33. CM-OUT-4155 (10 Feb. 44), Aquila 4579, 9 Feb. 44; CM-IN-8908 (13 Feb. 44), Ammdel AG 921, 12 Feb. 44; CM-OUT-8151 (19 Feb. 44), Ammdel 6418, 18 Feb. 44.

34. CM-OUT-10312 (24 Feb. 44), Ammdel 6542, 24 Feb. 44.

35. CM-IN-19178 (27 Feb. 44), Ammdel AG 1237, 27 Feb. 44.

36. CM-OUT-390 (1 March 44), Aquila 4824, 1 March 44.

37. History of North African Wing, ATC, May 1944, pp. 21-22.

38. CM-OUT-6275 (15 March 44), Aquila 5021, 13 March 44.

39. CM-IN-16401 (23 March 44), Aquila W836 RAOX 23 March 44; CM-OUT-13787 (24 March 44), Arnold to Stratemeyer, WARX 13787, 24 March 44.

40. See pp. 212 ff.

41. History of North African Wing, ATC, June 1940, p. 34.

42. 20th Air Force Staff Action Assignments, 25 May 1944, in 20th AF files, 319.1 Reports.

43. Memo, Gen. George to CG North African Div., Shipments to XX Bomber Command, 29 Aug. 1944, in ATC files, 322 XX B.C.

44. Memo, Gen. George to CG North African Div., Control Procedures, XX Bomber Command, 14 July 1944, ibid.

45. OC&R Diary, 28 June 1943.

46. History of the XX Bomber Comd., 27 Nov. 1943-31 Jan. 1944, pp. 52-54.

47. See p. 67.

48. JCS 113th Mtg., 9 Nov. 1943.

49. History, as in n. 46, pp. 48-49.

50. AC/AS, MM&D to AC/AS, OC&R, Modified B-29's for the 58th Bomb Wing (Vh), 13 Jan. 1944, in AFAEP, Wolfe Project.

51. CM-IN-16635 (25 Jan. 44), Stratemeyer to Arnold, W237, 25 Jan. 44.

52. CM-OUT-1946 (5 Dec. 43), Giles to Baker, A 4741, 5 Dec. 43.

53. CM-OUT-8891 (23 Dec. 43), Wolfe to Arnold (no number); CM-IN-17076 (28 Dec. 43), Smoky Hill to WD, SAD 0586, 28 Dec. 43.

54. Report of the Commanding General of the Army Air Forces to the Secretary of War (4 Jan. 1944), p. 31.

55. The development of the plan entailed a considerable amount of correspondence; the main issues may be found in the following memos and cables: Plans, Division Digest, 1 Feb. 1944; memo, Arnold to Wolfe, B-29 Diversionary Project, 9 Feb. 1944, and inclosures, in Wolfe Project file; memo, C/AS to President, Cover Plan for B-29 Operations, 15 Feb. 1944, ibid.; memo, Kuter to Loutzenheiser, Plans and Cover Plans, 12 Feb. 1944, in D-2, Matterhorn; Plans, Daily Activity Report, 16 Feb. 1944; CM-OUT-3858 (9 Feb. 44), Surles to Stratemeyer, 9 Feb. 44; CM-OUT-3859 (9 Feb. 44), Surles to Stilwell 4475, 9 Feb. 44; CM-IN-8385 (12 Feb. 44), Aquila W410, 12 Feb. 44; CM-IN-11117 (16 Feb. 44), Sultan to Marshall, AG 992, 16 Feb. 44; CM-OUT-6766 (16 Feb. 44), Ammdel 6338, 16 Feb. 44; CM-IN-14204 (20 Feb. 44), New Delhi to War, AG 1073, 20 Feb. 44; CM-OUT-9357 (22 Feb. 44), Joint Security Control to Sultan, 6497, 22 Feb. 44.

56. Beginning with a release by Stilwell from the Burma front on 13 February, reported from Chungking by Brooks Atkinson, New York Times, 14 Feb. 1944.

