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(Short Title—AAFRH-12)

HISTORY
OF THE
TWENTIETH AIR FORCE:
GENESIS

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HISTORY OF THE TWENTIETH AIR FORCE: GENESIS

(Short Title: AAFH-12)

AAF Historical Office
Headquarters, Army Air Forces
October, 1945
This study was written by Maj. James L. Gage of the VIII Bombardment Section, Combat Operational History Division, AF 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 AF 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 CIA and now on deposit in the archives of the AF Historical Office.
<table>
<thead>
<tr>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I INTRODUCTION: THE PROBLEM ........................................ 1</td>
</tr>
<tr>
<td>II THE JAPAN .......................................................... 4</td>
</tr>
<tr>
<td>III THE ORIGINAL DESIGN .............................................. 9</td>
</tr>
<tr>
<td>IV THE EARLY PLANS .................................................. 26</td>
</tr>
<tr>
<td>Air Staff Plans ....................................................... 27</td>
</tr>
<tr>
<td>Requests from the Theaters and Commands ......................... 36</td>
</tr>
<tr>
<td>V THE CHOICE OF THE THEATER ...................................... 44</td>
</tr>
<tr>
<td>VI THE STRATEGIC AIR FORCES ...................................... 90</td>
</tr>
<tr>
<td>Introduction .......................................................... 90</td>
</tr>
<tr>
<td>The Establishment of the Twentieth Air Force ....................... 98</td>
</tr>
<tr>
<td>Command and Control of the B-29 Bomber Command .................. 109</td>
</tr>
<tr>
<td>VII THE B-29 BASES .................................................. 132</td>
</tr>
<tr>
<td>Introduction .......................................................... 132</td>
</tr>
<tr>
<td>Preliminary Plans and Negotiations ................................ 136</td>
</tr>
<tr>
<td>The Indian Bases ..................................................... 141</td>
</tr>
<tr>
<td>The China Bases ...................................................... 159</td>
</tr>
<tr>
<td>The Ceylon Fields .................................................... 175</td>
</tr>
<tr>
<td>VIII THE TRANSPORT PROBLEM ....................................... 179</td>
</tr>
<tr>
<td>Logistical Plans ...................................................... 183</td>
</tr>
<tr>
<td>The Overseas Movement: Shipping ................................... 187</td>
</tr>
<tr>
<td>Air Transport to the Theater ........................................ 191</td>
</tr>
<tr>
<td>Overseas Movement of the B-29's ................................... 194</td>
</tr>
<tr>
<td>Overseas Movement of the Fighter Defense Groups .................. 201</td>
</tr>
<tr>
<td>Transport Problems within the Theater ............................. 205</td>
</tr>
<tr>
<td>EPILOGUE .............................................................. 240</td>
</tr>
<tr>
<td>GLOSSARY .............................................................. 243</td>
</tr>
<tr>
<td>NOTES ................................................................. 244</td>
</tr>
<tr>
<td>INDEX ................................................................. 288</td>
</tr>
</tbody>
</table>

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CHARTS

Potential B-29 Bases with 1600-Mile Radius of Action ... Frontispiece

Following

Air Defense of the U. S. by Air Force with 2500-Mile Radius of Action ........... 24

4000-Mile Radius from 9 Bases ................. 30

Command Channels, Twentieth Air Force .......... 106

Staff Personnel, Twentieth Air Force .......... 107

Southeast Asia Command ................. 112

CBI Theater .................. 126

Airfields Required in Various Plans for Use of B-29's in CBI .................. 135

Air Bases in East Bengal .................. 140

Progress Chart -- VLR Fields .......... 157

Air Bases in the Chengtu Area .............. 160

Air Bases on Ceylon ............... 174

Global Supply Routes ............. 179

Hump Tonnage for XX Bomber Command; Factors Affecting Hump Tonnage Delivered by XX Bomber Command .......... 209

ATC Hump Tonnage by Consignee, 1944 .......... 210


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History of the Twentieth Air Force: Genesis
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.
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. 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 130,000, maximum war weight of 135,000. Its four Wright R-3350-23 engines with turbosuperchargers developed 2,200 horsepower at sea level and turned 16 foot-
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 381 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. The specific requirements for performance were high:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Designed Attainment</th>
<th>Minimum Attainment</th>
</tr>
</thead>
<tbody>
<tr>
<td>High speed at design altitude</td>
<td>m.p.h. 450</td>
<td>300</td>
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<tr>
<td>Tactical radius at design altitude with 2,000-lb. bomb load (5,333 mile range)</td>
<td>miles 2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Average speed for these range conditions</td>
<td>m.p.h. 250</td>
<td>200</td>
</tr>
<tr>
<td>Service ceiling</td>
<td>ft. 40,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Service ceiling, any 2 engines</td>
<td>ft. 15,000</td>
<td>12,000</td>
</tr>
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(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. 5

The requested authority was granted on 2 December, 4 and on 29 January 1940, Request for Data B-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, 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. 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, 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. 

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 planes 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 material factor and strategic plans must be appreciated if the efforts of the planners are to be understood.
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..."
naval matériel objectives. 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-39 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." When that statement was made, such a mission had been designated for the B-39, and in view of the characteristics of the plane and our bombardment policy in the WFO, 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-39 program was initiated, 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-39 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 peace-time 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.

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 1938 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 bom-
bardment 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 poten-
tial enemy with bombers then available or immediately foreseeable.
Hence any plans for strategic bombardment had to suppose a great exten-
tion 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 pacifism; of the Geneva Conference
on disarmament; of the Byr Committee and neutrality legislation; of
Merchants of Death and Idaho'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."

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 mode 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 garri-
sions; 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. 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. The same attitude was reflected in the War Department's decision in 1937 to procure only two-engine bombers for the fiscal year 1939, 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. 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!
This moratorium on VLM 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 widespread 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 mass invasion 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 13 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 (3-17), but research should be initiated toward securing a plane with a ferrying range of 5,000 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."  

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. 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, 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. 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. 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.-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 Hemis-
phere direct from Japanese territory"; but that some 4,176 German-
Italian planes could, without damming forces in Europe, fly from
Africa to Brazil, from Ireland to Newfoundland, or from Ireland to
Greenland to Canada, and based in any of these regions would prove a
menace to the United States. 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 "continued future requirements
of the army for air power" 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, 23 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

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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. 23

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 planes; 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.
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.


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 even 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 WP8D was working concurrently on five alternative war
planes, 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

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 planes 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 the U.S. 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 stopped earlier by a clarification of our national aims. By and large those aims, toward Europe rather than westward, insofar as they contemplated offensive war, were directed eastward.

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...
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"—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 strategic bombers." These aircraft should be "capable of carrying out sustained and effective bombing operations to the maximum operating range possible, with the
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.  

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,
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 deals 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."

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). Those principles were accepted as fundamental to the U. S. RAINBOW No. 5 plan which was adopted about the first of June.

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 N-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. 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.

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 DSCAR 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. This, it will be noticed, was a return to Spaatz’s 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. AWPDB/4 (15 December 1941) revised upward the number of VLR bombers (and other types) to be deployed against Germany. 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, 
AMFD/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 offens- 
ive 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 pre- 
cise 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. 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 500 B-29 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 B-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. 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. 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.

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. 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 faint; 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.
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. 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 im-
plicit 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.

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 con-
siderations. 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 as-
signed 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 stratosphere 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 untired 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. 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 B-32 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 these 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-39's in the South
Pacific. 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 airbases, the relations between that project and over-all strategic plans will be discussed in a subsequent chapter. 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 1943 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. 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. When this letter arrived, tentative
plans were being shaped in the Air Staff for use of the earliest B-29 units in the CBI. 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. 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 (Palambang, Balikpapan, etc.), enemy shipping south of a line Singapore-Saigon-Manila-Marianas-Marshalls, and heavily defended bases such as Truk and Palau. 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. 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. 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 GBI. The process by which that decision was made will be described in the next chapter.
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 . . . MATTESCHEN, 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 and the 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 Pacific, 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 China 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 Pacific. 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 agen-
cies, 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
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 con-
stantly—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. Y. 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. The study, CPS 83, was
completed on 8 August in anticipation of the forthcoming QUADRANT conference (Quebec, 14-24 August). 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. 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. The matter of long-term strategy was somewhat more complicated.
Chiefs examined CPS 83 and tabled it because of its slow tempo. 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. This more aggressive attitude was reflected in the Final Report to the President and Prime Minister, 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. 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. 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. 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; and on the vulnerability of Japanese industrial areas to incendiary attacks. These studies were to be incorporated into an over-all paper then being prepared by the Air Planners in collaboration with the JPS. 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. 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. 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. 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. On 1 June the 56th Bombardment Wing (E) was activated, with General Wolfe in command. 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 56th Wing, and, after 27 November, of the XX Bomber Command was perfected. The story of those organizations has been told elsewhere and need not be repeated here. What is significant for the present study is the fact that from April 1945 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 AWP4/1. 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. 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 analysed, was conceived on a grander scale.

The Air Plan, sometimes known as SETTING SUN, had been drawn up in consonance with the now accepted objective of defeating Japan in 3 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 CAS, if current schedules of operations were adhered to, Pacific Island bases within range of Japan proper would not be available in 1943-44. 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. 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." 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 forbids waiting for Pacific island bases, it was even less practical to await the capture of an East China port at a still later date. 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-Kuming 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 COS referred the plan to
the GFS 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 descrip-
tion of the project was sent, with a request for General Stilwell's
comments as to its operational feasibility and tactical efficiency.
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, Suishwan, 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-sorite 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 59,000 tons per month, exclusive of POL, and existing port facilities at Calcutta could handle the load.
It was calculated that the additional airfields 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 LCO'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. 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 USA was now dispatched to Washington to present the details of the TWILIGHT plan. On his arrival he found that the GSF, 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. The GSF 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.

The AAF Planner acted on this proposal immediately, submitting to the JFS on 16 September a memo containing an outline plan for the defeat of Japan within 12 months after the defeat of Germany. This memo indicated that in general the AAF favored the TWILIGHT proposal,
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 G-8, the Air Planner went on in an effort to fit these G-8I 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 Felaus (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 heavy bomber bases as the basic mission." Eventually 6 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 B-29's 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 JWFC 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. 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. Nevertheless, the board recommended that a modified version of TWILIGHT be developed, calling for the early employment of B-29's in China.

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, 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 an extraordinary quantity and its...
early commitment to combat was desirable if for no other purpose than to test the characteristics of the planes 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. 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 firsthand 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, and on the 24th he complied with that directive. 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.
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 airfields 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-47's, and that ATO 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 airfields in their strikes at Japan. Operations were to be initiated about 1 April, with 150 aircraft in the theater. Three 100-strafie 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, 50% of them being engaged in trans-
port 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, re-
inforced by 150 P-51 or P-53 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.
This plan General Wolfe discussed with A2/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. C. 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 [right] 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, endorsing 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-34'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 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. Enthusiasm was dampened by the
conviction that "no aerial knock out blow however can be expected from
Chengtu" (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 arrange-
ments for construction might be begun.

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

In addition to the features which have been described above, the
new paper contained recommendations on target selection based on infor-
mation 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 ex-
ception 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, 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 JMPG be directed to study the paper and report on it to the Joint Planners at the now imminent SEKANT conference. Meanwhile the Air Planner was to secure JCS permission to request the cooperation of British and Chinese governments in constructing the requisite airfields should the plan be approved. This permission was granted by the Joint Chiefs, who recommended that the CDS authorize the airfields in Calcutta and that the proper U. S. authorities make arrangements for the Chengtu area. Those steps were taken immediately by the “proper U. S. authorities.” MATTERHORN had been presented to the President and approved in principle, 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. Both leaders expressed a willingness to furnish the desired sites and to cooperate with the United States in construction work. The theater commanders were informed of the probable adoption of MATTERHORN and of the initial negotiations for airfields, and they turned to the task of preparing those fields against an early D-day.

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 56th and 73d Bombardment Wings (VB), and to insure the prompt movement overseas of engineer, air depot, and other service units. 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 (pipeline) companies was the opening gun in a struggle which was to last for several months.

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 MATTORN 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. 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 MATTORN 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 JEF on the following day referred JPS 320 (MATTORN) to the JMFC for study, directing that recommendations be forwarded by cable to SEXTANT by
17 November. The Senior Team of JWFC went on to SEXTANT and the task fell to the Home Team. They in turn enlisted the aid of the Joint Intelligence Committee, 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. 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 1945; 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. 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. 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.
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, 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, and was informed that with minor improvements now being effected in the B-29, all targets listed in MATTERHORN could be reached from Chengtu. 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.

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 WLR 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 JWFC. 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. 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.

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. 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
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, included in their final report to the President and Prime Minister, 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 MATTERTHORN 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 DEADE—as offering a scheme of operations potentially more potent than that envisaged in MATTERTHORN. 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. 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 DEADE plan. The chief objection to the DEADE 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; 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 JWFC 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 resume 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
didn't appear as "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," 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 "tailing 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 G2A, properly, had not considered the tactical means by which the targets they listed were to be destroyed; their answer we did not
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 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 MATTHEWM. 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 JWP 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
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). Such targets were to be considered as could be hit,
figuring alternative tactical radii for the B-29 of 1,300 and 1,500
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 sub-
estance 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 these 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 NML, 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 (OP-35-Navy). 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. Nevertheless, the JIC paper was approved by the Service Members and was adopted by JWPO as the basic element in its own report.

The JWPO report, submitted to JICP 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 Mariannas, 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.

This paper was immediately ordered cancelled and withdrawn—for reasons not stipulated—but was re-circulated at the instigation of the naval member and was presented to the Joint Planners for discussion on 26 January. At that time Brig. Gen. H. S. Hainsell, the Air Planner, requested and obtained time for a more careful consideration of the paper by the AAF. After some study General Hainsell drew up a critique of the document. He charged that the JWPO 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 JWPO had prevented a full and unbiased
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.\textsuperscript{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.\textsuperscript{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, PDL installations, steel (via coke ovens), urban industrial areas, aircraft plants, bearings, and electronics; considering the capabilities of the B-29 the order should be PDL installations, steel (coke ovens), urban areas, aircraft plants, bearings, electronics, shipping. Balancing all factors, they believed
the best interim use of the B-29 would be (1) against IOL 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 LATTERHORN first is not in consonance with conclusions reached from the detailed studies."

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

In this paper, the JCS accepted the general line of reasoning advanced by the JNCG, but they reversed the order of priority of the initial targets—that is, they listed (1) coke ovens before (2) IOL installations in the NEI. They recommended, because of decisions "on highest level," that LATTERHORN 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.
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 SEKTANT, the official approval of the Joint and Combined Chiefs. The OCA 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.

JWPO, 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 NBI 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 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 Chief of Staff. Early in February the possibility that the Chengtu operation might be scratched seemed strong enough to justify some re-examination, by AG/AS, Plans, of the whole problem of interim employment of B-29 units.

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 of flux, 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. General Richardson believed that only a minimum number of B-29 units could be based in those islands, 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.

Under these circumstances a short paper was prepared, outlining the AAF concept of the Pacific War. Those views were presented to the JCS on 15 February by General Hansell, and apparently were well received. 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 CINCSEWPAC 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 SEWPAC 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."
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's 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 Marisnas (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, 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.

At the same time, the accelerated program for the Marisnas 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 Marisnas 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 MATTEHORN force be cut to the initial four groups (just beginning their flight to the GBI), that the second four groups be diverted from MATTEHORN 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 MATTEHORN at SEKTANT, the new program must have received the approval of the President.\(^{128}\)

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.
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." 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.
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 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 these 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 the Twentieth Air
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 at the Air Ministry. 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.  

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." 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, 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.

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). The struggle for independence became more vigorous in the years after the Armistice. Against the entrenched 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 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 in 1941 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.

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 AGO 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
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 USSTAFF, 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 tac-
tical 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 differ-
ent 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 B-29 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.  

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...
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. 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 leader-
ship in the CBI. 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. 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." 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. When their revision was presented to the JCS for consideration the pertinent paragraphs were phrased thus:

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
13. 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. On 7 March the paper was returned to the JSP for reconsideration in light of the proposed amendments. The revision suggested by the Joint Planners contained Admiral King's amendments, but made no reference to the GG, 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.

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.

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
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 MATTHEW HORN 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 AO/AS, Plans; 24 it was then circulated among the members of 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 strategic 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
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. 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. 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
theaters of responsibility. In view of these 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 analogous 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 25 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 regard-
ing 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 VHR Project Office in the Pentagon under Lt. Col.
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 memorandum 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 CQ, AAF. 36
On 6 April General Arnold assumed command by CQ 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
TWENTIETH AIR FORCE

CG TWENTIETH AIR FORCE
- GENERAL H.H. ARNOLD

CHIEF OF AIR STAFF
- MAJ GEN B.M. GILES
  C/S, 10th AIR FORCE
  Brig Gen H.S. Harris
  DEPUTY C/S, 10th AF
  Col WD Kornaz

OPERATIONAL ANALYSIS
  Col Y. A. M. Peraza

MANAGEMENT CONTROL
ADMINISTRATIVE SERVICES
MANPOWER DIVISION
ORGANIZATIONAL PLANNING
STATISTICAL CONTROL
ADJUTANT GENERAL
- COL T. F. ORLANDO
  LT. COL. H. HEWITT

AC/AS A-3
- MAJ D. H. MOORE
  TECHNICAL ADVISER
  MAJ. W. T. KENT
  MAJ. W. T. KENT

AC/AS A-4
- MAJ W. D. MILLER
  TECHNICAL ADVISER
  TECHNICAL ADVISER
  MAJ W. D. MILLER
  MAJ W. D. MILLER

AC/AS A-3
- MAJ J. H. SIMPSON
  TECHNICAL ADVISER
  TECHNICAL ADVISER
  TECHNICAL ADVISER

JUDGE ADVOCATE
- MAJ H. H. S. CARTER
  AIR INSPECTOR
  MAJ W. D. MILLER
  MAJ W. D. MILLER
  MAJ W. D. MILLER

OFFICERS AND AGENCIES FROM THE AAF STAFF PERFORMING TWENTIETH AIR FORCE DUTIES AS ADDITIONAL DUTY AND ARE IN THIS CIRCLE.

OPERATING ASSISTANTS IN THE TWENTIETH AIR FORCE STAFF APPEAR IN THIS TYPE.
made up of a group of operating assistants, with Brig. Gen. E. S. Hansell, Deputy Chief of Air Staff, as Chief of Staff (and effective executive) of the Twentieth Air Force.  

On 8 April General Hansell, in an effort to establish sound administrative procedures, dispatched a letter 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.  