57. CM-IN-2593 (4 Feb. 44), XX BC Salina to Arnold, 3 Feb. 44.

58. The exact dates of the flight have not been found, but apparently were between the 4th and 8th. CM-OUT-128 (1 March 44), Arnold to Spaatz; CM-OUT-3033 (8 March 44), Arnold to Spaatz, F620, 8 March 44.

59. CM-OUT-15938 (29 March 44), Arnold to Spaatz, WARA 15938, 29 March 44; CM-IN-21762 (30 March 44), Spaatz to Arnold, U60348, 30 March 44.

60. CM-IN-8596 (12 March 44), Cook to Arnold, 5101, 12 March 44. The information was relayed to Saunders at Salina and Wolfe at Kharagpur: CM-OUT-5770 (14 March 44), Arnold for Cook, F786, 13 March 44.

61. History of XX Bomber Comd., Third Phase, p. 96.

62. CM-OUT-129 (1 March 44), Aquila 4812, 1 March 44, announces the following tentative schedule:

1. 40th Group: 10 B-29's on 10 March, 9 on 11th, 9 on 12th, 10 on 13th.
2. 444th Group: 9 on 14 March, 9 on 15th, 9 on 16th, 10 on 17th.
3. 462d Group: 9 on 18 March, 9 on 19th, 10 on 20th, 10 on 21st.
4. 468th Group: 9 on 22 March, 9 on 23d, 10 on 24th, 9 on 25th.

Earlier the route had been designated as via Bermuda rather than Newfoundland. CM-OUT-609 (2 March 44), Arnold to Saunders (no number).

63. CM-OUT-389 (1 March 44), Aquila 4823, 1 March 44; CM-OUT-1247 (3 March 44), Aquila 4858, 3 March 44 (requesting the theater to designate the fields); CM-IN-2536 (4 March 44), Aquila WA23 A0X, 4 March 44 (giving the following schedule: 58th Wing Hq. and 40th Gp., Chakulia; 444th Gp., Charra; 468th Gp., Kharagpur; 462d Gp., Gaya).

64. CM-OUT-4343 (10 March 44), Aquila 4964, 10 March 44.

65. There is a circumstantial account of this arrival by an eyewitness in History of XX Bomber Comd., Third Phase, pp. 89-94.

66. Information on the movement of planes through 30 April is taken from source cited in n. 65, pp. 95-101.

67. History of XX Bomber Comd., April 1944, p. 6.

68. [XX Bomber Comd.] Daily B-29 Arrival and Accident Report, 9 May 1944, in Transport Project, Supporting Docs.

69. History of the 768th Bombardment Sq. (VH), April 1944. The unit histories of various combat squadrons for March, April, and May contain a great number of details concerning the actual flights to India.

70. History, North African Wing, ATC, April 1944, p. 69; May 1944, p. 25; and June, 1944, App. LIII (ltr., Maj. R. L. Sitard to CG Station #7, NAFW-ATC, Super Fortress Project, 31 July 1944).

71. See n. 68 above.

72. OC&R Daily Activity Report, 8 March 1945.

73. As of 24 August, 209 B-29's had been delivered to India: 147 by combat crews via North Atlantic; 20 by combat crews via South Atlantic; 21 by ATC crews via South Atlantic, memo, Statistical Control to D/CS, News, 26 Aug. 1944, in ATC files, 322 XX Bomber Comd.

74. CM-IN-9888 (14 March 44), Wolfe to Arnold for ATC, 162 D, 14 March 44; CM-OUT-6430 (15 March 44), George to Wolfe (no number); references cited in n. 70 above.

75. See digests of Domei News Service broadcasts of 23 April, 24 April, 15 May, in XX Bomber Comd.'s Air Intelligence Digest, Vol. 1 (20 May 1944) and 2 (27 May 1944).