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.

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. 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. While MATTERHORN was under discussion at SENTINEL, on 27 November, the XX Bomber Command was activated at Salina, Kansas. The internal organization of the command was determined by the peculiar nature of the B-29 and of its mission, 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 CGS and JCS that they have been able to interpret general principles so flexibly as to provide a practical arrangement for most 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 CGS 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. 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, CHI, 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
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 COS 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, 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 SHAO 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 H. Stratemeyer. 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 ATC 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:

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 Peirse. 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.\textsuperscript{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 Peirse (Air Commander, SEAC) to Lord Louis, Stratemeyer could still enjoy no independent control over his AAF units.\textsuperscript{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 draught of organizational charts, the addition of a VLR strategic force would inevitably make the web further. For regardless of principles of operational command adopted in Washington, some practical solution had to be devised for the OBI which would divide administrative and logistic responsibilities between sectors bound by the tenous 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 06, AAF IBS (Stratemeyer), and that operational control and security of advanced bases should be the responsibility of the 06, Fourteenth Air Force (Chennault). 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, 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:

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. 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 my responsibility." 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.

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 SIA with the B-29's not staging through China,
fighter support should come from Stratemeyer's Tenth Air Force.

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 then be adopted. The proposed plan was informally
approved by the Joint Chiefs on 13 January. 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. 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 and by appeal to even higher authority. 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. In this order General Stilwell formally rescinded General Order #15 and allocated specific responsibilities to his air officers. He charged Stratemeyer, as CG, AAF \(10^{th}\) AAF, 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 Stratmeyer "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 Stratmeyer, was to be
the coordinator between the theater sectors. Thus when the latter issued
his first directive on administrative procedure to General Wolfe it re-
ferred only to stations and personnel in India. 58

Washington was informed of the contents of the new directive 59 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 Sektant but had left before a final
decision was reached. After his departure alternative proposals were
entertained—to continue with large-scale operations planned for SHAEF
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 de-
ferred 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 \textit{Matterhorn}; later he expected to move southeastward toward Sumatra, and the B-29's were to play an important role in this campaign.\textsuperscript{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.\textsuperscript{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 SAGSEA 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 SAGSEA. The desire to keep \textit{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.\textsuperscript{74} Lord Louis expressed his appreciation...
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 (Peirse) 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, and on 23 February the British Chiefs of Staff referred the message, with an accompanying memo, to the CCS. The British Chiefs were convinced of the impracticability of giving to Stratemeyer, a subordinate to Mountbatten and Peirse, 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
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." 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. 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.

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 VL.R Bombers was submitted to the Joint 
Chiefs on 2 March, it contained a recommendation that control of VL.R 
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 VL.R 
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 Mount-
batten to cooperate with the terms of that directive. An apology to 
the latter was also included. Briefly, Stilwell was informed that as 
CO, USAF GBI, he would command U. S. Strategic Air Forces (VL.R) in his 
threeater, 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 irresolvable 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 respect-
tive theaters, and Stilwell would render maximum logistical support to
the VLR project. The JCS might move units from the theater at any time.

The Joint Chiefs approved this memo and the appended directives on 7 March and presented it to the CCS for consideration. 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." On 13 March minor verbal changes were made in the directives; on the 25th the revision was adopted by the Combined Chiefs, and Stilwell and Mountbatten were so informed.

Lord Mountbatten accepted the new arrangement apparently with little enthusiasm. He and Sir Richard Fearee 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." This latter request could not be granted in the light of current plans.

It will be recalled that on 26 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; 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...
indicated

Twentieth and that he might expect further revisions in his directive.\textsuperscript{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.\textsuperscript{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 SACEUSA in the appropriate sections.\textsuperscript{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 memo-
randum 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. 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 OCS which has already been described. 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. 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. 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.

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. 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 MATTHERHORN is established" and until further progress was made in the Pacific. 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. 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.
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,
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 improvisation 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 S-39 could hardly have operated. A pierce-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,
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 chapter¹ 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 con-
ditioned 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 SEKTANT 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.
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 3 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" deadline 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 prac-
tical difficulties, and since that problem pertained only to the India-
Burma Sector it will be discussed in a later section.

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 Mansell, to request the JCS
to secure approval of the construction of the desired bases in the
event that the plan was finally accepted. 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 airbases in
the Chengtu area. Target date was "by May." 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 ORI and requesting cooperation in obtaining and
constructing the airfields under the general conditions described in
MATTERHORN. The Chinese authorities had not previously been informed
of any of the VLR plans, but the British in India had been con-
sulted by the theater officers who drew up the TWILIGHT plan. While
GHQ India was "not unsympathetic," the British were not overly en-
thusiastic 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. 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." 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.

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, 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. The final decision was reached only with the agreement at SEKTANT to mount MATTERHORN, with its Calcutta and Chengtu bases, "without materially affecting other approved operations." 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 WLR bases in India might be met. 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 pro-
viding 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 air-
dromes in India was made by theater authorities. The specific locali-
ties 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 north-
east 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 airfields 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 in-
creasing 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,
16
Piardoba, Kharagpur, Kelaikunde, and Chakulia. Early in December
19
an advance party from the XX Bomber Command arrived in India, and
the engineer officer, Major H. R. Heron, made an inspection of the sites
chosen. For some reason Bishnapur was abandoned in favor of Dudhkundi,
20
and preliminary work was inaugurated. When General Wolfe arrived in
India (13 January) he in turn inspected the airfields and, after consi-
erdering for a while Panagarh, finally selected Kharagpur as his head-
quartress 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
21
Bomber Command Headquarters.

General Stratemeyer had planned to construct nine airfields—one
four transport field and eight one-group B-29 fields—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 head-
quartress 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. 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, Charra and Gaya. 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 (466th), 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. On 1 July, the 444th Group moved from Charra to Dudhkundi, and in May the transport field at Kalaikunda was opened. 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. By 26 February, those four fields had been selected and SOS had given the necessary orders for construction. These included, in addition to Charra and Gaya, Jargran and Siddhi, localities at which no construction had been done. 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 Stratmeyer of the probable change in plans. Then on 11 April Stratmeyer 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. 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 MESSMORE, 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 improvisation 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 OC, 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 15 engineer officers to aid the theater committee in constructing the fields. 33 General Stilwell however vested Maj. Gen. W. E. R. Covell, OG, 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 Strattemeyer 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. Seaman, 38 who reported to Colonel Farrell, Chief Engineer
of SOS in CBI.

MATTERHORN called for the completion in India of four one-group
TRL 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. 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. 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:

<table>
<thead>
<tr>
<th>Units</th>
<th>Diverted from</th>
</tr>
</thead>
<tbody>
<tr>
<td>930th Eng. Av. Egt. (less 3 battalions)</td>
<td>SOWESPAC</td>
</tr>
<tr>
<td>879th Eng. Av. Bn. (Airborne)</td>
<td>UK</td>
</tr>
<tr>
<td>1906th Eng. Av. Bn.</td>
<td>SOWESPAC</td>
</tr>
<tr>
<td>1875th Eng. Av. Bn.</td>
<td>SOWESPAC</td>
</tr>
<tr>
<td>1877th Eng. Av. Bn.</td>
<td>AAFTAG</td>
</tr>
<tr>
<td>4 dump truck companies (unit and source)</td>
<td></td>
</tr>
<tr>
<td>2 pet. dist. companies (not specified)</td>
<td></td>
</tr>
</tbody>
</table>

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. 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, 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.\(^\text{46}\) 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.\(^\text{47}\)

General Stilwell had been informed on 9 November of the construc-
tion units designated by the MATTERORD plan.\(^\text{48}\) 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 MATTERORD
priorities.\(^\text{49}\) On request from Washington,\(^\text{50}\) however, General
Stilwell granted priorities for those units which could be shipped
on 15 December under the JCS restrictions.\(^\text{51}\) This would exhaust troop
spaces on the 15 December convoy—a fact to which the theater ob-
jected—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 in-
terrupted. This would require the arrival of the engineers by 15
January.\(^\text{52}\) Although action was being taken to expedite the trans-
shipment of the troops in North Africa,\(^\text{53}\) the arrival of even the in-
complete 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, 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 casualties. 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. 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. 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 CHI 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. Specifically, General Lutes wished that Stilwell and Mountbatten should be authorized to make the desired diversion, 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. 

When General Marshall inquired as to the estimated dates of completion of the airfields 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. 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, Lord Louis must have been willing to provide for MATTEHORN aviation engineers assigned to either of the projects in question. Under those conditions General Marshall assigned to MATTEHORN the 1888th Engineer Aviation Battalion, then under orders for movement to the CBI in February.

Nothing was done about the Ledo Road units, and the 1888th could not be expected in the theater until the beginning of April.
the British members of the CCS the retarded schedule for airdrome completion. 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; the only alternative seemed to be a revision of the target date for B-29 operations to 30 June. The Chief of Staff still did not favor any interruption of the Ledo Road construction, 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. 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. 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 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. When the theater seconded this appeal by asking that an additional battalion be assigned to the project, that request also was refused,
but General Marshall did grant permission to use, for MOTHERHORN, units scheduled for March shipment to the CBI. This was acceptable to the theater, 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, and on 11 April General Stratemeyer was informed of the definite decision to send those units with the combat wing. 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 transmitted, and landed in western India before 22 February. They were assigned in this fashion: 930th Regiment (less 3 battalions), Kalaikunda; 1875th Battalion, Dughkundi; 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 855d Engineer Aviation Battalion was at Chakulia. This latter unit had arrived in India on 1 February and, though not assigned to MOTHERHORN, had apparently been put on the job by General Stilwell. The 1866th 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, and it seems logical to suppose that it may have exchanged for the 853d. Several changes were made during the course of construction, and in July the 393d and the 1888th were reassigned to Burma. Actually, then, the work was done largely by five 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 airstrips included some 6,000 U. S. troops and 27,000 Indian civilians. 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, SCS.
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 110 (headquarters at Kalaikunda) in charge of airdrome construction and District 112 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. This force was deemed inadequate by the theater SCS, and by 9 January three such companies had been assigned and were unloading equipment in the Kalaikunda neighborhood. 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-Dudge, on the far side of the Hooghly River near Calcutta, to the several fields. A six-inch pipe was to be laid to the vicinity of Dukhundu (about 70 miles from the
terminus) and thence four-inch pipes were to extend to each of the five fields. 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. 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 airfields 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). Since
tests showed the B-24 paving inadequate, 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. 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 concen-
tration 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, 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, 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.
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. 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. 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 Dhalburgarh, 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.
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 Dukhundi 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 Dukhundi, the work required fewer man hours and the concrete was superior.  

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 Haji) 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 and to provide new housing there and at the other fields. Tented housing was much in vogue in the early
days. Huts 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 prefabs imported by ASC from Eritrea, slightly shopworn and bullet marked. Mac Cobber 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 $3,000,000 of that going for the pipe-line system. 98
A casual reference to the fortnightly progress reports on the WATTPHORN 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 500,000 to 500,000 farmers." The story of that building is, as a correspondent wrote, "a saga of the nameless little people of China." Such difficulties as the Americans experienced were financial, and Americans had 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
Kunning. Materials and labor were to be found locally. The S3I accepted the Air Planners' suggestion, eventually to be incorporated into MATTERHORNY, 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. 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 capital of the province of Szechwan. It was located about 200 miles northwest of Chungking and some 400 miles north of the Hump terminal at Kunning. 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. 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 airfield sites, with a view of completing four fields by 1 April and a fifth by 1 May 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. 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, 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. The specific sites were: Hsinching, Kuanglai, Wenjiang, Chinghsing, and Sintua in the Chengtu area; Minshan as a ferrying base near Kunming; and Kweilin and Suichwan as the proposed bases in the east. This selection passed over two existing fields at Chengtu and within a fortnight the
list was changed somewhat; in order of ease of construction, these fields were named: Haining, Kiumlai, Kwangan (a virgin site), Pengan, 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.\textsuperscript{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. 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.\textsuperscript{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: Pungshangshan, Shuangliu, Pungshacheng, and Kwangan, 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.\textsuperscript{110} These fields were Nienyang, Xiuyang, and Sining.

The CBI's reference on 19 December to airfields at Kweilin and Kunming and the statement on 9 January that the Generalissimo was
considering planned layouts in those regions was somewhat confusing to Washington. It 
AJHQ 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 
KATTERHOORN funds. The C&J said it clear that the fields were a part of the 
KATTERHOORN plan—those at Kwajlin 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 
arrangement. The request came from General Stratemeyer, and 
apparently represented his opinion, but General Chamullt had a 
special interest in the Kwajlin area. He had consented to the change 
from TWILIGHT to KATTERHOORN, but he now wrote to General Arnold, pointing out that except for ground security Kwajlin possessed every advantage 
over Chengtu and urging that the additional bases be built in Kwangtung Province. General Arnold considered that the improvement of fields 
at Kwajlin and Kunming was a matter for General Stilwell to decide and 
that the War Department would not act without his recommendation. At the instigation of Stratemeyer and Chamullt, Stilwell submitted 
to the Generalissimo the request for extension of runways of three 
fields at Kwajlin and one at Kunming. The Generalissimo's consent 
was held up pending solution of financial problems which will be described briefly, but eventually the extension of half a dozen B-29 
fields to B-29 standards was approved. By July construction had been 
finished, begun, or planned for the following fields: Chengkung and 

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Luliang near Tun-hua; Hweili-Li Chia Shen and Liu-chow in Kwangsi province; Sin-cheng and Suichau in Kiangsi. Plans for Chengaung and Suichau were not executed; Hweili-Li Chia Shen and Liu-chow 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 Sin-cheng (under construction) remained of the six. The operations of the XX Lumber Command were conducted, as had originally been planned, from the Mengtu caves.

Organization for construction. It had been the President's original suggestion to Chiang Kai-shek that the L.M.M. 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 S.Y.T. 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 air-drome construction in China was vested in the CBI, Fourteenth Air Force, but his engineers were not sufficiently numerous to assume the MHTHORN 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. The War Department requested a list of the theater's requirements; but whereas a few specialists were desired immediately, 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 E-29 fields. When on 26 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. These specialists were quickly assembled and were sent to the theater early in December when General Godfrey went out as project officer for the MHTHORN fields. When General Godfrey arrived in New Delhi on 11 December the total requirements had still not been finally agreed upon. 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. These specialists were later sent by air priority.
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. Byrds, 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. 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.

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. Tsang 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.

Late in December Dr. Tsang 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.
each bringing his own equipment and staff, some 300 in all. 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.

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.
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. Actual conscription was a responsibility of the Governor of Szechwan, who promised to draft the men for 11 January. Within 2 weeks something like 200,000 had appeared and by 24 January work had begun on most of the fields. 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 Panshan 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.

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 WR 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 East: 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 LITTENCH 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. 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. 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 LITTENCH 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
would deposit $80 CN for each $20 CN advanced by the United States.

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. 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. 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.

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. Yung, 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. 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." Second, there was the matter of the additional fighter fields and the extension of fields at Kweilin and Kunming. These 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. Finally, there was the matter of Chiang Kai-shek's request for a loan of £1,000,000,000 CW overd 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. 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.

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 CW and the rate had not yet been determined. One later source speaks of an "official (U.S. government) rate" of 40 to 1 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.
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. 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, 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.

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 M.T.O.2I.CI., 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 whealbarrows of the district, or less often in

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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.\footnote{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.\footnote{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.\footnote{162} Four fighter strips were supposed to be ready for limited operations before 1 April, the others later in the month.\footnote{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.\footnote{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.\footnote{165} By 10 May the runways on all fields, VLR and fighter, were complete and some of the fields were completely operational.\footnote{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."\footnote{167} The historian
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 JUM, and had ad-
vocated 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.
This alternative was accepted in principle and on 2 March incorporated
into the plan for Optimum 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 airfields. 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,
in capable of further lengthening. Under construction were two other
fields (unidentified in the report); planned for WHB requirements with 9,000-foot runways, they could be ready by 15 June. 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 SAGSEA 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 MALTEPHON project, conferred with Lord Louis. When the latter expressed willingness to initiate a building program when officially requested, General Kuter recommended to Washington that SAGSEA be informed of the current status of plans for Ceylon. 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, he turned immediately to the required task.

In route to Australia, General Kuter stopped off at Colombo, where he met with the Commander in Chief, Ceylon, and with Sir Richard Peiris and other RAF officers. He learned that the British were currently working on two VHF fields: (1) Kankesanthurai 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 VHF targets, the British offered as alternatives airfields 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 Katara. 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 the suitability of China Bay and Minneriya, by a gentle hint that B-29's might be used from Australia rather than Ceylon, and by the loan of engineer equipment.

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 given by the batten and the OBF.

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(April 1945)
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. The Joint Chiefs requested the British to increase their efforts in Ceylon; 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. Presumably Minneriya was to be completed later, but the status of Kankesanthurai and Katunayake was uncertain. 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.
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

Then 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. 2AAF 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,
GLOBAL SUPPLY ROUTES

Legend

- Surface Ships
- Original B-29 Movement
- ATC "Fireball" Route
- Blend Route

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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 numer-
ous operations in a global war. The bases in China were to be the
most distant from the United States of all those in our far-flung
bottle 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 material must be moved by water or by air transport. Highest
priority passengers and freight could go out by ASC 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. Even-
tually the XX Bomber Command employed a special “Blend” service—
surface ship from Newark to Casablanca and ASC 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 P.E.'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 "Garagpur 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 strictly 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 HUTTENHORN 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 zones 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 1943 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 LDC—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 LATTER:OKI: 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 those 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-Ramp 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. These 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 500 per group of B-29's—in all some 4,000 C-87's for the 20 combat groups contemplated. The counterproposal which came from the theater in the guise of the TWILIGHT plan scaled down somewhat these extravagant estimates. For 10 groups running some 500 combat sorties per month from the Kweilin area it was estimated that 53,000 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. These 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, tank 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. R. E. 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. 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.

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 VHF 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; 

gas 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 (6,000 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 

airframe defense and to assist in building the initial stock pile 

for the T-33's, Wolfe proposed to employ 20 C-87's. These were to 

come out with the 86th Wing and were to be attached to the 308th Bom-

bardment Group (U), but were to operate exclusively for the TFX project.