76. Ltr., Arnold to Wolfe, 26 April 1944, in AAG 312.1 Q, Opns. Ltrs.

77. Plan, 3 Sep. 1943 as cited in n. 7 above.

78. Wolfe plan, 11 Oct. 1943, par. 2e; JPS 320, App. A.

79. CM-OUT-5755 (14 Nov. 43), Marshall to Eisenhower, 2586, 14 Nov. 43; CM-OUT-9555 (24 Nov. 43), SEXTANT, 1065, 24 Nov. 43.

80. CCS 428 (Revised); Memo, Giles to Marshall, Build-up of Fighter . . . Groups in CBI, 31 Dec. 1943, in AFAEP, Asiatic Theater file.

81. Plans, Daily Digest, 1 Jan. 1944; CM-IN-2139 (4 Jan. 44), Stratemeyer to Arnold, W25, 4 Jan. 44.

82. Memo, DC/S to Adm. Edwards, Shipment of Fighters for Matterhorn, 12 Jan. 1944, in D-2, Matterhorn.

83. Memo, Loutzenheiser to Hansell, Movement of P-47 Aircraft to India, 17 Jan. 1944, in AFAEP, Matterhorn file; memo, Hansell to Capt. A. K. Doyle, USN, ibid.; R&R, Acting C/AS to Loutzenheiser, Move of 2 Fighter Groups from Mediterranean to CBI, 18 Jan. 1944.

84. Ltr., Col. C. F. Nielsen, MM&D to CG, Atlantic Overseas ASC, 21 Jan. 1944, in AAG Misc. A, ICB.

85. Medical History of the 33d Fighter Gp. (a well-written account of the voyage out); and 81st Fighter Gp. War Diary, March 1944. These narratives are unique in one respect: they report a sea voyage on a transport which seems to have been enjoyed by AAF personnel, both officers and GI's.

86. Ibid.

87. CM-IN-8461 (12 Feb. 44), Ammdel AG 904, 12 Feb. 44; CM-OUT-2777 (7 March 44), War to Stratemeyer, 4904, 7 March 44.

88. By 14th AF GO #17, 13 March; cited in History of 312 Fighter Wing, March-June 1944.

89. CM-OUT-3952 (10 Dec. 43), Arnold to Aquila, 3952, 10 Dec. 43; CM-IN-7131 (11 Dec. 43), Stratemeyer to Arnold, W2878, 11 Dec. 43.

90. CM-OUT-2985 (8 March 44), War to Stratemeyer, 6838, 7 March 44; History of 312th Fighter Wing, March-June 1944.

91. The following extract from a letter by an intelligence officer of the XX Bomber Command reveals something of the attitude at Chungking: "I do not know just what Gen. Chennault told your party when you were in China--he has told the rest of us such widely varying stories that we are at a loss to know exactly what Japanese capabilities are. In January, he told Gen. Wolfe and me that we were safe on the ground 'for Weeks' at Chengtu. On February 19th at Dinjan he told us that it was 'mighty risky' to stay on the ground there for any longer than was necessary. Since then he has become progressively more gloomy about conditions around the forward bases (this has grown along with the increasing certainty that the B-29's are not mis). His outlook before now is that things are worse in China than before Pearl Harbor"; ltr., Maj. G. A. Stinson, A-2, XX Bomber Comd. to Col. George Carey, 4 May 1944, in D-2, Matterhorn.

92. CM-IN-1268 (3 Jan. 44), Stilwell to Marshall, AG 26, 3 Jan. 44.

93. CM-IN-16950 (24 Feb. 44), Chennault to Arnold, Coguk W 22 FB, 24 Feb. 44; CM-IN-17774 (25 Feb. 44), Stratemeyer to Arnold, information Chennault, Aquila W559, 25 Feb. 44. This latter cable gives a running account of messages on previous agreements.

94. CM-IN-3289 (5 March 44), Stratemeyer to Arnold, W 641 AOX, 5 March 44.

95. The original theater plan was to send the whole 33d Group with P-40's by 10 April, but it was immediately modified as described above. CM-IN-3289, as in preceding note; CM-IN-5347 (8 March 44), Stratemeyer to Arnold, W678, 8 March 44.

96. Medical History of the 33d Fighter Gp.

97. Ibid.

98. 81st Fighter Gp., War Diary, May, June, July.

99. CCS 397/1, Annex, Schedule of Opns.

100. CM-IN-10738 (17 Nov. 43), Stilwell to Agwar, AG 2882, 17 Nov. 43.

101. He assumed command on 2 November 1943. History of XX Bomber Comd., Third Phase, p. 36.

102. CM-IN-12163 (19 Dec. 43), Aquila W2944, 19 Dec. 43.

103. CM-OUT-8157 (21 Dec. 43), Arnold to Stratemeyer, 4056, 21 Dec. 43; CM-IN-15468 (24 Dec. 43), Aquila W2988, 24 Dec. 43; CM-OUT-9755 (25 Dec. 43), Aquila 4107, 25 Dec. 43.

104. History of XX Bomber Comd., Third Phase, p. 47.

105. Ltr., Stratemeyer to Arnold, 3 Feb. 1944, in 20th AF 201 file, Personnel Records; CM-IN-3499 (5 Feb. 44), Stratemeyer to Marshall, W346, 5 Feb. 44.

106. Ibid.; CM-IN-4866 (7 Feb. 44), Stratemeyer to Arnold, W362, 7 Feb. 44.

107. CM-IN-954 (2 Feb. 44), Ammdel AG 666, 1 Feb. 44; memo, Loutzenheiser to Kuter, Attached Radio [CM-IN-954] and Suggested Reply, 2 Feb. 44, in D-2, Matterhorn.

108. CM-IN-11476 (16 April 44), CAB 16169, 15 April 44.

109. Note the discrepancies in figures from the following sources: (1) ATC, 383 tons (see table following p. 210); (2) XX Bomber Comd. Statistical Sec., 427 tons (see table following p. 209); (3) General Wolfe, 478 tons (XX Bomber Comd., Progress Report #4, 30 April 1944); (4) ASC, CBI, 116 tons (CM-IN-11476 (16 April 44), Stilwell to Marshall, CAB 16169, 15 April 44).

110. Ibid.

111. CM-IN-16339 (21 April 44), Wolfe to Arnold, YB 1733, 21 April 44; XX Bomber Comd. Progress Report #4, 30 April 1944.

112. CM-IN-13407 (19 March 44) Assam-China Sector, ATC to WD, B-163, 18 March 44.

113. See table following p. 210 and CM-IN-11476 (16 April 44), CAB 16169, 15 April 44.

114. Memo, Loutzenheiser to Hansell, Logistical Data, Matterhorn, 28 Feb. 1944, in D-2, Matterhorn.

115. CM-OUT-2115 (6 March 44), Ammisca 4685, 5 March 44.

116. Ltr., Maj. G. A. Stinson to Lt. Col. Jas. D. Garcia (New Delhi to Salina), 22 Dec. 1944, in AFSHO, COMD BOMB 20-41, Feb. 1944; CM-IN-15468 (24 Dec. 43), Aquila W2988, 24 Dec. 44.

117. See p. 193.

118. CM-IN-16401 (23 March 44), Stratemeyer to War, W836 RAOX, 23 March 44.

119. CM-OUT-6853 (16 March 44), Arnold to Stratemeyer, 4755, 16 March 44; CM-IN-11079 (15 April 44), Wolfe to Arnold, 729A, 15 April 44.

120. Ibid.; XX Bomber Comd. memo #55-9, Aircraft Shuttle Service, 15 April 1944, in History of XX Bomber Comd., April 1944, Supporting Docs.

121. CM-IN-20510 (28 April 44), Wolfe to Arnold, YB 2005, 27 April 44.

122. CM-IN-11079 (15 April 44), Wolfe to Arnold, 729A, 15 April 44; CM-IN-12716 (18 April 44), Chennault to WD, CATX 908, 17 April 44.