The HATTERHORN plan was essentially like Wolfe's in the system 
of air transport recommended, though since it provided for the initial 
deployment only of the 86th 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 HATTERHORN 

would have been adopted at SEAMANT without this provision, and the 

CTS specifically qualified their approval by the restriction that 

HATTERHORN should be counted "without materially affecting other 

approved operations." 10

Unfortunately that clause was subject to a variety of interpretations. Obviously it could not mean that HATTERHORN 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 1-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

"INTERIORS" 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." 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 TBE 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 Indi: 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. General Stilwell was willing to make this concession to MATTHERORN, 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 MATTHERORN at the SECTANT 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 MATTHERORN 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
Reus to North Africa in U. S. ships and transhipping them thereto/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 GBI 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 NATIONCOM 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 ASS items,
amounting in bulk to some 4,300 tons, 98 per cent were on the seas or
awaiting dispatch at Newark by 15 January.22 ASS items did not receive
prompt treatment, apparently because ASS had not been instructed
by OFD to push NATIONCOM 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
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 2/0 strength of 119/2058, 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 Champlain, 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 Hollandia, 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. M. 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 9,698 had arrived, with most of the others scheduled for arrival by the end of the month. A station list of 10 May shows 21,920 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 0-57'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. 23 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

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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 GSI and the restrictions placed on MATTHESON by the GCS, 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, 120; April, 240; May, 280. On request General Stilwell expressed willingness to underwrite these amounts from his allotment. Passengers would number 1,250. On 20 February began the movement via South America and Central Africa of personnel from the several headquarters—division, wing, groups, and squadrons. Because of low priorities held by some of these shipments, some members were as long as 35 days on route.

Meanwhile it became obvious that estimates which had been agreed on were not adequate. The chief difficulty was with B-2950 engines, and when efforts to reduce transport requirements by increasing engine overhaul potentials in the theater failed, 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. This was acceptable to General Stilwell, through whose headquarters priorities were to be cleared. To accomplish the task, 37 C-54's were to be assigned (actually only 25 were), which should make 175 trips, hauling a total of 768 passengers and 250 engines.

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 6 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 1,925. The C-54's carried normally 2 5230 engine, 12 passengers with excess baggage, and 1,500 to 1,900 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 Chalulia on 11 April.

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 MATANCHEN. It was suggested that the first unit, scheduled for delivery in March, be utilized to augment troop 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.
General Wolfe submitted an operational plan which was acceptable in
Washington, 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 Bump 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 2nd 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.  
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 B-24's.  
The Blend service guaranteed to the XX Bomber Command 335 tons per
month (including approximately 225 engines). Over-all priority was
established by the North African Wing, internal priorities by the XX.
In late August the allocation was slightly increased for the ensuing
months. 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.

**Overall Movement of the B-24's**

When specific planning for the employment of the B-24 first began
in the spring of 1943 it was thought that 100 of the planes would be
used...
ready for combat by early January 1944.45 Delays in production occurred however which handicapped training activities of the 58th Wing46 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 AIP to secure higher production priorities for the B-29 project.47 By the time the MATTHEW 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 notification for combat (including the installation of a four-gun turret) was behind schedule.49 At that time it was estimated that only 139 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 16 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
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." 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 B-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 VIP tonnages 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 VLF 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.  

The "news" releases were made in the theater according to plan in mid-February. 66 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. 67 The plane, under command of Col. Frank Cook, flew out via Natal and Marrakech to St. Nazgyn. 68 Instead of returning to Salima with the flight date, the collection of which had been one of its missions, the plane and crew remained in England until the end of March. 69 Reports submitted by radio from England however indicated no great variation in flight characteristics from those which had been observed in previous tests. 70 Early in April the Pathfinder went on to Kharagar, arriving there on the 6th, the second B-29 to appear at an India base. 71

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. 72
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:

- Salmon to Sander Lake 2,580 miles
- Sander Lake to Marrakesh 2,700
- Marrakesh to Cairo 2,350
- Cairo to Karachi 2,400
- Karachi to Calcutta 1,660

Total: 11,690 miles

It was expected that the various units would make no landings in India save at their respective base 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.\(^3\)

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.\(^4\) 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. P. Hartman, arrived at Chakulia on 2 April, several days later than anticipated.\(^5\) By 15 April, when the whole movement should have been completed, only 32 planes were at their stations. Save for one forced landing at Tresque 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 Marrakech. From 21 to 29 April all planes
throughout the route were grounded. Investigation showed that acci-
dents 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.

At the end of April, 96 aircraft had reached their bases. The
movements were more rapid thereafter. On 8 May, 143 of the 150 planes
in the initial complement had reached Marrakech and 130 had arrived
at their destination. In spite of the long elapsed time required
in many cases, actual flight time for some units averaged as low as
48 hours. The flight was conducted throughout under direction of
AMC, and it involved in the beginning a considerable effort in spotting
spare engines and parts and fuel, and in providing necessary maintenance.

One local arrangements were not perfect and AMC felt that cooperation
on the part of the flight crews was not always what might have been
desired, 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. In March 1945 when the movement of B-29's to India had ceased,
405 planes (including E-15's) had been ferried to India with only eight
lost en route. 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.  

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 XIX Bomber Command and ATC made actual accusations of breaches of security along the ferry routes in Africa, 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 25 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 aircrew construction at Chengtu, on the stockpiling of supplies at those bases, and on the presence in the theater of VFC bombers designed to strike at the Japanese homeland. 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." 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 Chungking and at Chengtu 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 initiat-
ing over-the-Dyn missions inevitably delayed combat operations.

Curtissee Karmen of the Fighter Defense Groups

The choice of Chengtu rather than Kweilin as the base area for
VAF bombers had been dictated largely by the relatively greater security
of the Szechuan region against both ground and air attack. It was always
recognized however that the establishment of bases at Chengtu might
bring enemy retaliatory air action from the Japanese and that fighter
defense must be provided. The natural inclination was to vest respons-
sibility 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. These premises materialized
in the establishment within the Fourteenth Air Force of the 312th
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 Twentieth 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)." In the Wolfe plan this force was calculated at two
groups of P-40A's or P-40B's, and the MUNSTER plan stipulated simply
two fighter groups. It was proposed to transfer these units from
Italy, and while there was some objection to this expedient from
General Eisenhower, a decision was made at SHAEF to redeploy
two F-40 groups from Italy to China, re-equipment them with B-47's.
When informed of this decision, General Stratemeyer suggested that
the B-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. This plan was acceptable to SHAEF Head-
quarters but as in almost every phase of the MATADOR plan, the
time schedule could not be met. The fighter units themselves could
not be released until after the initial phase of the invasion operation
(D-Day, 23 January), and by ordinary surface shipment it was estimated
that the new planes could not reach Karachi before 1 May. The
movement could be expedited however by sending the planes on CVE's
rather than on cargo vessels, and under plan of an emergency, the Navy
was requested to undertake the ferrying job. The Navy assigned the
CVE's Mission Bay and Wake Island to the task. These ships could
accommodate only 100 B-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.

The units selected were the 33d and 31st Fighter Groups, veterans
of the North African, Sicilian, and Italian campaigns. The ground
echelons left Mombasa 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
Italy by air between 11 and 19 February, flew out via Tunis, Cairo, and Aden to Karachi.\textsuperscript{85} The two CVE's with the P-47's arrived at Karachi on 30 March, and transition training was begun 14 April.\textsuperscript{86}

To provide proper control and coordination for the two groups, General Stratemeyer had requested and obtained permission to establish a new fighter wing.\textsuperscript{87} On 13 March the 31st Fighter Wing was activated in the theater by the Fourteenth Air Force.\textsuperscript{88} Brig. Gen. A. H. Gilliss was designated commanding general and, proceeding by air from the United States, he assumed command on 25 March.\textsuperscript{89} When the first P-47 landed at Chinghu, the wing was only a skeleton organization, with its personnel scattered from Karachi to Chengtu and with only a few P-47'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 disclosing its mission were fully realized in the C.A. 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 Thangkhar fields were 20 to 100 miles farther west; RAF defense plus Ninth Air Force fighters, if necessary, were considered more than adequate protection.\textsuperscript{90} An attitude which was illustrated by the decision to abandon in the B-29 bases the EC\textsuperscript{2} principle of dispersal of facilities. The hazards in China were much more real. General Chennault grew progressively more
passingistic in his remarks concerning Japanese capabilities: he had attempted to secure additional fighters to protect the air route from Assam to China, to hasten delivery of night fighters (two squadrons of P-51'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 G-87's attached to the XI Bomber Cm. and.

Then in early March it appeared that the carrier-some 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. When this request was refused, it decided to send one squadron of the 33d Group to Chengtu with P-47's; and the other two squadrons, plus the 51st Group would follow only after they had been equipped with P-47's. During early April the 59th Squadron moved into Szechuan province with its P-40's, and actually constituted the only local fighter defence when the P-29's ceased their transport activities. The other two squadrons of the 33d Group (58th and 59th) followed in May, equipped with P-47's with which they had been training in the Kunming area. On the 15th of that month the first flight echelon of the 61st Group arrived at Kunming—23 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.
Japanese attacks on Chengtu did not prove to be as violent as had been feared, and the delayed and piecemeal arrival of the several units of the 312th Wing did not jeopardize the fortunes of the XIX Bomber Command. Because of the excessive difficulty which beset the efforts of the command in building up its own stockpile, the delay should have proved a blessing in disguise by lightening the monthly allotment of ICE 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 XIX Bomber Command's supply problem.

Transport Problems within the Theater

The difficulties encountered in moving B-24s, 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 length of time between the first request of the VSR project and its accepted D-day. Similar factors conditioned LST transport operations within the theater, and with other factors peculiar to the CBI threatened the success of the whole VSR project.

Distances involved within the theater were of course less disconcerting than those in the global supply routes leading to Calcutta. From the city to Chengtu, via the Assam Valley and Hanning, was a matter of only some 1,200 air miles. But that route, what with its favorable 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 Changchun to Taibei in 8 hours. A shipment of supplies going from Calcutta to Assam by river-barge and rail, and flown from Assam to Kunming to Taibei by AAC 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. LATTHER, 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 cottons. Over-the-ship transport dealt in smaller figures, and the tonnage required for LATTHER might easily have exhausted the total AAC potential. And the India-China Wing had greatly increased its operations during 1943, and from OCT 1 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 AAC; parallel expansion of crew, maintenance personnel, airfields, communications, and weather service would be required. And basic to all difficulties was the unalterable fact that, with airplanes engines currently available, transport over a mountainous route with fuel obtained at only one terminus was inherently inefficient. For the first half of 1944 the Bump 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 NAT-HECHEN plan by the theater had been at best unenthusiastic, and had been made possible only because the project had been presented as logistically independent. Then it began to appear that the accepted 1-day for operations could not be met by the transport activities of the B-29's and the 20 C-47's of the XX Bomber Command alone, relations with S5C 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 COMINT called for B-29 missions to commence on 1 May. 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 16 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. It has already been shown that none of these 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 string 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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(AFR 190-16)
11 June, and even that date was not only by scrapping the "self-sufficient" clause which had been LATTERSDEN'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 troop shortage emanating from the several interested agencies show wide variations, and reports of agreements made between the several commanders differ according to the reporter. An Air Bomber Command document lay most of the blame for delays upon the AIO. Both AIO and the Fourteenth Air Force were prone to look on the XX as an interloper 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 Kowshon for extra lift in China, and a Japanese offensive in east China, which gave highest priority to the tactical needs of the Fourteenth. In the face of these emergencies commanders 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 Woffle in getting the transport program under way was the method of operating the C-47's. The Washington planners had intended that the 20 aircraft be operated
by the 506th Bombardment Group (P) exclusively for the VFR project, and it had been in anticipation of that arrangement that Col. W. R. Fisher, Assistant A-3 of the 50th Wing, had been sent out in advance to command that group. The planes were to be ferried out by ABC 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 509th, already doubling in burden by heading its own supplies for strikes in China. General Arnold was inclined to adhere to the original design but agreed that Wolfe might adjust his plans to the local situation.

Then General Wolfe arrived in India in mid-January with 10 C-97's—ten had been lost in passage—the planes were temporarily based at Ramgarpur and a few transport missions flown. After conferring with theater officers, however, Wolfe was won over to Stratemeyer's point of view and a new method of control was adopted. The 19 aircraft were turned over to ABC's India-China Wing in return for a guaranteed amount of USAF tonnage for ABC missions. The ABC crews which had come out from the States were to continue with the C-97's until 15 April, by which time it was hoped that the stockpile should be complete and the C-97's regularly engaged in transport activities; then the C-97's should revert to the India Theater Command.

This arrangement marked the first flight departure from the policy of self-sufficiency, a departure none the less real because it was not explicitly re-designated. Both Washington and theater officers had...
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<tr>
<td>1944</td>
<td>XX 25 U-40's</td>
<td>14</td>
<td>117</td>
<td>290</td>
<td>1,162</td>
<td>799</td>
<td>707</td>
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<td></td>
<td>Tactical B-30's</td>
<td>27</td>
<td>512</td>
<td>404</td>
<td>1,033</td>
<td>504</td>
<td></td>
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<td></td>
<td>B-30's in carrier</td>
<td>77</td>
<td>398</td>
<td>753</td>
<td>1,105</td>
<td>814</td>
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<td></td>
<td>B-30's</td>
<td>415</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td>Total XX 25</td>
<td>21</td>
<td>657</td>
<td>1,039</td>
<td>2,975</td>
<td>1,904</td>
<td>2,440</td>
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<td></td>
<td>B-24's</td>
<td>607</td>
<td>2,903</td>
<td>1,799</td>
<td>1,293</td>
<td>326</td>
<td>970</td>
<td>1,473</td>
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<td></td>
<td>B-30's</td>
<td>2,213</td>
<td>1,440</td>
<td>1,950</td>
<td>1,739</td>
<td>2,954</td>
<td>2,793</td>
<td>4,891</td>
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<tr>
<th>Year</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug.</th>
<th>Sep.</th>
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<td>1944</td>
<td>B-24 transport trips</td>
<td>7</td>
<td>353</td>
<td>164</td>
<td>237</td>
<td>110</td>
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<td></td>
<td>B-24 transport trips</td>
<td>88</td>
<td>150</td>
<td>429</td>
<td>783</td>
<td>265</td>
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<tr>
<td></td>
<td>B-30 in carrier (for transport or operations)</td>
<td>52.4%</td>
<td>37.5%</td>
<td>41.3%</td>
<td>41.1%</td>
<td>50.3%</td>
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<tr>
<td></td>
<td>B-30 abortive rate</td>
<td>12.0%</td>
<td>14.7%</td>
<td>18.1%</td>
<td>11.5%</td>
<td>7.3%</td>
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<tr>
<td></td>
<td>B-30 turn-around time in China—in days</td>
<td>2</td>
<td>1.5</td>
<td>1.4</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>B-30 average net off-load per trip—in tons</td>
<td>3.25</td>
<td>4.87</td>
<td>7.66</td>
<td>9.33</td>
<td>6.40</td>
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continued to reiterate the necessity of refraining from interference with ATC 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 59 per cent of all surplus up to 11,500—a possible total of 2,275 tons. Since the C-47'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 ATC 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 ATTACHC 7 had been approved. 107

Actually, the XX Bomber Command profited little by this arrangement for February. ATC hauled 12,930 tons over the Hump. This should have netted Wolfe 2,675 tons. He had made an agreement with Chengnai, however, whereby 1,641 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 ATC allocation to ATTACHC 7 was 1,997 tons and the India-China Wing reported that it had carried for that project 3,508 tons, the 1,606
<table>
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<tr>
<th>Month</th>
<th>Total</th>
<th>14th</th>
<th>XX 23</th>
<th>Other U.S.</th>
<th>Chinese</th>
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<td>January</td>
<td>13,899</td>
<td>7,301</td>
<td>-</td>
<td>1,177</td>
<td>2,621</td>
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<tr>
<td>February</td>
<td>13,920</td>
<td>7,017</td>
<td>733</td>
<td>1,640</td>
<td>5,880</td>
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<tr>
<td>March</td>
<td>2,567</td>
<td>4,377</td>
<td>823</td>
<td>940</td>
<td>685</td>
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<tr>
<td>April</td>
<td>11,525</td>
<td>6,727</td>
<td>1,683</td>
<td>1,772</td>
<td>2,633</td>
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<td>May</td>
<td>11,023</td>
<td>6,281</td>
<td>1,432</td>
<td>1,023</td>
<td>1,794</td>
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<td>June</td>
<td>15,841</td>
<td>12,437</td>
<td>830</td>
<td>1,033</td>
<td>1,925</td>
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<tr>
<td>July</td>
<td>19,985</td>
<td>13,223</td>
<td>1,070</td>
<td>2,664</td>
<td>2,039</td>
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<td>August</td>
<td>27,676</td>
<td>12,871</td>
<td>3,055</td>
<td>3,919</td>
<td>2,331</td>
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<tr>
<td>September</td>
<td>28,715</td>
<td>13,245</td>
<td>3,452</td>
<td>2,686</td>
<td>2,823</td>
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<td>October</td>
<td>24,716</td>
<td>13,014</td>
<td>7,037</td>
<td>2,557</td>
<td>2,107</td>
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<td>November</td>
<td>24,914</td>
<td>14,476</td>
<td>7,881</td>
<td>9,918</td>
<td>6,520</td>
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<tr>
<td>December</td>
<td>23,978</td>
<td>13,995</td>
<td>1,248</td>
<td>13,182</td>
<td>1,594</td>
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<tr>
<td>TOTAL</td>
<td>231,229</td>
<td>123,146</td>
<td>34,404</td>
<td>42,429</td>
<td>29,248</td>
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surplus representing a repayment to the XX Bomber Command of the February diversion to Chennault's account. General Wolfe's version of the transaction was quite different. Whereas 3,603 tons had been on-loaded in Assam for MATADOR, only 682 tons had been diverted on 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. 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 313th Fighter Wing from the C-47's, even though the 313th 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 10,000 tons; in March it carried only 9,537. The decline was due to a shortage of POL in Assam which forced IAF to haul gas from Baraipore by air to support Hump operations, and to the diversion of 30 C-46's to support Mountbatten's operations. 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 1,579. 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 the 100-sortie strikes per month from China bases. The tentative directive issued to General
Stilwell on 9 March for his logistical planning stipulated one shake-down mission from Calcutta and one regular mission from Chengtu in April, three in May. This directive accelerated the operational schedule adopted at SEAC, yet every phase of preparations was behind expectations. As it became evident in Washington that the B-23'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 CATHERINE logistical plans and had specifically advised that the project be provided with other transports in addition to the 20 C-37's. 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.

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 Bump 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 Charagpur area. 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. A few of the C-46's were immediately put on the job of distributing supplies among the rear area bases. The Charagpur area had been
selected with an eye to ground communications, which were excellent by India standards. All the fields save the temporary one at Taxila 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 10 April that the C-47's began their ramp operations. As a consequence the squadron's April contribution to the build-up of the Chengtu stockpile 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. But for reasons which have been indicated, the Chengtu fields were not ready. True, the Reimsing field had never closed down while being extended to B-29 specifications, and it was there that C-47's and C-87's had off-loaded HATTERAS supplies while construction was in progress. But it was not until 24 April that the first B-29 was able to put down there. 123 By 1 May, the original B-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 ATO 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 Stillwell's orders for nourishment of the Chinese "v" force. This was considered by Wolfe as a loan. In all, 1,449 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 stockpile of 6,000 tons; actually he had received only about 4,000 tons (pl. 24 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. The announcement on 3 April of the intended diversion of the 73rd Wing to the Pacific promised more difficulties in the future, 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, but his chief concern as for the immediate future was to care for his present needs. He requested the assignment of an additional group (four squadrons) of B-40 or B-37 aircraft.
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 LATERHORN 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 AFSM use on the Casablanca-Calcutta shuttle, or directly under Wolf's and used on the Rangoon route. Successive agreements between the XX Bomber Command and AFSM-India-China Wing were made and scrapped before being given a thorough trial; but, in the long run, events in the C-51 made it imperative to concentrate all of the mobile squadrons on the India-China haul.

The effort to arrive at a satisfactory system of operating the C-46's and C-57's had begun in April. AFSM had looked on the operation of the C-57's as a chore from which they would be relieved by mid-April, but on the 6th Brig. Gen. E. O. Kirklin of the India-China Wing wrote that it was his "impression that this will be a continuous job, with ever increasing requirements." That impression was correct. The second squadron of C-46's—now known as the 1st Air Transport Squadron (Mobile)—as expected late in April and General Stratemeyer proposed that the C-87's be attached to this unit and, with AFSM crew, be under operational control of the XX Bomber Command. This proved unsatisfactory and was modified by an agreement between Wolf and Kirklin, made early in May. AFSM again agreed to deliver to
Chinju 1,500 tons a month, using the 16 remaining C-97's. The cargo was to be hauled only from Assam, 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 141140 Hump 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 AEC in Washington on 12 May, a new settlement was agreed upon. The XX Bomber Command was to operate its cargo 3-C9's, and the 20 C-46's of the 1st Air Transport Squadron were still to be attached to it, based in the Darjeeling area, and maintained by the command. The 16 C-46's of the original bomber support squadron and the 16 C-97's were to be permanently assigned to the India-China Wing for Hump operations, in return for a guarantee to Hump of tonnage equivalent to the potential haul of 20 C-46's. The 2d and 3d Air Transport Squadrons were to be retained by AEC for the Calcutta-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 Halakunda, to overcome some of the difficulties incurred from having received the other transport units without maintenance personnel. With...
Kardin's guarantee of 1,000 tons and the control of all the C-46 squadrons, Wolfe had expected to step up deliveries to Chengtu to 2,500 tons per month; 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-37's and 36 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 1,500 tons monthly to Chengtu, of which 1,000 tons were to be carried from Calcutta to Jorhat by the XX wing and 500 tons by ATC. 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 ton delivery. General Wolfe had expected to receive from ATC his 1,500-ton guarantee plus the 500 tons "borrowed" by General Stillwell in April for the Chinese "Y" force. But only 1,093 tons were off-loaded. This constituted a deficit of 307 tons from the guarantee and included none of the 500-ton backlog. Wolfe's claim to that latter amount had been protested in Chungking where it was locked on as a permanent diversion. The low total haul seems to have been the result of a misconception of the Wolfe-Kardin agreement on the part of ATC operations officers—a misunderstanding perhaps not unnatural in view of the kaleido copic 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/valuable.\textsuperscript{136}

The record of the C-39's was much better than in April, but it too fell short of expectations. Planning factors in Washington called for 525 war round trips per month.\textsuperscript{137} Wolfe, more realistically, had expected to fly 359 transport sorties with a net off-load of 6 tons per plane, a total of 2,213 tons for Apr.\textsuperscript{138} Actually the command flew 141 C-29 transport sorties with a total pay load of 540 tons.

One of the causes of the reduced number of sorties would be eliminated later. In Apr there had not been a full complement of planes--it was the 17th before the last of the initial equipment C-39'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 Apr. Preparations for the shakedown mission had interrupted the transport schedule.\textsuperscript{139}

The low net cargo also was disappointing. High ground temperatures limited the take-off weight of the C-39 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.\textsuperscript{140} All in all, Wolfe had come to feel that the use of C-39 as a cargo carrier has definite limitations and large scale operations should be dependent upon regular cargo type aircraft for supplies,
had already shown to be significant—tht regular use of the B-29 as a transport would shorten its combat life.

This new attitude was a negation of the very essence of the JITTER-BUG plan. The planners in Washington must have realized always that it would be more economical to nourish B-29s 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 fonundness for the AMP conception of the bomber unit as a mobile self-contained entity, had led to the adoption of a logistical system which had already been modified and was now threatened with extinction. The one hopeful feature lay in the performance of those B-29s which had been converted into tanker planes. By stripping the of all except equipment save the tail guns and a minimum of radar, "olive" 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 Aug 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-29s were to go far in justifying early predictions.

The retarded rate of build-up of the Chenni stockpile inevitably resulted in postponement of B-29s for the first VIP mission, but tactical development in China and the Pacific in June precipitated

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(AF: 1 Oct 49)
a crisis which could not be ignored. DRIVE plans had always been based on the assumption that no strike at Japan proper should be made until a stockpile sufficient to support a 100-sortie mission had been accumulated, and that preferably this should be followed up soon by a similar effort. At -10-day General Jolfe calculated that the first missions would require about 4,000 tons exclusive of what was hauled by tactical 3-39's. 142 This was much more than he could hope for from sources currently available. General Arnold was cognizant of the difficulties of Jolfe's problem, but he was unable to secure any further support for DRIVE from ARC, and the efforts made at the Washington conference of 12 May had constituted no more than a re-shuffling of inadequate transport units. Indeed General Arnold was considering a demand revision of the XI 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 Jolfe hoped that by reaching a total of 4,880 tons in June he could stage his first mission about the 20th and begin rebuilding his stockpile 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 XII 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 RCL 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 1,000 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 800 tons had been delivered to General Diller's wing by 26 May. 146

Then came the enemy. At the beginning of June the Japs began their long-anticipated drive for the Canton-Hankow railroad. On 4 June General Stilwell diverted for the support of Chennault's air force the tonnage guaranteed to AIRPOWER by Act 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 AIRPOWER stockpile 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 AIR tonnage be restored to the XX
Immediately the emergency was over, but for the realism that organisation was really on its own. Washington requested General Stratemeyer and Chengtu to give Wolfe such aid as they could in handling P-47s, but with Stratemeyer's 7th Bombardment Group (V) already diverted to transport service over the Fup and with all ABC lift assigned to the Fourteenth, no effective did not in sight. Meanwhile the Jap offensive, while imposing 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 Hangchow with 28 B-29's airborne. The mission, being conducted from rear area bases, did not cut into the Chengtu stockpile directly, but it did interfere seriously with transport operations of the tactical B-29's. In the following day JAAF Headquarters requested information as to the weight of attack which the XX Bomber Command could apply against the bases 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). Wolfe thought he could put 30 B-29's over the target on 15 June, 35 on 20 June. 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. The mission, when run, barely met that minimum, of 35 B-29's in the forward area on the 15th. Only 66 were airborne for the attack on Nan-ta. Even this effort so depleted the stocks that there was not enough P-47s at Chengtu for all B-29's to return immediately to I Janta. 155
Now were prospects for July cheerful. In the emergency created by situation diversion of the XX Bomber Command's A20 tonnage, General Arnold had re-deployed the 2nd Air Transport Squadron from 9th's North African Wing to XX in July. On 23 June he agreed also to make the same arrangement for the 22 Squadron. This involved the transfer of three units from Beersheba in Egypt to Bengal, and it raised also questions of maintenance personnel, for the XX was not equipped to operate that promised to become a large transport organization. 

This problem was settled by vesting in the India-China Wing responsibility for maintenance. The 2nd Squadron began operations before the end of June, the 2nd on 8 July. This gave an effective force of about 40 C-47's throughout the month, and of 20 more for 35 days. 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 A20 tonnage could be restored.

The target directive for July was issued on 27 June, calling for a minor 25-sortie mission in early July and a major strike by 122 aircraft between the 20th and 25th. The directive reminded General Wolfe that this program could be carried out only by radically increasing the utilization of B-29's and obtaining maximum performance from the B-47's. Transport operations of both types of plane were improved during July, but in the meanwhile General Wolfe attempted to increase the stockpile for B-29 missions by imposing on the advanced area bases further economy. These included even more drastic
reductions for the 312th Wing. When the Yamata 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 260 tons instead of the 1,500 tons previously agreed on. To this reduction General Eisenhower raised a not unnatural protest. Wolfe's staff had estimated that 260 tons would allow 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 economics enforced on the 312th had this pragmatic sanction—that the fighter defense units had not by on short notices so far without disaster; but some day 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 defense 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 61st Fighter Groups which is not strictly germane to

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

The problem came under review of General Stratemeyer by virtue of his logistical responsibilities for both the XX Bomber Command and the Fourteenth Air Force. Messages to his headquarters in early July from Chamnnault and Wolfe varied sharply in details concerning agreements made and amounts of gasoline made available to the 318th Wing. General Chamnnault objected not only to the shortage of gasoline but to the inability of General Gillenson to designate the breakdown of his tonnage and to receive any firm commitment on amounts. 

"... Gillenson has no idea as to that he will receive and is entirely at the mercy of Wolfe to control the purely strategic and of the Twentieth Air Force who issue directives from Washington and does not consider the defense responsibility which is placed upon me." General Wolfe denied the validity of Chamnnault's claims as to the amount of gasoline furnished the 318th and stated that all amounts had been agreed on with Gillenson and himself.

In this impasse the XX Bomber Command was forced to capitulate. Chamnnault had stated that a firm guarantee of 1,500 tons would give pilots of the 318th Air Group 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 318th, in that and succeeding months, 1,500 tons of supplies, with the Fourteenth Air Force determining the breakdown on shipments.
With the documents available it is difficult to determine the merits of the case. Certainly the 316th Wing felt the stringency of the restricted supply situation. The efficiency and morale of pilots in the 32d and 31st Groups were adversely affected by the limited flying time, though bad weather as well as inadequate FOB supplies was a factor in grounding planes; lowered morale was the natural result of throwing experienced units with a tradition of active service into a dull sector. 177 But it must be realized that scarcity was not confined to the 316th Wing. Those units had been sent to China for a simple 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 316th 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 Chenault was less interested in the WP 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. 178

It may not 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 316th Wing, its allotment of 1,500 tons monthly from AVG. In return the XX was to be relieved of all logistical responsibility toward the 316th 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 account for the first 20 days of July.\(^{174}\)

This arrangement proved an excellent one for XX Bomber Command. 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 ATC allotment, now restored to the XX Bomber Command, amounted to 976 tons. Of the 2,979 tons delivered by the command's own efforts, 1,062 were by tactical B-24s. 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 Bomber Command to stage these missions on the scale indicated in the target directive—sixth 18 and 96 B-24s airborne.\(^{176}\)

But this was approaching maximum capacity with resources available; although improvements in operations were made subsequently.\(^{177}\) July turned 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 troop tonnage to provide for future combat operations. These 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 Korea during the early part of 1945. In
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 Kamao operation; they requested from him an estimate of his capabilities and suggested an early start on the task of stock-piling for those operations. This project, "ICLIP," was to be accomplished without prejudice to "IATO." 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.

Since the XX Bomber Command would engage in ICLIP, General Wolfe participated in the over-all planning. In June General Stratemeyer submitted a report for strengthening the India-China Wing. 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 soon evident that his chief concern was for the needs of the XX Bomber Command. These needs he proposed to meet by increasing the over-all capacity of ICLIP's lift over the Hub, by assigning to the Air Force greater use of the equity享 in these strikes, 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.
On 7 July General Arnold submitted to the JCS a memo on augmentation of India-China Division, AD. 180 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 weekly total of 31,000 tons in December. The largest share of this tonnage was to go to Humping for the use of the Fourteenth Air Force, but an increasing proportion, after August, was to be delivered at C-47s at Chengtu and thus be available for VLR operations in IND. 181 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 PGMID), but in the meanwhile an effort was made to offset that relief.

On 4 July General Wolfe was ordered back to Washington for an important assignment (25, Material Command), leaving Brig. Gen. Laverne O. Bowles temporarily in command in China. 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 Fourteenth Air Force to determine the requirements and the capabilities of the XII Bomber Command. 182 At the conference it was decided that the command should be reorganized to a unit equipped of 130 B-29's and a reserve of 80. With this force it should be possible to mount 225 sorties per month from China bases. Supplies for this effort were estimated at 7,000 tons monthly, of which 2,000 were to be for the fighter defense force.
and should not therefore be a responsibility of the XX Bomber Command. If the remaining 2,500 tons, it was calculated that 1,000 could be carried by the B-17's attached to the command, 715 by the 20 B-29 tactical, and 1,765 by certain B-39's. This left a deficit of 2,000 tons and it was necessary to procure from the 305 new provision for this amount if the increased combat schedule was to be met.

The best 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 30 B-17 tankers. This plan changed, and on 13 July General Saunders was asked to provide information as to the additional needs in the way of personnel and airfields to operate 30 B-24 tankers (B-100's). Saunders' original estimate on personnel was considered too high, but more satisfactory arrangements were eventually made, and the B-100's were definitely assigned to the XX before the end of July. 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 285 sorties to a figure of 4,900 tons, of which 800 could be carried by the B-17's, 2,620 by the B-29's and the Ju-88's, and 1,580 by the B-39's. 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 Wolfs, that use of B-39's as transports were not the engine too rapidly, and he positively

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(AFR 190-16)
forbade the continuance of the practice since the C-109's were in place.\textsuperscript{130} This order cut away the very core of the original MATTIEHORN plan, as it meant that additional lift had to be provided by AAF. 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 operation, were put back on the wing run the following month.\textsuperscript{130} But in the meantime strenuous efforts were made to secure an increased and guaranteed tonnage from AAF capacity in the CBI.

On 15 July General Arnold presented to the Joint Chiefs a memo on Strategy in China-Burma-India.\textsuperscript{131} His plan was based on the assumptions that MATTIEHORN should be carried through and that the greatest U.S. contributions in the CBI would be (a) maximum exploitation of MATTIEHORN; (b) support of the Fourteenth Air Force and Chinese Air Force; and (c) support of Chinese ground forces. To make these contributions possible, General Arnold recommended that MATTIEHORN be granted AAF tonnage beyond the transport capacity of the XI Bomber Command sufficient to support the CBI 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 XI 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 735 sorties monthly.

The problem of increasing B-29 tonnage, a personal one for CBI commanders, was at the same time receiving special attention in the theater. Lt. Gen. Dorrance C. Giles, Chief of Air Staff, had gone to the CBI and, after consultation with General Stratemeyer and other interested commanders, had submitted to General Arnold on 3 August a plan for raising B-29 tonnage to 31,500 tons per month. Of this, 1,800 tons monthly were to go into the PACAF stockpile, 19,500 to support current operations. MACAF's share was to be 6,700 tons, 4,800 for the B-29's and 1,900 for the fighter defense units. Of the 6,300 tons, it was suggested that 1,600 be handled by the 23d BAF in its own B-29's and tanker B-50's, and 4,700 by C-47's assigned to the 20th General Giles recommended that the Joint Chiefs allocate tonnage in this fashion if 21,500 tons were reached: (1) 6,700 tons to HAWHAW (first); (2) 17,000 to Fourteenth Air Force and other agencies; (3) 1,800 to PACAF stockpile (unless less of east China bases made this unnecessary). 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.

General Marshall interpreted Giles' message as implying that General Arnold had concurred in its contents; and to did the Joint Chiefs in their consideration of General Arnold's similar proposal.
be requested confirmation of that interpretation. Stillwell replied
that he had confirmed Hill's recommendation of 6,300 tons to the XX Bomber
and 13,000 tons to other agencies (excluding PACAF) contingent upon
NCS's expansion to 19,395 tons, and a proportionate division if
deliveries fell short. We 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, PACAF stock piling, and
current operations in China.\footnote{298}

General Stillwell's message came on 14 August. On the same day the
Joint Planners drew up a listing of priorities as Stillwell had desired,\footnote{298}
and on 26th this was sent to him as a revision of his directive
concerning logistical responsibility toward the XX Bomber Command.\footnote{297}
As a guide for planning he was advised that 325 sorties from China bases
were considered desirable. In their claims for heavy tonnage, the
several projects were rated by the JCS in the following order of im-
portance:

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


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

b. For implementing MATTERWOMAN at the rate of 325 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
   1,800 tons for lighter defense]
c. Requirements of USAF and Chinese ground forces.

On the same day, the 20th, the JCS also informed Stilwell of their decision, taken the previous day, to put into operation (with reservations concerning reinforcements personnel) General Arnold's plan for augmenting the India-China area. This would insure a significant increase in fuel tonnage, but Stilwell's directive was not in accord with General Arnold's suggestions. Current operations of the 22 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 Fourteenth.

In spite of this fact, the Hima Bomber Command's supply situation improved. In August it received from 220,176 tons, in September 341, and larger amounts subsequently. This was due to the increase in total lift by 220 and to the loss of East China bases which changed somewhat the nature of B-24. With this support and its own efforts the 22 got 7,003 tons in August, 13,001 in September, and the unprecedented total of 10,980 tons in October. Combat operations were stepped up proportionately. And in September for the first time approximated the desired weight of attack with B-24s airborne from China bases, as against 116 and 17 sorties in July and August.

From the foregoing discussion it is evident that the worst crisis in the transport problem of the Hima 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
conditions were made possible by larger allocations from A-13 and the
allocation of the C-100's. But the larger monthly deliveries were not
wholly the result of these 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 AF 3117th Combat
Squadrons. A matter of picking itself up by its own boot straps as one of
its numbers reached. This was accomplished chiefly by increased
efficiency in transport operations.

The amount of load tonnage in any single month depended upon the
total number of trips made and the average net off-load per trip. These
amounts and some of the factors affecting them are shown in the table
following page 239. These figures must be read however with one eye
on current circumstances. The number of transport trips made by the
T-299, 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
T-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 July and September the percentage
of T-29's in operational increased, the rate of abortive transport sorties
and of turn-around time decreased.