123. CM-IN-22662 (30 April 44), Wolfe to Arnold, 2574E, 29 April 44.

124. CM-IN-16339 (21 April 44), Wolfe to Arnold, 1733 YB, 21 April 44; Progress Report #4, April 1944, p. 10.

125. Ibid., p. 4.

126. CM-IN-6906 (10 April 44), Stratemeyer to Arnold, CAbV 365, 10 April 44.

127. Progress Report #4, p. 4.

128. Ltr., Hardin to George, 6 April 1944, in ATC files, 321 India-Cnina Wing.

129. CM-IN-5664 (8 April 44), Stratemeyer to WD, CAB 328, 8 April 44.

130. Ltr., Hardin to George, 9 May 1944, in ATC Historical files.

131. Memo, George to Arnold, Air Transport Support of 20th Bomber Command, 8 May 1944, in ATC files, 322 XX Bomber Comd.

132. Memo, C. R. Smith, D/CS ATC to CG AAF, ATC Support of 20th Bomber Command, 15 May 1944, in ATC files, 322 XX Bomber Comd.; Plans, Daily Activity Report, 16 May 1944; CM-OUT-36950 (15 May 44), Arnold to Stratemeyer, Wolfe, and Hardin, WARX 36950, 15 May 44.

133. CM-IN-11656 (16 May 44), Wolfe to Arnold, 2909 E, 15 May 44; CM-IN-13559 (18 May 44), Wolfe to Arnold, 3012 E, 17 May 44.

134. CM-OUT-38766 (19 May 44), Arnold to Stratemeyer, WARX 38766, 19 May 44; CG AAF IBS to CG XX Bomber Comd. and CG India-China Wing, Division of Responsibility between the XX Bomber Command and I-C Wing, ATC, for Transportation of XX Bomber Command Cargo to Chengtu, 26 May 1944, in 20th AF files, 320 XX Bomber Comd.

135. Transport Project, pp. 32-33.

136. Ibid., p. 31.

137. Memo, Lt. Col. J. W. Wilson to AC/AS, Plans, Contemplated Rate of Operations, VLR, 26 April 1944, in AFAmP, Wolfe Project file.

138. Progress Report #4, p. 11.

139. Transport Project, pp. 33-34.

140. CM-IN-90 (1 May 44), Wolfe to Echols, A-2135, 30 April 44; WD-TT-518 (3 June 44), Washington-Kharagpur.

141. CM-IN-11782 (16 May 44), XX Bomber Comd. to WD, IB 2918, 16 May 44.

142. Ibid.

143. Ltr., Arnold to Wolfe, 25 May 1944, in 20th AF 201 files, Wolfe, K. B.

144. CG XX Bomber Comd. to Staff Secs.,Combat Goal and Logistical Schedule, June 1 to June 30, 26 May 1944, in 20th AF files, 322 XX Bomber Comd.

145. Transport Project, p. 39.

146. CM-IN-1319 (2 July 44), Chennault to WD, CAKX 4378, 2 July 44.

147. CM-IN-2827 (4 June 44), Stilwell to JCS, 1148, 4 June 44.

148. CM-OUT-46820 (6 June 44), JCS to Stilwell, WARX 46820, 6 June 44.

149. CM-IN-5027 (7 June 44), Stilwell to WD, CELY 18238, 6 June 44; CM-OUT-47296 (7 June 44), WD to Stilwell, WARX 47296, 7 June 44; CM-IN-6647 (9 June 44), Stilwell to Marshall, CBC 1173, 9 June 44.

150. CM-OUT-47971 (8 June 44), WD to Stratemeyer, WARX 47971, 8 June 44; CM-OUT-47970 (8 June 44), WD to Chennault, WARX 47970, 8 June 44.

151. History of the XX Bomber Comd., Fourth Phase, Historical Study No. 1, Shakedown on Bangkok.

152. CM-OUT-46999 (6 June 44), WD to Wolfe, WARX 46999, 6 June 44.

153. CM-IN-5597 (7 June 44), Wolfe to WD, 4269A, 7 June 44.

154. CM-OUT-47759 (8 June 44), WD to Wolfe, WARX 47759, 7 June 44.

155. CM-OUT-51560 (16 June 44), Hansell to Marshall and Arnold at London, WARX 51560, 16 June 44.

156. CM-OUT-46999 (6 June 44), Arnold to Wolfe, WARX 46999, 6 June 44.

157. T-COM-OUT (no number), Washington to Kharagpur, 23 June 44.

158. T-COM-OUT (no number), Washington to Kharagpur, 10 June 44; and same, 21 June 44.

159. Memo, Arnold to CG ATC, C-46 Aircraft and Personnel Replacement Flow to Air Transport Squadrons, XX Bomber Command, 10 July 1944, in ATC files, 322 XX Bomber Comd.

160. T-COM-IN-18231, Kharagpur to Washington, 9 Aug. 44.

161. Lost.

162. CM-OUT-56673 (27 June 44), WD to CG XX Bomber Comd., WARX 56673, 27 June 44.

163. Transport Project, p. 41.

164. Ibid., p. 40.

165. Ibid., p. 41.

166. Ibid., p. 43.

167. CM-IN-21219 (26 June 44), Chennault to WD, CAKX 4019, 25 June 44.

168. These had been stipulated recently in a directive, CG AAF IBS to CG XX Bomber Comd., Division of Administrative Logistical and Tactical Responsibilities between CG AAF IBS and CG XX B. C., 13 June 1944, in 20th AF files, AAF Activities in IBS.

169. CM-IN-1319 (2 July 44), Chennault to WD, CAKX 4378, 2 July 44.

170. CM, Wolfe to Stratemeyer, quoted without number or date (but about 2 July) in Transport Project, p. 43.

171. CM-IN-2546 (4 July 44), Stratemeyer to WD, CABX 2917, 3 July 44; see also CM-IN-24632 (30 June 44), Stratemeyer to Chennault, CABX 2796, 30 June 44; and CM-IN-1914 (3 July 44), Chennault to WD, CAKX 4390, 2 July 44.

172. This is the general import of the unit histories, particularly at the squadron level, of the 33d and 81st Groups. Statistics on flying time are not common among them but there are numerous remarks on the fuel situation and on morale factors. The 60th Squadron (33d Group) flew 313 hours in 73 days ending 30 June, and 320 hours in July. It might be pointed out that the squadrons were not entirely tied down to the Chengtu areas. Frequently small detachments of fighters were sent off to other fields where their activities were not directly connected with the VLR project.

173. Transport Project, p. 46. This opinion was not confined to members of the XX Bomber Command. Later, when Chennault suggested the use of B-29's against tactical targets in China, General Stratemeyer cabled to General Arnold: "It is my opinion that Chennault's repeated requests for B-29 Missions against Hankow are for use of those airplanes primarily from consideration of their own supplies being available in China." CM-IN-21388 (23 Aug. 44), Stratemeyer to Arnold, information Chennault and Sultan, CABX 4937, 23 Aug. 44.

174. CM, Stratemeyer to WD, 7 July 44, quoted without number. Transport Project, p. 47.

175. Ibid., p. 48.

176. XX Bomber Comd., Digest of Operations, 31 Dec. 1944, Combat Mission Statistics.

177. See pp. 235-37.

178. CM-OUT-31202 (2 May 44), JCS to Stilwell, WARX 31202, 2 May 44. Cf. JCS 838, 28 April 1944 and JCS 739/1, 2 May 1944.

179. CM-IN-5460 (8 May 44), Sultan to Marshall, CRAX 2855, 6 May 44.

180. CM-OUT-34129 (9 May 44), Arnold to Wolfe, WARX 34129, 9 May 44.

181. CM-IN-2353 (3 June 44), Stilwell to Marshall, CRAX 4897, 3 June 44, seconding Stratemeyer's proposal of 2 June in CABX 1831.