The average net off-load increased steadily, though again it is
difficult to indicate that trend precisely from available statistics.
The average was from 6.30 tons per trip in May to 7.68 in July. But
the rate of increase varied with the proportion of tanker trips to
tactical B-29 trips; thus the highest rate, the 9.52 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 6.10 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 780 gallons in late May to 1,328 gallons at the end of July; from late June to early September the same change for the tankers grew from 2,048 to 7,611 gallons—a net gain of 5,563 and 5,583 gallons respectively. It is reflected in the decreased gasoline consumption for the round trip. For the same period the B-29's showed a decrease of 651 gallons (from 6,132 to 5,481); the tankers, from late June to the end of July, a decrease of 301 gallons (from 5,652 to 5,351). This saving in fuel came with experience, as techniques of loading, flight planning, and control improved and as errors learned were made known. The flight characteristics of the B-29. One important lesson is illustrated in the discrepancy between increased off-load and increased consumption of gasoline: that the former grew more rapidly than the latter shrunk 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 81 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 handled 1,163 tons; in August, with the 26 Squadron turned back to ATC, only 795. A
third factor was the point of departure—i.e., whether supplies were flown from Calcutta or Jorhat, and the amount of responsibility the column shared with HUB 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-land per trip rose from 2,492 pounds in early June to 4,004 pounds at the end of July.

These improvements attest to the hard work of staff sections (particularly the Statistical Section which played an important role in transport operations) and of ground and flight crews. The flight crews lived in danger as well as drudgery, what with the hazards of attack by Vjy interceptors and of forced landings in a strange and terrible terrain. But danger was especially true in respect to B-29 transport operations. From April through September, 10 B-29’s were lost as against 3 C-47’s.202 Casualties were not proportionately high with the B-29’s only 32 men were killed, 21 listed as missing.204 The others “walked out.” The stories of their adventures are sometimes fantastic and those of those who fell. Told in the matter-of-fact style of walkout reports, these stories have a stark realism seldom equaled in FPO accounts.205

This account of transport activities has carried well beyond the chronological limits of the other chapters. It may serve then 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 XIX 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 316 aircraft airborne.\footnote{209} 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 black days of May and June. In mid-September General LeMay was requested to report on the feasibility of deploying additional B-29 units in the CBI. LeMay's reply sums up succinctly the whole character of the \textit{MUTTERER} plan.\footnote{207} At present, he stated, the XIX Bomber Command was operating under conditions which were basically unwise, 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 logistical system. The only justification for operating under such conditions he thought, 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.
The second chapter of this study pointed out some of the usual features of the Twentieth Air Force. To these another may now be added--for it is rare, if not unique, in the Air for a commander to decline to supply 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 said to allow no reluctance to add to his TAF forces in the Harris. The refusal from Harris was a terse commentary from a realist who had learned through bitter experience the fundamental weakness of the OVERLORD logistical plan.
This study has been, as the introductory chapter alleges, in 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 "top" down only to the eve of the first Waco mission of 15 June 1944, and in general that design has been achieved. 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, viz., initial combat units, the AAF 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 15 June 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 delay, which did not terminate the logistical problems.

The study might best be read with one eye cocked toward an as yet unwritten volume on operations—a study under normal conditions of publication the foregoing chapters would appear only with the story of
the bombardment campaign itself. Intrinsically, these chapters have a limited importance, but it is only by reference to their context that their operations in the SBI can be understood. If the present study has

...sticks it is that the COBHAM plan to bomb Japan from China bases

was adapted for reasons which were not wholly military in the strictest sense, and in the face of a forbidding logistical situation. In

Chapter VII it was shown that the Changle 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 evaluated. If the operations of the XX Bomber Command be evaluated without reference to its supply problem, they will appear

feasible. If the results of these operations be calculated without reference to these strategic objectives which were not wholly military in character, the whole XX Bomber project will appear ill-conceived and unsuccessful.

Something like this argument was suggested in the first report of the Evaluation Board in the SBI. The board pointed out the difficulty of nourishing air operations from China, especially those of the XX Bomber Command, which had consumed tons of which they thought might more profitably have been used by China. But, without committing their loss, the members of the board concluded:
The activity of this new Air Force in this theater is in the nature of a shake-down. It is a high 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 XIX 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 action, destroyed badly needed facilities, and forced him to use a larger portion of his air power engaged on purely defensive missions.

This is to say, in effect, that the operations of the XIX Bomber Command cannot be judged by a comparison with what the Fourteenth Air Force could have done with an equivalent allocation of Kampfftonnage—or for that matter, with what could have been done with a like expenditure of effort in any theater or by any agency in a global war—but that judgments must take cognizance of many factors, as direct (actual destruction wrought), and indirect (tactical lessons learned, effects on SB德ployment), and also highly intangible (effects on Chinese and Japanese morale). It is as a background for such an estimate that this study has been written. The story of operations of the judgment inherent in their degree of success should follow.
NOTES
Chapter II

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

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

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

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

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


7. 1st ind., AS/W to O/AC, 28 June 1940, to ltr., O/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., C6 GHQAF to O/AC, 15 June 1938, to ltr. of 13 May, in AAG 452.1, B, Heavy Bombers (Old).


11. Ltr., AG to O/AC, Airplane Replacement and Research and Development Programs, 30 October 1939, AG 452.1(9-21-39)M-1, in AAG 452.1, G, 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."

Chapter III

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


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


15. Final Report of Air Corps Board on Revision to Five Year Experimental Program, 23 June 1939, in AAG 334.7, Kilmer Board (Bulk).
16. See p. 17.


20. Proper, C/3 to 30/C, 3/3, Estimate of Airplanes Required Based on Hemisphere Defense, 30 April 1940, in A.G. 332.1, DL, Air 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.

<table>
<thead>
<tr>
<th>Type</th>
<th>Minimum</th>
<th>High</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Useful</td>
<td>Speed</td>
<td>Bomb or Load</td>
</tr>
<tr>
<td></td>
<td>T.I.O.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bomber, Long Range</td>
<td>4,000</td>
<td>30</td>
<td>4,000</td>
</tr>
<tr>
<td>Reconnaissance-Bomber, Heavy Range</td>
<td>2,400</td>
<td>300</td>
<td>2,000</td>
</tr>
<tr>
<td>Reconnaissance-Bomber, Medium Range</td>
<td>1,750</td>
<td>325</td>
<td>2,000</td>
</tr>
<tr>
<td>Reconnaissance-Bomber, Short Range</td>
<td>1,000</td>
<td>350</td>
<td>2,000</td>
</tr>
<tr>
<td>Bomber, Light</td>
<td>300</td>
<td>400</td>
<td>1,000</td>
</tr>
</tbody>
</table>

21. Requirements, as in note 19 above.

22. Report of Board of Officers (Lemons Board), 19 June 1940, in A.G. 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.
Chapter IV


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

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


6. Memo, Spaatz, G/AS, to AWFD, 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.


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.


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 AWFD/1 was accepted as the AAF section of "Army and Navy Estimate of U. S. Over-all Production Requirements."

11. AWFD/1, Tabs 2 and 4.

12. AWFD/1, Tab 7.

13. AWFD/4, Tab C: 32 groups of B-29 and B-32 types, 62 groups of the 4,000-mile-radius type.

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

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

16. CM-IN-390 (2 March 43), London to War, #115, 2 March 43. A few weeks earlier a similar request for airbase specifications had been dispatched to ATO in Washington: CM-IN-6464 (13 Feb. 43), USFOR to War, #4234, 12 Feb. 43.

THIS PAGE Declassified IAW EO12958
17. CT-CUT-100-85 (26 March 43), F. J. to CG, 8th AF, #1893, 20 March 43.

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

<table>
<thead>
<tr>
<th>Phase</th>
<th>B-24</th>
<th>B-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Phase</td>
<td>944</td>
<td>200</td>
</tr>
<tr>
<td>Second Phase</td>
<td>1,192</td>
<td>400</td>
</tr>
<tr>
<td>Third Phase</td>
<td>1,730</td>
<td>600</td>
</tr>
<tr>
<td>Fourth Phase</td>
<td>2,201</td>
<td>800</td>
</tr>
</tbody>
</table>

To B-29's were mentioned.


20. CT-CUT-1946 (5 Dec. 43), to CG 8th AF, F. 741, 5 Dec. 43.


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

23. Ltr., USN antisubmarine Command to CG, .F., priority of B-29 airplanes for USN antisubmarine squadrons, 17 April 1943; and 1st Ind. thereto, 24 May 1943, USN to CG .N. of Antisubmarine Command, in .A.G. 452.1, Heavy bombers.

24. RAR. J-3/1, Plans to C/1, 7 July 1943, B-29's to the Navy, in III-A Army-Navy relations, J-7, J-17.

25. CT-CUT-67 (24 March 42), AMES to New Delhi, M. A. RC 211, 24 March 42. Apparently this was in reply to a cable from Washington.

26. CT-11-4010 (13 June 42), Ft. Shafter to JCS, 777, 13 June 42.


28. See Chap. V.

29. CT-11-6174 (13 June 43), Brisbane to CG .F., A. 5012, 13 June 43.


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

35. CH-OUT-5748 (14 Nov. 43), to CINCPWPA #481, 14 Nov. 43; ltr., Giles, C/AS, to Kenney, 18 Nov. 1943, in AAG 312.1, F, Operations Letters.
Chapter V

1. COSS, 86th Mtg., 17 May 1943.

2. COSS 242/6, 25 May 1943. A monthly Hump tonnage of 10,000 tons was to be achieved by autumn 1943.

3. COSS 220, Strategic Plans for the Defeat of Japan.

4. COSS, 90th Mtg., 20 May 1943.

5. The target date for the paper had been set at the COSS, 102d Mtg., 16 June 1943.

6. COSS 83, par. 20.

7. CM, Opnav to Alsma, Chungking, President and Prime Minister to COSS, 25 Aug. 1943, in QUADRANT Conference, p. 390. Projected operations were discussed with Dr. T. Y. Soong and a plea made for Chinese cooperation.

8. COSS 313, 18 Aug.; COSS 313/1; COSS, 113th Mtg., 20 Aug. 1943.

9. COSS 301, Specific Operations in the Pacific and Far East, 1943-44, 18 Aug. 1943; COSS, 114th Mtg., 21 Aug. This plan was accepted in part in COSS 301/3, 27 August.

10. COSS 319/5, 24 Aug. 1943.

11. COSS 323, 20 Aug. 1943.

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


15. Ibid., 10 May 1943.

16. Ibid., 31 March 1943.


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.
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. AG/AS, Plans recommended that every means be employed to push production of B-29 and B-35 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 (6 Oct. 43), Ammdel AG 2086, 3 Oct. 43, a distinction seems to be made between "VHF 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.
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 Amisca, #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 OCF in making their final report.
32. CM-OUT-10990 (20 Aug. 43), Amisca #3246, 26 Aug. 43.
33. CM-OUT-12229 (29 Aug. 43), Amisca #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 OG 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 FD 384.3, Japan (11-9-43).
39. JSP 364, 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.
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; G, 10 B-29, 1 B-32; N, 12 B-29, 1 B-32; D, 14 B-29, 2 B-32. AC/AS, OA&G, Diary, 2 Nov. 1943.
44. This assumption is borne out by a reference in the minutes of JSP, 143d Mfg., 5 April 1944. In response to a query as to how the MATTEROFN project had come to enjoy first priority for VLR bombers, Colonel Lindsay "reminded The Planners that MATTEROFN 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 OBI, 15 July 1944, a passage from which was quoted by the end 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, O&G, 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. Lawo, made extensive use of interviews with Wolfe as a source.


49. Ibid.

50. Memo, FDR to Gen. Marshall, 15 Oct. 1943, in WP-IV-C-1, China, AFARP. This memo had been instigated by a complaint from OKS via Dr. Soong that Chengault had not received certain B-25 units promised him, a matter which Arnold hastened to correct; CH-OUT-9123 (21 Oct. 43), Annisca #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.


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

53. CH-IN-11422 (19 Oct. 43), Chungking to Agwar #619, 13 Oct. 43; CH-IN-15886 (27 Oct. 43), New Delhi to Agwar, #2542, 31 Oct. 43.

54. "Chengault 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. CH-IN-2861 (5 Nov. 43), Chungking to Agwar, #651, 1 Nov. 43.

56. B-29 Project - Reference Data, in D-2, Matterhorn, Asiatic Theater Br., AFARP. 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 5.

57. JPS 330, 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 Kwajin 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.


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 PH; CM-(number not known) (10 Nov. 43), FDR to KGS.

63. For China: CM-IN-8894 (14 Nov. 43), Chungking #876, 14 Nov. 43; for Great Britain: JCS 401/1, VLR Airfields, 23 Nov. 1943 (quotes CM from PH).

64. CM-OUT-2811 (9 Nov. 43), Aquila 3689, 9 Nov. 43; CM-OUT-4344 (11 Nov. 43), Amisca #3615, 11 Nov. 43.

65. See Chap. VII.

66. Memo, CG AAF to AC/AS, OCM, 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."


70. JIC 148/K, 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/H, 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/CS to SEXTANT, #1010, 20 Nov. 43.
74. CM-OUT-2555 (24 Nov. 43), Home Team to SEXTANT, #1061, 24 Nov. 43.
75. Wolfe to Arnold, Performance Tests of B-29 Airplanes, 10 Nov. 1943, in D-2, Matterhorn; CM-OUT-2720 (6 Sep. 43), Arnold to Kuter.
76. CM-IN-15433 (25 Nov. 43), SEXTANT to Agwar, #1040.
77. CM-OUT-10506 (27 Nov. 43), SEXTANT #1099, 27 Nov. 43.
78. JWPG 129/2 (Purple Draft), 30 Nov. 1943.
79. CM-IN-1139 (2 Dec. 43), SEXTANT to Agwar, #10094, 2 Dec. 43.
80. CSS 397, Specific Operations for the Defeat of Japan, 18 Nov. 1943.
81. CSS 137th Mtg., 6 Dec. 1943; CSS 397/1, 23 Dec. 1943.
82. CSS 426/1, Report to the President and Prime Minister, 6 Dec. 1943.
84. CSS 426/1, pars. 21, 25.
85. Memo for JSP, Plan DRAKE, with enclosure, 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. CSS 397/1, 23 Dec. 1943, Appendix.
89. JWPG 147/D, Optimum Use, Timing, etc., 25 Nov. 1943.
90. CM-IN-526 (1 Dec. 43), SEXTANT #10008, 1 Dec. 43.
91. CSS 417, Over-all Plan for Defeat of Japan, 2 Dec. 1943. This report by CSS indicates that although preparations were in progress for airfields at Chengtu, study was being made on the possibilities of the Kweilin area.
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 AO/AS, Intelligence.

94. Ibid., p. 2.

95. Ibid., p. 3.

96. Ibid., p. 7.

97. Ibid., p. 6.

98. Early Sustained Bombing of Japan, JFS 320/1, 22 Dec. 1943, in FD 384-2, Japan. This is a memo for record analyzing the subject critique.

99. See p. 77.

100. JIC 152/1!, 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, AO/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, AO/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. JFS 381, Optimum Use, etc., 24 Jan. 1944.


112. JPS 381/1, 15 Feb. 1944.
113. JPS, 188th 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.
118. OH-IN-14413 (2 Feb. 44), GHQ SWEA to War, #1217, 2 Feb. 1944. This was in answer to OH-OUT-3631, 30 Jan. 1944.
120. Memo, Arnold to Giles, Conferences between General Arnold and Admiral Sherman, 6 Feb. 1944, in Asiatic Theater files, AARF.
121. R&R, Giles to Kuter, Conferences between General Arnold and Admiral Sherman, 8 Feb.; Kuter to Giles, 9 Feb. 1944, ibid.
124. OH-IN-18660 (26 March 44), CINC SOWESPAC to WD, #10100, 26 March 44.
125. OH-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 MATHERBON had been based on the original assumption of eight groups. Memo, AC/AS, OC&ER to AAF Liaison Officer to the White House, 3-29 Project, 31 March 1944, in AAG 452.1, B, B-29 Bombers.
Chapter VI

1. See p. 12.

2. The events connected with the formation of the R.A.F. 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.


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, Making of Modern Strategy (Princeton: 1943), pp. 466-503. 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: 1943); 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); Skwyre (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, Edie 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: 1940) is better, but no thorough study entails 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. 28, Organization of Military Aeronautics, 1907-19; No. 10, Organization of the Army Air Arm, 1935-45; 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.


12. Memo for CG AAF, attached letter (Stratemeyer), 31 Oct. 1943, in WP-IV-C-1, China 1943, AFAFP.

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 GCS 401, 18 Nov. 1943.


16. JPS 391/1, 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 391/3/D, 8 March 1943; JCS, 150th Mtg.

21. JCS 742/3, 16 March 1944; see pp. 123 ff.

22. JCS 742/4, 27 March 1944.

23. JCS, 155th Mtg., Minutes, 28 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; JrS 381/5, 2 April; JCS 742/6, 6 April; and compare p. 88.

27. See pp. 83 ff.

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 Command, Third Phase, p. 36.
34. Memo, H. S. Handsell, Acting AG/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.
36. AG (for S/W) to CG AAF, Constitution and Activation of the Headquarters, Twentieth Air Force, AG 522 (4 April 1944) C3-1-AFHPW.
37. History of the XX Bomber Command, Third Phase, pp. 89-94.
38. See chart following p. 106.
39. See chart following p. 107.
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, QFD, and Navy, in 20th AF files.
43. Memo, CG AAF to AG/AS, OCMR, Wolfe Project, 8 Nov. 1943, in D-2 Matterhorn.
44. GO #1, Eq. XX Bomber Command, Smoky Hill Army Air Field, Salina, Kans., 27 Nov. 1943, in History of the XX Bomber Command, Second Phase, Supporting Doc. #1.
45. For organizational charts of the command and its constituent elements, see ibid., pp. 26-41.

THIS PAGE Declassified IAW EO12958
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 USAF, IES, O3I; interview with Lt. Col. John B. Carey (pp. 5 & chart), WP-IV-3-1, China 1943; ltr., Maj. Edward E. Yoynow to Gen. W. E. Fairling, 4 Jan. 1944 (a very lively account of firsthand impressions by a member of the advance echelon of the XX Bomber Command), in AAG 31Z.J. Opns. Ltrs.

47. GCS 308/3, South East Asia Command, 21 Aug. 1943.


51. History of USAF, IES, O3I, p. 25. For organization, see chart following p. 112.

52. JPS 320, par. 15.

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-3-1, China 1943, AFAFP. And cf. CM-IN-15125 (25 Oct. 43), Teheran to Agwar (Somervell to Marshall), #2810 EM 2663, 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, AFAFP.


56. *Ibid*.