182. JCS 940, Augmentation of India-China Division of ATC, 7 July 1944.

183. Ibid., Appendix:

Increased Air Lift

1944	Assam to Kunming	Assam & East Bengal to Kweilin or Chengtu	Total
July	10,975		12,500
Aug.	12,500	500	13,000
Sep.	12,500	1,500	14,000
Oct.	15,000	5,500	20,500
Nov.	18,000	9,500	27,500
Dec.	20,000	11,000	31,000

Aircraft to be Allocated to ATC

1944	C-46	C-54	C-87 or B-24
July	140		50
Aug.	140	6	70
Sep.	140	15	70
Oct.	140	35	95
Nov.	190	60	115
Dec.	190	70	115

184. CM-OUT-62749 (10 July 44), Arnold to Saunders, WARX 62749, 10 July 44.

185. T-CON-OUT (no number), Washington to Kharagpur, 11 July 44.

186. T-CON-OUT (no number), Washington to Kharagpur, 18 July 44.

187. CM-OUT-68054 (20 July 44), Arnold to Giles, WARX 68054, 20 July 44; T-CON-OUT, Washington to Kharagpur, 29 July 44.

188. Memo, Col. J. T. Posey to Gen. Hansell, Estimated Tonnage Deliveries to Forward Area for XX B. C., 2 Aug. 44, in 20th AF files, 581 Air Transportation.

189. CM-OUT-71990 (28 July 44), Hansell to Saunders, WARX 71990, 28 July 44.

190. See table following p. 2.

191. JCS 959, Strategy in China-Burma-India, 15 July 1944.

192. CM-IN-1539 (2 Aug. 44), Giles to Arnold, CABX 4039, 2 Aug. 44. The figures in this message are not entirely clear. Requirements for the XX were estimated at 1,500 tons for fighter defense, 4,800 tons for 225 B-29 sorties, total 6,300 tons. Resources for delivery were:

ATC C-87's, to Chengtu, 4,200 tons; XX Bomber Command, Calcutta to Jorhat (in 40 C-46's), 800 tons; Calcutta to Chengtu direct (in 22 B-29's), 800 tons, total 5,800 tons. Where the other 500 were to come from is not apparent.

193. CM-OUT-75308 (3 Aug. 44), Arnold to CG XX Bomber Comd., WARX 75308, 3 Aug. 44.

194. CM-OUT-78509 (10 Aug. 44), Marshall to Stilwell, WARX 78509, 10 Aug. 44.

195. CM-IN-12874 (14 Aug. 44), Stilwell to WD, CRA 10808, 14 Aug. 44.

196. JCS 959/1, Report of JPS on JCS 959 (with inclosed draft message), 14 Aug. 44.

197. CM-OUT-87378 (26 Aug. 44), JCS to Stilwell, WARX 87086, 26 Aug. 44.

198. CM-OUT-87378 (26 Aug. 44), Marshall to Stilwell, WARX 87378, 26 Aug. 44; JCS 940/2, adopted informally on 25 Aug. 1944.

199. Figures on tonnage are found in table following p. 209; those on weight of attack in XX Bomber Comd., Digest of Operations, 31 Dec. 1944.

200. Transport Project, p. 49.

201. Figures in this paragraph are all by the XX Bomber Command's Statistical Section, either from tables in the Transport Project or in their Digest of Operations.

202. Transport Project, p. 50.

203. Ibid., p. 68.

204. Ibid., p. 70.

205. The Supporting-Documents section of the same study contains the XX Bomber Command Walk-out Reports, B-29 Combat Crews through September 1944 (transport losses only), prepared by Intelligence Section. It also contains a copy of a so-called "Lolo Report" by Capt. Frank J. Mullen. This report on an "Expedition into Lolo Country in Western China to Set up Evasion Routes," 4 August 1944 is in the form of a rough journal which merits publication even in its present unpolished form.

206. Digest of Operations, Combat Mission Statistics.

207. T-COM-IN-J499, Kharagpur to Washington, 18 Sep. 44.

208. AAF CBI Evaluation Board Report #1, 15 Sep. 1944.

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