57. CM-IN-1432 (5 Jan. 44), Amaisca #4903, 5 Jan. 44.

58. CM-IN-5439 (9 Jan. 44), Stilwell to Marshall, #23, 9 Jan. 44.


60. JCS 665/1, 18 Jan. 1944.


63. CH-IN-15128 (23 Jan. 44), Stratemeyer to Arnold, W308, 23 Jan. 44.

64. Ltr., Stratemeyer to Arnold, 3 Feb. 1944, in Asiatic Theater file.

65. Ltr., Chenneau 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 Chenneau's independent thoughts and ideas—without coordination with Hq. 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. CH-IN-16562 (20 Feb. 44).

70. See p. 115.

71. CCS 426/1, par. 25, 6 Dec. 1943.

72. CH-IN-5490 (6 Jan. 44), Sultan to Marshall, AG 88, 6 Jan. 44; CH-IN-5978 (9 Jan. 44), Stilwell to Marshall, AG 163, 9 Jan. 44.

73. History of XX Bomber Comd., Third Phase, p. 40.

74. SSECOS 105, SACSMA to [British] Chiefs of Staff, rpt., JSHI. Washington, 26 Feb. 1944, quoted in CCS 501, 28 Feb. Mountbatten had received the GO on the 26th.

75. CH-IN-1832 (26 Feb. 44), New Delhi to Agwar, Amdal AG 1309, 26 Feb. 44.


77. BSM-58S A/N W. L. Welsh to Arnold, 1 March 1944 (relaying Portal's message); and reply, Arnold to Welsh, 6 March, in AAG 300-2, CBI.

78. CH-IN-5199 (5 March 44), New Delhi to Agwar, Aquila W 635. 5 March 44.

79. CH-OUT-2115 (6 March 44), Aminsa #4685, Arnold to Stilwell for Stratemeyer, Wolfe, Kuter, 5 March 44.
60. JCS 742, par. 13b; see p. 83.

61. JCS 747, Method of Control, 20th Bomber Command, 6 March 1944.

62. CTS 501/1, 7 March 1944.

63. CK-OUT-3058 (8 March 44), Ammara #4701, 7 March 44.

64. CTS 501/2, 24 March 1944.

65. CK-OUT-14270 (25 March 44), Marshall to Stilwell, WARK 14270, 25 March 44; CK-IN-19445 (27 March 44), COSSEA 83, COS to SACEMA, 27 March 44.

66. CK-IN-15708 (22 March 44), GG USAF 1311, HE #39, Sultan to Marshall, 22 March 44.


68. CK-OUT-18613 (4 April 44), OPD 394TS, 3 April 44.

69. CK-OUT-25553 (20 April 44), WARK 25553, 19 April 44. The chart following page 125 illustrates the position of the XX Bomber Command in the CPU.

70. CK-OUT-25703 (20 April 44), JCS to Stilwell, WARK 25703, 20 April 44.

71. CTS 501/4, 19 April 1944.

72. See pp. 104 ff.

73. Ltr., Chennault to Stilwell, 8 April 1944, in Asiatic Theater file.

74. Memo, Marshall to President, 11 April 1944, in FD 394.3, Japan.

75. Memo, Capt. C. C. Wood to Marshall, 12 April 1944 (inclosing copy of cable), ibid.


Chapter VII

1. See pp. 61 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 FM; CM (number unknown) (10 Nov. 43), President to CJS, quoted in ltr., Giles to Arnold, 24 Nov. 1943, in Wolfe Project file, AFSEP.
9. CM-IN-19022 (31 Oct. 43), New Delhi to Agwar, W2542, 31 Oct. 43.
10. CM-IN-2748 (5 Oct. 43), Ammdal AG 2088, 5 Oct. 43.
11. COS 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-8684 (14 Nov. 43), Chungking to Agwar, #376, 14 Nov. 43. General Stillwell had been informed of the President's cables. CM-OUT-4344 (11 Nov. 43), Ammaca, #3515, 11 Nov. 43.
13. COS 401, VLR Airfields (B-29) in the CBI Area, 18 Nov. 1943.
14. COS 401/1, 23 Nov. 1943.
15. COS 397, par. 7; COS 429/1, Report to the President and Prime Minister, 6 Dec. 1943 (approving COS 397).
16. COS 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.


22. CM-IN-8578 (14 Jan. 44), Stratemeyer to Arnold, W211, 14 Jan. 44.

23. CM-IN-16935 (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-13263 (26 March 44), Office AAF L & S to WD, W970, 25 March 44.


27. CM-IN-9807 (14 Feb. 44), New Delhi to War, W421, 13 Feb. 44.

28. CM-IN-16620 (26 Feb. 44), Sultan to Marshall, AG 1193, 26 Feb. 44.

29. CM-IN-9934 (14 March 44), Aquila W742, 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-2165 (13 April 44), Stratemeyer to WD, CABX 415, 13 April 44.

33. CM-IN-9800 (23 Nov. 43), Aquila W2643, 24 Nov. 43.

34. The theater had originally requested Brig. Gen. J. A. Davidson, who was not available. CM-IN-10342 (17 Nov. 43), Ammicon AG 2878, 17 Nov. 43; CM-OUT-9834 (17 Nov. 43), #3735, 17 Nov. 43; CM-OUT-2165 (24 Nov. 43), Ammicon 3911, 24 Nov. 43; CM-IN-10138 (16 Dec. 43), New Delhi to AG, W912, 16 Dec. 43.

35. CM-IN-14434 (24 Nov. 43), Ammicon W717, 23 Nov. 43.

36. CM-OUT-8486 (21 Nov. 43), SEKTANT 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. 43 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.


41. Memo, CG AAF to AG/AS, OCSAR, Wolfe Project, 8 Nov. 1943, in D-2, Matterhorn.

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

43. Memo, CG AAF to O/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 GG, 14,786 tons construction supplies, and 1,075 tons FOL.

44. JOS 600/2; JOS, 124th Mtg., 17 Nov. 1943.

45. CH-IN-13476 (20 Nov. 43), SEXTANT NOR 6143, 20 Nov. 43; CH-OUT-8237 (20 Nov. 43), SEXTANT 1009, 20 Nov. 43.

46. CH-IN-15448 (25 Nov. 43), SEXTANT 10037, 25 Nov. 43.

47. CH-OUT-10079 (27 Nov. 43), SEXTANT 1113, 26 Nov. 43.

48. CH-OUT-3611 (9 Nov. 43), Ammala 3800, 9 Nov. 43.

49. CH-IN-12056 (19 Nov. 43), Ammala 2912, 18 Nov. 43; CH-IN-12369 (20 Nov. 43), Ammala 2920, 20 Nov. 43; CH-OUT-9256 (22 Nov. 43), Aquila 4419, 22 Nov. 43.

50. CH-OUT-10176 (26 Nov. 43), Ammala 4505, 25 Nov. 43; CH-OUT-10880 (27 Nov. 43), Ammala 4533, 27 Nov. 43.

51. CH-IN-110 (1 Dec. 43), Ammala 3095, 30 Nov. 43.

52. GOS 401/2, 6 Dec. 1943.

53. CH-OUT-1233 (5 Dec. 43), Ammala 4699, 5 Dec. 43.

54. CH-OUT-4004 (20 Nov. 43), Ammala 3809, 20 Nov. 43.

55. CH-IN-17764 (28 Nov. 43), Aquila W2755, 28 Nov. 43; memo, Gen. Lutes to CG ASF, Supplementary Report from OA 2, 25 Dec. 1943, in D-2, Matterhorn.

56. CH-IN-13569 (22 Nov. 43), Aquila W2696, 22 Nov. 43.

58. Memo, Lutes to CG AST as in n. 55 above.

59. CM-IN-16659 (27 Dec. 43), Aquila 3020, 27 Dec. 43.

60. CM-OUT-9949 (27 Dec. 43), Amscra 4140, 28 Dec. 43; CM-IN-987
    (2 Jan. 43), Stillwell to Marshall.

61. CM-OUT-1222 (4 Jan. 44), Marshall to Stillwell, 4196, 4 Jan. 44;
    CM-IN-6259 (10 June 44), Sultan to Marshall, AG 172, 10 Jan. 44;
    CM-IN-5334 (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), Amadel 5559, 13 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. Wolfingham to Col. Johnson,

66. Memo, Arnold to C/S, Matterhorn Airfield Construction in Calcutta

67. Memo, Lt. Col. P. L. Freeman to Col. Todd, Comments on JCS Paper,

68. CM-IN-10519 (16 Jan. 44), Sultan to Arnold, W446, 16 Jan. 44.

69. CM-IN-12996 (23 Feb. 44), Stratemeyer to Arnold, W76, 20 Feb. 44;
    CM-IN-15128 (23 Jan. 44), Stratemeyer to Arnold, W908, 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 enclosed
    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), Amadel AG 1565, 15 March 44.

75. CM-OUT-17231 (1 April 44), Arnold to Stratemeyer, WAE 17231,
    27 March 44.

76. CM-OUT-21670 (11 April 44), Arnold to Stratemeyer, WAE 21670,
    11 April 44.
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 CG&R, but the particular job assignments are not listed. The statement is frequently made that Stillwell loaned two battalions from Ledo to MATHER-ON; 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.


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. CH-OUT-9942 (24 Nov. 43), Amdal 4490, 24 Nov. 43.

83. CM-IN-5943 (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-13559 (26 Feb. 44), Aquila W669, 26 Feb. 44.

86. CH-OUT-1234 (3 Dec. 43), Aquila 3890, 3 Dec. 43.

87. CM-IN-5843 (9 Jan. 44), Stratemeyer to Arnold, W80, 9 Jan. 44.


89. CM-IN-12900 (21 Nov. 43), Tigar GW 1180, 20 Nov. 43; CM-IN-13730 (22 Nov. 43), New Delhi to ASC, W898, 22 Nov. 43.

90. CM-IN-16925 (24 Feb. 44), SAGS to C/S, SNA aos 103, 23 Feb. 44.


92. CM-IN-403 (1 Dec. 43), Tigar 1222, 1 Dec. 43; CDS 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.

95. Ibid., pp. 27-32.

96. For a description of the reading of this building for use, see History of the XX Bomber Cond., Third Phase, pp. 47-64.


98. Ibid., p. 4.


100. On all this, see pp. 66 ff.

101. For a general description of the valley, see W. G. Lowdemark, "China Fights Erosion with U. S. Aid," National Geographic, LXXXVII (June 1945), pp. 641-6; and a very well-written appreciation by the historian of the XX Bomber Command, in History of the XX Bomber Cond., Fourth Phase: The Forward Area, pp. 3-9 (hereinafter cited as Forward Area).

102. CH-OUT-10736 (17 Nov. 43), Stilwell to Agwar, AG 2982, 17 Nov. 43.

103. CH-IN-1359 (22 Nov. 43), New Delhi to War, W2696, 23 Nov. 43; CH-IN-17/64 (23 Nov. 43), New Delhi to Agwar, 28 Nov. 43.

104. CH-IN-2891 (4 Dec. 43), New Delhi to Agwar, W2807, 4 Dec. 43.

105. Ltr., Stratemeyer to Arnold, 5 Jan. 1943, in Asiatic Theater file, AFAF.

106. CH-IN-18401 (19 Dec. 43), New Delhi to Agwar, #2398, 19 Dec. 43.

107. CH-IN-560 (1 Jan. 44), New Delhi to Agwar, W-2, 1 Jan. 44.

108. History of XX Bomber Cond., Third Phase, pp. 23, 35.

109. CH-IN-5343 (9 Jan. 44), Stratemeyer to Arnold, W80, '9 Jan. 44. This was two weeks later than Chinese officials had estimated.


111. CH-IN-5343 (9 Jan. 44), Stratemeyer to Arnold, W80, 9 Jan. 44. Fields under consideration were: Luchow, Li Chia Chen and Sinchow (Kwangsi Province) and Chengt'ing near Kunning.
112. GM-OUT-4017 (11 Jan. 44), Arnold to Stratemeyer, 4254, 11 Jan. 44.
113. GM-IN-8578 (14 Jan. 44), Stratemeyer to Arnold, W111, 14 Jan. 44.
114. GM-IN-12334 (19 Jan. 44), Stratemeyer to Arnold, W164, 19 Jan. 44.
115. Itr., Chennault to Arnold, 28 Jan. 1944, in D-2, Matterhorn.
116. GM-OUT-7678 (20 Jan. 44), Arnold to Stilwell 855, 20 Jan. 44.
117. GM-IN-15133 (33 Jan. 44), Stratemeyer to Arnold, W208, 23 Jan. 44; GM-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. GM-IN-10738 (17 Nov. 43), Stilwell to Agwar, AG 2882, 17 Nov. 43.
121. GM-OUT-5798 (15 Nov. 43), Ammdal 4538, 15 Nov. 43.
122. For example, a requisition was filed for a soils expert in China to advise concerning the siting of the airfields. GM-IN-16754 (27 Nov. 43), Tiger 1199, 27 Nov. 43.
123. GM-IN-8594 (14 Nov. 43), Chungking to Agwar, 876, 14 Nov. 43; GM-IN-10174 (17 Nov. 43), CAC/JR, W64-Q, 17 Nov. 43; GM-IN-10738 (17 Nov. 43), Stilwell to Agwar, AG 2882, 17 Nov. 43; GM-IN-13090 (21 Nov. 43), New Delhi to Agwar, W2890, 20 Nov. 43; GM-IN-14434 (24 Nov. 43), New Delhi to Agwar, W2917, 25 Nov. 43.
124. GM-IN-17578 (28 Nov. 43), Aquila 2761, 23 Nov. 45.
125. GM-OUT-311 (1 Dec. 43), Aquila 3365, 1 Dec. 43; GM-OUT-2214 (6 Dec. 43), Aquila 3516, 6 Dec. 43.
126. GM-IN-9585 (15 Dec. 43), Aquila W3908, 15 Dec. 45. Current estimates were then set at 57/75.
127. GM-IN-16388 (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 GBI. GM-OUT-7485 (19 Dec. 43), Arnold to Stratemeyer, #44, 19 Dec. 43. The final figure was set at 57/75, plus a headquarters organization.
128. GM-OUT-11552 (31 Dec. 43), Arnold to Stratemeyer, 4146, 31 Dec. 43.
129. GM-IN-15129 (22 Jan. 44), Stratemeyer to Arnold, W208, 23 Jan. 44.


132. CH-IN-550 (1 Jan. 44), New Dalai to Agwar, W2, 1 Jan. 44; CH-IN-361 (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; Kuling, 48,000; Hsingping, 23,000; Pengchao, 7,500; Shuangliu, 6,000; Fungweng-han, 3,000—a total of 210,500.


136. Forward Area, p. 16.

137. Ibid., pp. 16-20.

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.


140. CH-IN-1446 (3 Dec. 43), Ammisca 910, 3 Dec. 43; CH-IN-7000 (11 Dec. 43), Ammisca 927, 11 Dec. 43.

141. CH-IN-11853 (19 Dec. 43), Chungking to Agwar, 946, 19 Dec. 43.


144. CH-IN-551 (1 Jan. 44), Chungking to Agwar, #1, 1 Jan. 44.

145. CM-IN-1223 (4 Jan. 44), Marshall to Stilwell, 4192, 4 Jan. 44; CH-IN-4545 (8 Jan. 44), Stilwell to Marshall, AG 18, 7 Jan. 44.

146. CH-IN-471 (10 Jan. 44), Chiang Kai-shek to Marshall for FDR, #25; CH-IN-6805 (14 Jan. 44), Stratmeyer to Marshall, Wlb., 14 Jan. 44.

147. CH-IN-5024 (5 Feb. 44), Chungking to Agwar, #86, 4 Feb. 44; CH-IN-9208 (13 Feb. 43), Hearns to Somervell.
149. See p. 162.
150. CM-IN-13639 (21 Jan. 44), Chungking to Agwar, #46, 19 Jan. 44.
151. CM-IN-3024 (5 Feb. 44), Chungking to Agwar, #66, 4 Feb. 44.
152. CM-IN-4096 (6 March 44), Aquila W649, 6 March 44.
153. Forward Area, p. 62.
155. Forward Area, p. 18.
157. CM-IN-10174 (17 Nov. 43), CGUK Wd44G, 17 Nov. 43.
158. CM-SUT-6748 (17 Nov. 43), CGUK 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 photograph in this study illustrate graphically the construction methods.
161. CM-IN-5334 (10 Jan. 44), Wedemeyer to Marshall, #97, 10 Jan. 44.
162. CM-IN-9104 (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, 739A, 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 7 Engineer, SOS USAF CBI to Air Engineer, CBI, ASC, Weekly Progress Report, 18 May 1944, in 20th AT 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-IN-2115 (6 March 44), Ammisca 4685, 5 March 44.


173. CM-IN-3162 (5 March 44), Aquila W634 RAOS, 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 SOW/SCAU sq., A13C886, 23 March 44. Kanesanurai and Katunayaka seem likely to have been the two unidentified fields mentioned in note 172 above. Kuter had been briefed on the Geylon 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. Willman to Gen. Kuter, 22 March 1944, in D-2, Matterhorn.

177. CM-IN-2113b (29 March 44), Aquila W903, 29 March 44.

178. CM-IN-13636 (19 April 44), Stratemeyer to WD, OABX 513, 16 April 44.

179. CCS 401/6, 21 April 1944.

180. CM-IN-1747 (3 May 44), Stratemeyer to WD, 873, 29 April 44; CCS 401/6, 8 May 1944; JUS 800/6, 12 May 1944.

181. CM-IN-3899 (5 May 44), Stratemeyer to WD, OABX 997, 5 May 44.

Chapter VII

1. JIO 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." JIO 123d Mtn., 10 Nov. 1943.


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.


6. CH-IN-4027 (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 Chernault, Harmon, and Beebe, and later on 10 September by Strattemeyer. The original is filed with a copy of Wolfe's plan, as cited below in note 8.


9. JPS 320, 9 Nov. 1944, par. 7.

10. CSS 321/1, par. 7.

11. CH-IN-4530 (7 Dec. 43), SEXTANT to Giles, 10158, 7 Dec. 43.

12. See pp. 144 ff. FOR OFFICIAL USE ONLY (AFR 199-16)
13. CH-IN-110 (1 Dec. 43), Ammdel AG 3085, 30 Nov. 43.

14. JPS 320, App. B, Shipping Requirements by months at Calcutta:

<table>
<thead>
<tr>
<th>Month</th>
<th>Troop Lift</th>
<th>Dry Cargo (Short Tons)</th>
<th>Port Facilities</th>
<th>FOL Short tons</th>
</tr>
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<tbody>
<tr>
<td>Nov. 1943</td>
<td>None</td>
<td>None</td>
<td>Available</td>
<td>None</td>
</tr>
<tr>
<td>Dec. 1943</td>
<td>None</td>
<td>None</td>
<td>Available</td>
<td>None</td>
</tr>
<tr>
<td>Jan. 1944</td>
<td>4,839</td>
<td>22,548</td>
<td>Available</td>
<td>1,075</td>
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<td>Feb. 1944</td>
<td>4,888</td>
<td>24,320</td>
<td>Available</td>
<td>1,095</td>
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<tr>
<td>March 1944</td>
<td>7,060</td>
<td>35,701</td>
<td>Available</td>
<td>1,095</td>
</tr>
<tr>
<td>April 1944</td>
<td>3,888</td>
<td>41,670</td>
<td>Available</td>
<td>20,147</td>
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<td>May 1944</td>
<td>36,712</td>
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<td>Available</td>
<td>20,631</td>
</tr>
<tr>
<td>June 1944</td>
<td>41,332</td>
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<td>Available</td>
<td>26,631</td>
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<td>4,660</td>
<td>29,592</td>
<td>Available</td>
<td>40,342</td>
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<tr>
<td>Sep. 1944</td>
<td>4,660</td>
<td>29,592</td>
<td>Available</td>
<td>40,342</td>
</tr>
<tr>
<td>Oct. 1944</td>
<td>27,836</td>
<td>27,836</td>
<td>Available</td>
<td>42,602</td>
</tr>
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<td>Nov. 1944</td>
<td>27,836</td>
<td>27,836</td>
<td>Available</td>
<td>42,602</td>
</tr>
<tr>
<td>Dec. 1944</td>
<td>27,836</td>
<td>27,836</td>
<td>Available</td>
<td>42,602</td>
</tr>
</tbody>
</table>

15. JJS 130th Mtg., 6 Dec. 1943.

16. CWS 428 (Revised), Relation of Available Resources to Agreed Operations.

17. CH-OUT-2229 (6 Dec. 43), Ammische 3990, 6 Dec. 43; CH-OUT-2529 (7 Dec. 43), Ammische 4739, 7 Dec. 43; CH-OUT-8157 (21 Dec. 43), War to Stilwell, 4056, 21 Dec. 43.

18. CH-IN-4303 (7 Dec. 43), SEXHUM to Agwar, 10162, 7 Dec. 43.

19. Ibid.

20. CH-OUT-8157 (21 Dec. 43), War to Stilwell, 4056, 21 Dec. 43.


24. CH-OUT-8383 (19 Feb. 44), Aquila 4694, 19 Feb. 44.

25. Ibid.
26. Information contained in this paragraph is digested from a large number of unit histories for February-May 1944. Those of the 18 bomb maintenance squadrons are particularly full of information on the voyage.

27. History of XX Bomber Comb., April 1944, p. 2; Station History of 10 May 1944 in Transport Project, Supporting Dec. #3.


30. CK-OUT-2675 (6 Feb. 44), Ammeln 6125, 6 Feb. 44; CK-IN-9483 (14 Feb. 44), Ammeln 940, 13 Feb. 44.

31. CK-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. CK-OUT-4155 (10 Feb. 44), Aquila 4679, 9 Feb. 44; CK-IN-8908 (13 Feb. 44), Ammeln A2 921, 12 Feb. 44; CK-OUT-8151 (19 Feb. 44), Ammeln 6419, 18 Feb. 44.

34. CK-OUT-10312 (24 Feb. 44), Ammeln 6542, 24 Feb. 44.

35. CK-IN-19178 (27 Feb. 44), Ammeln A2 1237, 27 Feb. 44.

36. CK-OUT-580 (1 March 44), Aquila 4824, 1 March 44.


38. CK-OUT-6275 (15 March 44), Aquila 5021, 13 March 44.

39. CK-IN-16401 (23 March 44), Aquila W886 RA0X 23 March 44; CK-OUT-13787 (24 March 44), Arnold to Stretser, YANK 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, 519.1 Reports.


45. O&R Diary, 28 June 1943.


47. See p. 67.

48. JCS 113th Mtg., 9 Nov. 1943.

49. History, as in n. 46, pp. 48-49.


51. CM-IN-19635 (25 Jan. 44), Stratemeyer to Arnold, W237, 26 Jan. 44.

52. CM-OUT-1946 (5 Dec. 43), Giles to Baker, A 4741, 5 Dec. 43.

53. CM-OUT-3891 (23 Dec. 43), Wolfe to Arnold (no number); CM-IN-17076 (28 Dec. 43), Smoky Hill to WD, SAD 6596, 28 Dec. 43.


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 inclusions, in Wolfe Project file; memo, OAS to President, Cover Plan for B-29 Operations, 15 Feb. 1944, ibid.; memo, Kuter to Loutzenhiser, Plans and Cover Plans, 12 Feb. 1944, in B-2, Matterhorn; Plans, Daily Activity Report, 16 Feb. 1944; CM-OUT-3859 (9 Feb. 44), Surles to Stratemeyer, 9 Feb. 44; CM-OUT-3859 (9 Feb. 44), Surles to Stilwell 4475, 9 Feb. 44; CM-IN-8365 (12 Feb. 44), Aqulia W410, 12 Feb. 44; CM-IN-11111 (16 Feb. 44), Sultan to Marshall, AG 992, 16 Feb. 44; CM-OUT-8766 (16 Feb. 44), Amadel 6333, 16 Feb. 44; CM-IN-14204 (20 Feb. 44), New Delhi to War, AG 1073, 20 Feb. 44; CM-OUT-9257 (22 Feb. 44), Joint Security Control to Sultan, 6497, 22 Feb. 44.


57. CM-IN-2893 (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-1939 (23 March 44), Arnold to Spaatz, WARR 1939, 23 March 44; CM-IN-21762 (30 March 44), Spaatz to Arnold, US0348, 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, F796, 13 March 44.

61. History of XX Bomber Comd., Third Phase, p. 96.

62. CM-OUT-129 (1 March 44), Aquila 4612, 1 March 44, announces the following tentative schedule:

1. 40th Group: 10 B-39'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-399 (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-2535 (4 March 44), Aquila WA33 401, 4 March 44 (giving the following schedule: 58th Wing Eq. and 40th Gp., Chakulia; 444th Gp., Cherra; 458th 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.


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.


71. See n. 68 above.


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/GS, News, 26 Aug. 1944, in ATC files, 322 XX Bomber Comd.

74. CM-IN-9282 (14 March 44), Wolfe to Arnold for ATC, 162 D, 14 March 44; CM-OUT-5430 (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. 1945, par. 2e; JPS 320, App. A.

79. CM-OUT-5755 (14 Nov. 45), Marshall to Eisenhower, 2556, 14 Nov. 43; CM-OUT-2555 (24 Nov. 43), N/A/4, 1065, 24 Nov. 43.


81. Plans, Daily Digest, 1 Jan. 1944; CM-IN-2159 (4 Jan. 44), Stratagemeyer to Arnold, W25, 4 Jan. 44.


84. ltr., Col. C. F. Nielsen, MD to CG, Atlantic Overseas ASC, 21 Jan. 1944, in AAC Misc. A, ICH.

85. Medical History of the 33d Fighter Gp. (a well-written account of the voyage out); and 61st 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 AIF personnel, both officers and GI's.

86. Ibid.

87. CM-IN-3461 (12 Feb. 44), Andnel AG 904, 12 Feb. 44; CM-CUT-2777 (7 March 44), War to Stratemeyer, 4904, 7 March 44.

88. By 14th AF 60 47, 13 March; cited in history of 312 Fighter Wing, March-June 1944.

89. CM-CUT-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-CUT-3955 (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 Chungtsu. On February 15th 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 as). His outlook before now is that things are worse in China than before Pearl Harbor#; ltr., Maj. G. A. Stinson, A-3, XX Bomber Cmd. 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-18950 (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 W5559, 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 Y-40's by 10 April, but it was immediately modified as described above. CM-IN-3289, as in preceding note; CM-IN-5347 (3 March 44), Stratemeyer to Arnold, W578, 8 March 44.
96. Medical History of the 33d Fighter Gp.

97. Ibid.

98. Sist Fighter Gp., War Diary, May, June, July.

99. CSS 307/1, Annex, Schedule of Ops.

100. CH-IN-10786 (17 Nov. 43), Stilwell to Agwar, AG 3882, 17 Nov. 43.

101. He assumed command on 2 November 1943. History of XX Bomber Cmd., Third Phase, p. 36.

102. CH-IN-12133 (19 Dec. 43), Aquila W2944, 19 Dec. 43.


104. History of XX Bomber Cmd., Third Phase, p. 47.

105. Ltr., Stratemeyer to Arnold, 3 Feb. 1944, in 21st AF 201 file, Personnel Records; CH-IN-3499 (5 Feb. 44), Stratemeyer to Marshall, W546, 5 Feb. 44.

106. Ibid.; CH-IN-4866 (7 Feb. 44), Stratemeyer to Arnold, W562, 7 Feb. 44.

107. CH-IN-954 (2 Feb. 44), Amendel AG 666, 1 Feb. 44; memo, Loutzenheiser to Kuter, Attached Radio /CH-IN-954/ and Suggested Reply, 2 Feb. 44, in D-2, Matterhorn.

108. CH-IN-11476 (16 April 44), CAB 16169, 16 April 44.

109. Note the discrepancies in figures from the following sources: (1) AAM, 583 tons (see table following p. 210); (2) XX Bomber Cmd. Statistical Sec., 427 tons (see table following p. 209); (3) General Wolfe, 478 tons (XX Bomber Cmd., Progress Report #4, 30 April 1944); (4) ASC, CHI, 116 tons (CH-IN-1476 (16 April 44), Stilwell to Marshall, CAB 16169, 16 April 44).

110. Ibid.

111. CH-IN-16539 (21 April 44), Wolfe to Arnold, Yc 1733, 21 April 44; XX Bomber Cmd, Progress Report #4, 30 April 1944.

112. CH-IN-13407 (19 March 44) Assam-China Sector, ATC to WD, 3-163, 18 March 44.
113. See table following p. 210 and CM-IN-11476 (16 April 44), CAB 16169, 15 April 44.


115. CK-OUT-2115 (6 March 44). Ammisaca 4685, 5 March 44.


117. See p. 193.

118. CM-IN-16401 (28 March 44), Stratemeyer to War, W836 RACK, 28 March 44.

119. CK-OUT-6855 (16 March 44), Arnold to Stratemeyer, 4755, 16 March 44; CK-IN-11079 (15 April 44), Wolfe to Arnold, 729A, 15 April 44.

120. Ibid., XX Bomber Cmnd. memo #55-9, Aircraft Shuttle Service, 15 April 1944, in History of XX Bomber Cmnd., April 1944, Supporting Docs.

121. CM-IN-20610 (28 April 44), Wolfe to Arnold, Ys 2005, 27 April 44.

122. CM-IN-11079 (15 April 44), Wolfe to Arnold, 729A, 15 April 44; CM-IN-12718 (15 April 44), Chennault to WD, GATX 908, 17 April 44.

123. CM-IN-22862 (30 April 44), Wolfe to Arnold, 25743, 29 April 44.

124. CM-IN-15399 (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-6806 (10 April 44), Stratemeyer to Arnold, GATV 365, 10 April 44.

127. Progress Report #4, p. 4.

128. Ltr., Hardin to George, 6 April 1944, in ATC files, 321 India-Pacific Wing.

129. CM-IN-5664 (8 April 44), Stratemeyer to WD, CAB 326, 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 Cmnd.

133. CM-IN-11655 (16 May 44), Wolfe to Arnold, 2009 E, 16 May 44; CM-IN-13559 (18 May 44), Wolfe to Arnold, 3012 E, 17 May 44.

134. CM-IN-38765 (19 May 44), Arnold to Stratemeyer, WARX 38765, 19 May 44; CG AAF LBS to CG XX Bomber Cmd. 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 Cmd.

135. Transport Project, pp. 32-33.

136. Ibid., p. 31.


138. Progress Report #4, p. 11.

139. Transport Project, pp. 33-34.

140. CM-IN-90 (1 May 44), Wolfe to Bohl, A-2135, 30 April 44; WD-TT-518 (3 June 44), Washington-Pharagpur.

141. CM-IN-11782 (16 May 44), XX Bomber Cmd. to WD, IE 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 Cmd. to Staff Sec., Combat Goal and Logistical Schedule, June 1 to June 30, 26 May 1944, in 20th AF files, 322 XX Bomber Cmd.


146. CM-IN-1319 (2 July 44), Chennault to WD, CAXX 4378, 2 July 44.

147. CM-IN-2827 (4 June 44), Stilwell to JUS, 1146, 4 June 44.

148. CM-OUT-46820 (6 June 44), JUS to Stilwell, WARX 46820, 6 June 44.

149. CM-IN-5027 (7 June 44), Stilwell to WD, CXY 18258, 6 June 44; CM-OUT-47296 (7 June 44), WD to Stilwell, WARX 47296, 7 June 44; CM-IN-5647 (9 June 44), Stilwell to Marshall, GAC 1173, 9 June 44.
150. CH-UR-4797/1 (8 June 44), WD to Stratemeyer, WAX 47971, 8 June 44; CH-UR-47970 (8 June 44), WD to Chennault, WAX 47970, 8 June 44.


152. CH-UR-46999 (6 June 44), WD to Wolfe, WAX 46999, 6 June 44.

153. CH-Lm-5557 (6 June 44), Wolfe to WD, 4269A, 7 June 44.

154. CH-UR-47959 (6 June 44), WD to Wolfe, WAX 47959, 7 June 44.

155. CH-UR-51560 (10 June 44), Hansell to Marshall and Arnold at London, WAX 51560, 16 June 44.

156. CH-UR-48999 (6 June 44), Arnold to Wolfe, WAX 48999, 6 June 44.

157. T-00n-OUT (no number), Washington to Kharagpur, 23 June 44.

158. T-00n-OUT (no number), Washington to Kharagpur, 10 June 44; and same, 21 June 44.

159. Memo, Arnold to CG AAF, C-4c Aircraft and Personnel Replacement Flow to Air Transport Squadrons, XX Bomber Command, 10 July 1944, in ATC files, 322 XX Bomber Cond.

160. T-00n-IN-15231, Kharagpur to Washington, 9 Aug. 44.

161. Leid.

162. CH-UR-56673 (27 June 44), WD to CG XX Bomber Cond., WAX 56673, 27 June 44.

163. Transport project, p. 41.

164. Ibid., p. 40.

165. Ibid., p. 41.

166. Ibid., p. 43.

167. CH-Lm-21219 (26 June 44), Chennault to WD, OAKX 4019, 26 June 44.

168. These had been stipulated recently in a directive, CG AAF Ltr.S to CG XX Bomber Cond., Division of Administrative Logistic and Tactical Responsibilities Between CG AAF Ltr.S and CG XX B. C., 13 June 1944, in 20th AF files, AAF Activities in Ltr.S.

169. CH-IN-1319 (2 July 44), Chennault to WD, OAKX 4373, 2 July 44.
170. CN, Wolfe to Stratemeyer, quoted without number or date (but about 2 July) in Transport Project, p. 43.

171. CI-IN-2646 (4 July 44), Stratemeyer to WD, CABX 2917, 3 July 44; see also CI-IN-24632 (30 June 44), Stratemeyer to Chennault, CABX 2796, 30 June 44; and CI-IN-1914 (3 July 44), Chennault to WD, CABX 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 50th 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." CI-IN-21388 (23 Aug. 44), Stratemeyer to Arnold, information Chennault and Sultan, CABX 4997, 23 Aug. 44.

174. CI, Stratemeyer to WD, 7 July 44, quoted without number. Transport Project, p. 47.

175. Ibid., p. 49.


177. See pp. 235-37.

178. CM-OUT-31202 (2 May 44), JCS to Stilwell, WAX 31202, 2 May 44. Cf. JCS 933, 28 April 1944 and JCS 739/1, 2 May 1944.

179. CM-IN-6480 (6 May 44), Sultan to Marshall, WAX 2855, 6 May 44.

180. CM-OUT-34129 (9 May 44), Arnold to Wolfe, WAX 34129, 9 May 44.

181. CM-IN-3363 (3 June 44), Stilwell to Marshall, WAX 4037, 3 June 44, seconding Stratemeyer's proposal of 2 June in CABX 1831.

182. JCS 940, Augmentation of India-China Division of ATO, 7 July 1944.
183. Ibid., Appendix:

Increased Air Lift

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<tr>
<th>1944</th>
<th>Assam to</th>
<th>Assam &amp; Back Sortal to</th>
<th>Total</th>
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<td></td>
<td>Kumasi</td>
<td>Kwilin or Chenzu</td>
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<tr>
<td>July</td>
<td>10,975</td>
<td>500</td>
<td>12,500</td>
</tr>
<tr>
<td>Aug.</td>
<td>13,500</td>
<td>500</td>
<td>18,000</td>
</tr>
<tr>
<td>Sep.</td>
<td>12,500</td>
<td>1,500</td>
<td>14,000</td>
</tr>
<tr>
<td>Oct.</td>
<td>15,000</td>
<td>5,500</td>
<td>20,500</td>
</tr>
<tr>
<td>Nov.</td>
<td>18,000</td>
<td>9,500</td>
<td>27,500</td>
</tr>
<tr>
<td>Dec.</td>
<td>20,000</td>
<td>11,000</td>
<td>31,000</td>
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Aircraft to be Allocated to ATC

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<th>C-54</th>
<th>C-87 or B-24</th>
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<tbody>
<tr>
<td>July</td>
<td>140</td>
<td>6</td>
<td>50</td>
</tr>
<tr>
<td>Aug.</td>
<td>140</td>
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</tr>
<tr>
<td>Sep.</td>
<td>140</td>
<td>15</td>
<td>70</td>
</tr>
<tr>
<td>Oct.</td>
<td>140</td>
<td>35</td>
<td>95</td>
</tr>
<tr>
<td>Nov.</td>
<td>190</td>
<td>60</td>
<td>115</td>
</tr>
<tr>
<td>Dec.</td>
<td>190</td>
<td>70</td>
<td>115</td>
</tr>
</tbody>
</table>

184. CT-OUT-63749 (10 July 44), Arnold to Saunders, WAiX 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. CK-OUT-68054 (20 July 44), Arnold to Giles, WAiX 68054, 20 July 44; T-CON-OUT, Washington to Kharagpur, 29 July 44.

188. Memo, Col. J. T. Posay to Gen. Mansell, Estimated Tonnage Deliveries to Forward Area for XX B C., 2 Aug. 44, in 201st AF Charts, 581 Air Transportation.

189. CT-OUT-71990 (28 July 44), Mansell to Saunders, WAiX 71990, 28 July 44.

190. See table following p. 2.


192. OIL-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-37's, to Chengtu, 4,200 tons; XX Bomber Command, Calcutta to
Jochbat (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 OG 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 87378, 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
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.


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.


207. T-COL-IN-7499, Kharagpur to Washington, 18 Sep. 44.

208. AAF CBI Evaluation Board Report #1, 15 Sep. 1944.
INDEX

A

AAF Antisubmarine Command, 38-40
AAF 1ndia Burma Sector (CBI),
114, 121, 139
CG, 116, 119-20, 114
13*, 59
AAF Plans for the Defeat of Japan,
61, 53, 59, 96, 251 (n 24)
Air/1, 32-35
M/AS, Intelligence, 52, 81
M/33, Operations, 52
M/10, Plans, 52, 66, 68, 35, 102,
251 (n 25), 212 (n 44)
Asiaic Theater Branch, 66
Aden, 203
Adjutant General, The, 22
Admiralty Islands, 60
Ariz., 33, 42, 43, 49, 113, 135,
147, 151, 160, 189, 192, 196,
200, 202
AFRIC, 114
AFF, 144
Air Adviser

to Chiang Kai-shek, 113

to General Stilwel1, 114,
117-21, 123
Air Corps Board, 20-21, 24-25,
27-30
Air Corps Research and Development
Program, 7
Air Defense Command, 29
CG, 29. See also Chamay
Air Engineer, 144
Air Force Combat Command (AFCC),
144
Air Ministry, 91-93
Air Planners (AAF Planners),
33-54, 55, 38, 44, 51-54, 57,
59-60, 69, 78, 81, 27, 113,
116, 134, 137, 150

Air Staff (AAF Staff), 27, 31,
48, 52, 54, 61, 78, 84, 104,
107-08, 146, 150
Air Technical Analysis Division,
81
Air Transport Command (ATC), 55,
58, 64, 170, 180, 182, 191-94,
193-200, 206, 208-13, 218-17,
220-23, 224-26, 230-38, 247
(n 16), 279 (n 73)
Akosombo, 44
Alabama, 136
Aleut., 15, 17, 19, 34, 41
Aleutian Islands, 19, 28, 40,
61, 80-83, 98, 274 (n 2)
Allied Air Command, 117
Andrews, Gen., 12, 16-17
Anglo-American, 37, 47, 54
Anglo-Indian force, 136, 152
Anzio, 202
Appreciation and Plan for
the Defeat of Japan, 48
Armistice (1918), 93
"Army and Navy Estimate of U. S.
Over-all Production Requirements," 247 (n 10)
Army Planner, 69
Arnold, Gen. H. H., 4-5, 7, 9,
12, 22, 26, 29-31, 37, 41-43,
51, 54, 61-63, 66, 67, 70,
72, 75, 96, 98, 100-02, 105,
107, 114-16, 119-20, 124-26,
130, 137, 143, 146, 160, 163,
174, 179, 187, 193, 195-97,
200, 209, 212, 216, 220, 223-24,
235-32, 234, 235 (n 44),
253 (n 60, 61), 264 (n 68),
270 (n 127), 285 (n 173)
ASC, 142, 156, 164, 168
CC, 148
ASF, 94, 189

THIS PAGE Declassified IAW EO12958
Asia, 2, 28, 45, 52, 96-97, 117, 132
Assam, 51, 182, 204-05, 208, 211-12, 216, 286 (n 182)
Athenasian doctrine, 107
Attu, 41, 44
Auchinleck, Gen., 113
Augmentation of India-China Divi-
sion, ATC, 289
Australia, 42, 11, 30, 33, 134, 177
AWD/1, 33, 55, 247 (n 10)
AWD/4, 34
AWD/42, 35
Axis, 19, 28, 30, 39, 44, 196

B
B-15, 17. See also XB-15.
B-17, 2, 4, 18-17, 21-22, 24,
27, 30, 32, 54-55, 37-40, 60,
230, 248 (n 18), 251 (n 23).
See also XB-17.
B-17H, 5
B-24, 2, 5, 22, 24, 30, 32,
34-35, 37-40, 55, 57, 60, 67,
86-87, 141, 155, 163, 170,
173, 186, 230, 246 (n 18),
261 (n 23)
B-25, 4, 24, 173
B-26, 24, 249 (n 18)
B-29, messim. See also XB-29.
"B-29 Project," 156
B-32, 7, 32-34, 40, 251 (n 23).
See also XB-32.
B-35, 256 (n 23). See also XB-35.
Bellipapen, 42, 87
Bengkok, 122, 222
Busskopore, 211
Besse, 158
Battle of Britain, 22
Beesby, Col. E. A., 185, 274 (n 7)
Bengal, 136, 141-42, 159, 181-82,
190, 207, 212, 223, 286 (n 183)
Bengal Air Command, RAF, 115
Berlin, 30-31
Bermuda, 278 (n 62)
Bishnapur, 142
Bismarck Sea, 50

Bissell, Maj. C., 255 (n 92)
Bitter, Comdr. F., 255 (n 92)
"Blend" service, 193, 194
Boeing Co., 4, 6, 8, 13
Bombay, 151, 189-90, 202
Bora Bora, 40
Brackenridge River, 84
Brazil, 19, 23
Brechet, Gen., 40
Brisbane, 66
British, 19, 31-32, 44-45,
46-50, 58, 69, 92, 95, 99,
104-05, 122-14, 128, 132,
139-41, 146, 150, 155, 156,
150, 178, 177-78, 180,
189-91
British Armies in France,
Commander-in-Chief, 22
British Army, 91, 113
Commander-in-Chief, India, 113,
128
HQ., India, 53, 111
British Isles, 23, 29
British Navy, 18, 23
Broome, 42, 60, 274 (n 2)
Budge-Budge, 153
Burne, 44, 46, 64, 74, 111-13,
115, 125-21, 141, 149-50,
152, 205, 210
Burma Road, 112, 128, 181
Butler hangar, 168
Byroads, Col. H. A., 165

C
C-46, 193-94, 196, 211-17, 223,
230, 232, 237, 238 (n 183),
267 (n 192)
C-54, 57, 184, 193, 286 (n 183)
C-57, 55, 64, 154, 156,
191, 204, 207-17, 232,
266 (n 183), 297 (n 192)
C-109, 230-31, 235
Cairo, 73, 141, 179, 198-99, 203
Calcutta, 60, 66, 67-68, 63-65,
69, 71-73, 80, 82, 89, 128, 136,
139-42, 153, 155, 159, 161, 156,
180-81, 183-85, 192-93, 195-98,
198, 203, 205-07, 212-15, 215-17,
274 (n 2), 286 (n 192)
FOR OFFICIAL USE
(AFR 190-16)
Canada, 23-24
Canton, 50, 221
Carey, Col. G. G., 96, 252 (n 44)
Carey, Lt. Col. J. B., 261 (n 46)
Caribbean, 22, 25
Caroline Islands, 61, 86
Cassablanca, 47, 62, 180, 190, 192-93, 212, 215-16, 263 (n 60)
CG, 120
Evaluation Board, 241
Central Public Works Dept. (CPWD), 152
Ceylon, 71, 82, 87, 136, 173-75, 273 (n 176)
CG USAF CBI, 111, 117-18, 125
Charkh, 142-44, 151, 154, 156-57, 193, 195, 198, 203, 278 (n 63)
Champillon, 160
Cheney, Brig. Gen. J. E., 29-31
Chengsha, 55-57, 59, 136, 184, 221
Charre, 143-44, 154, 152, 213, 276 (n 63)
Chengtu, 53-62, 71-73, 75, 80-81, 85, 99, 136, 138-40, 169-71, 172-75, 179, 181, 183, 185, 196, 200-01, 203-05, 207, 210-17, 219-20, 222, 224, 226, 229, 241, 253 (n 54), 255 (n 91), 274 (n 2), 280 (n 91), 285 (n 172), 286 (n 183), 287 (n 192)
Chemnitz, Gen. 4, 58-59, 113-14, 116-20, 125, 129-30, 162-63, 173, 185, 201, 203, 205, 210-11, 214, 221-22, 224-26, 241, 253 (n 50, 54), 262 (n 66), 274 (n 4), 280 (n 91), 295 (n 173)
Cheopsis, 115
Chiayi, Ka-i-sheh, Generalissimo, 45, 54, 63, 72, 74, 111, 113, 120-21, 127, 129-30, 139-40, 161, 165-66, 168-71, 221
Chicago, 19
Chief of Air Staff, 85, 130, 252
Chief of Air Staff, British, 105, 176
Chief of Staff, 67, 85, 94, 120, 126, 130, 146, 149-50
See also Marshall
Chief of Staff to Chiang Ka-i-shek, 111
Chief of Staff, 20th AF, 108
See also Hensell
Chief of Staff, U. S. Army, 101
Chiefs of Staff, British, 101, 104-05, 122-23, 125, 127-28
China Air Service Area Command, 165
China Bay, 177-78
China Defense Service, 146
China Sea, 2, 48
Chinese Air Force, 113, 125, 231, 234
Chinese Army, 112-13, 129
Chinese Engineering Office, 165
Chengtu Office of, 165
Chinese Ministry of Finance, 170. See also Kung
Chinese High Command, 214-17
Chingshan, 161
Chungking, 45, 62, 128, 180, 166, 168, 200, 217, 269 (n 111), 280 (n 91)
CINCPAC, 86
CINCSCOM, 86
Clay, Gen., 169
Colombo, 177
Combined Bomber Offensive
in Europe, 15, 35, 44, 76,
84, 96, 105, 132, 197
Combined Chiefs of Staff (CCS),
44-45, 46, 50, 54, 56-69,
73-75, 84, 95-96, 99, 104-06,
110-11, 113, 123, 126, 128,
139-40, 147, 150, 186, 192
Combined Staff Planners (CSP or
CPS) 42, 48, 50, 56, 59-60,
74, 251 (n 31), 265 (n 91)
Combs, Col., 260 (n 34)
Commander in Chief, Ceylon, 177
Commander in Chief, India, 146
Commanding General, AAF, 95,
100-03, 107, 127-28. See
also Arnold.
Committee of Operations Analysts
(COA), 52, 68, 75-76, 78-82,
84
Report of, 75
Congress, 14-15, 20, 22, 28, 93
Consolidated Co., 6
Construction Service, SCS, 152
Cox, Col. F., 197
Covell, Gen. W. E. N., 144-45,
150
CPS 63, 48, 50-51

D
Dakar, 31
Derwin, 42, 60, 87, 134,
274 (n 2)
Davidson, Brig. Gen. D. A.,
265 (n 34)
D-Dey, 69, 71, 132, 187, 202,
205, 207, 213, 219, 240
Deputy Chief of Air Staff, 103
Deputy Chief of Staff, 146
Deputy Commander to Mountbatten,
111
Deputy Commissioner of the
Engineering Commission, 165
Devecois, 223
Heilbroner, 156-57
Bijini, 280 (n 91)

F
1st Air Transport Sq., 194, 215-17
4th Marine Div., 1

FOR OFFICIAL USE ONLY
(DEC 194-16)
5th Air Force, 1, 4, 26
C3, 41. See also Kenney.
CC, 116, 120, 125, 164
Eq+, 274 (n 7)

40th Bomb Gp., 143, 198, 276 (n 65)

58th Bomb Wing, 53, 63, 114, 174, 185-86, 195, 209
Asst, A-3, 809
Eq+, 278 (n 65)

55th Sq., 204

59th Sq., 204

444th Bomb Gp., 143, 276 (n 65)

462d Bomb Gp., 143, 278 (n 65)

468th Bomb Gp., 143, 278 (n 65)

F-13, 189

Ferrest, 3, 36, 85, 245-46, 49, 52, 105, 111
Ferrell, Col., 145

FIA, 75

Fiscal Report to the President and Prime Minister, 50, 56

Fischer, Col., F., 209

Foch, Marshall, 92

Ford, Henry, 15

Fornace, 49, 61, 80-81, 77, 33, 87, 98, 227-28

France, 15, 29, 92, 130

French Navy, 16, 23

Fricot, Tel., 142, 145

Fungwachan, 162, 271 (n 134)

FY 1941 Research and Development Program, 22

G

G-2, 75

Gander Lake, 199

Ganges River, 141

Gates, Brig. Gen. B. F., 75, 225 (n 92)

Geoff, 143, 278 (n 63)

General Order

No. 1, 107

No. 10, 118, 120

No. 15, 120

No. 16, 122-23

General Staff, 17

Geneva Conference, 14

Georgia, Gen., 215, 247 (n 10)

German-Iranian-Japanese alliance, 23

German Navy, 18


GFM Air Force, 12, 15, 22, 94, 100

GHQ India, 139

Gibson, Lt. Col. K. H., 107

Gidnani, 145

Gilbert Islands, 50


Godfrey, Brig. Gen. S. C., 144-45, 149, 164-65

Great Britain, 91. See also England and British Isles

Greet Vail of China, 166

Greenland, 23

Guam, 26

H

Haakinen, 60

Hamilton, P., 255 (n 92)

Hankey, 285 (n 173)

Hansell, Brig. Gen. E. S., 81-82, 85, 103, 159, 247 (n 10)

Harrington, Brig. Gen. T. O., 215-17

Harren, Col. L. F., 185, 274 (n 7)

Harmon, Maj. Gen. H. F., 40

Kewai, 15, 17, 27, 32

Headquarters AAF, 35-37, 41, 63, 165, 179, 186, 202, 212, 222

Headquarters IBS AAF, 59

"Headquarters Strategic Air Force," 99, 106

Heard, 15

Hengfeng, 57

Herodotus, 166

Hijji, 142, 167

Himalayas, 111

Himbahep, Lieut. Comdr. A. F.

Hitler, 19

Hong Kong, 48, 51, 60

K
HONOLULU, 86
Lonshu, 23
Koogly River, 133
Ksinghing, 161-62, 174, 206, 213
271 (n 134)

Joint Board (JB), 17, 22
Joint Chiefs of Staff (JCS), 50-51, 60, 63-70, 73, 75
146-49, 150, 157, 195
221-22, 228-28, 234
269 (n 13)
Joint Intelligence Committee (JIC), 71, 73-82, 179
Joint Logistics Committee, 229
Joint Planners Staff (JPS, or JLP), 52, 53, 69-70, 73
Joint Security Control, 251 (n 24)
254 (n 57)
Joint Strategic Survey Committee (JSSC), 88, 101
Jorhat, 217, 237, 287 (n 132)
JPS 320, 70, 75, 83, 102
254 (n 7)
JSC, 61, 69-70, 73, 75-79, 81-85
Jowr Town, 71-73, 75, 73
Senior Team, 71

181, 187-88, 191-92, 194, 196-200, 205, 209, 212-15, 216-17, 261 (n 61)
259 (n 13), 254 (n 7), 273 (n 175), 279 (n 69, 73)

Indira-Gandhi, 114, 182, 206, 209-11, 215-17, 223, 228, 231, 234

Incirlik, 185-86

Inter-Air Force, 22-33

Italian Air Force, 33

Italy, 28, 29, 39, 44, 92, 152, 153, 158

Iowa, 136

Jaf, 242

Jeffer's, 177

Japan, 66-74, 76, 80, 84, 105, 134

Japanese Forces, 2, 70

Japanese Occupation, 66-74

Jervis, 146

JFS, 349, 17

JCS 412, 57, 103

JCS 742/6, 127

Johnson, 53, 57, 63

Joint Action of the Army, 15

Joint Chiefs of Staff (JCS), 50-51, 60, 63-70, 73, 75
83-84, 86, 88, 95, 99-102, 104, 106-109, 117-19
123-28, 130, 133-39, 143
146-49, 150, 157, 195
221-22, 228-28, 234
269 (n 13)

Joint Intelligence Committee (JIC), 71, 73-82, 179

Joint Logistics Committee, 229

Joint Planners Staff (JPS, or JLP), 52, 53, 69-70, 73

Joint Security Control, 251 (n 24)

Joint Strategic Survey Committee (JSSC), 88, 101

Jorhat, 217, 237, 287 (n 132)

JPS 320, 70, 75, 83, 102

JSC, 61, 69-70, 73, 75-79, 81-85

Jowr Town, 71-73, 75, 73

Senior Team, 71

Kalaikunda, 142-44, 151, 153

Kankanpur, 177-78

Karnal, 114, 130, 138-99

Kamalapur, 142-44, 151, 154

Kamalapur, 157, 161, 196, 197, 203

Kamarhati, 21

Kamgar, 101-02, 107

Kemner, 65, 66, 74-75

Kempson, 165-67

Kemper, 65, 66, 74-75

Kempson, Lt. Col. W. L., 165-67

Kentucky, 25, 41-42, 66, 846 (n 31)

Kheras, 182-83, 185-86

Kheraspur, 142-44, 151, 154

Kheraspur, 157, 161, 196, 197, 203

Kheraspur, 205, 212, 216, 229, 239, 273 (n 63)

Khanpur, 150

Kiaep, 163

Kienyen, 162

Kiel, 41
<table>
<thead>
<tr>
<th>Location</th>
<th>Code(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea, 77</td>
<td>Trupp, 14</td>
</tr>
<tr>
<td>Rangai, 151-52, 271 (n 134)</td>
<td>N. Chang, Gen., 42, 85-87</td>
</tr>
<tr>
<td>Lang, Dr., 170</td>
<td>Mac Conner, 158</td>
</tr>
<tr>
<td>Kunming, 51, 55, 57, 64, 82, 112, 160-63a, 165, 170, 182, 184, 205-06, 224, 229, 269 (n 111), 286 (n 185)</td>
<td>McFarney, Lt. Gen. J. T., 146</td>
</tr>
<tr>
<td>Kurile Islands, 50, 74</td>
<td></td>
</tr>
<tr>
<td>Lutet, Gen., 124, 174, 176-77, 247 (n 10), 270 (n 176)</td>
<td>Medison Square Garden, 42</td>
</tr>
<tr>
<td>Kwangtung, 162, 174, 204, 271 (n 134)</td>
<td>Neiva, 15</td>
</tr>
<tr>
<td>Kwangsi Province, 262 (n 111)</td>
<td>Malaya, 109</td>
</tr>
<tr>
<td>Kusain, 57, 53-57, 74-75, 82, 119, 156, 159-23a, 170, 182, 201, 229, 255 (n 57), 254 (n 57), 255 (n 91), 260 (n 183)</td>
<td>Malaysia, 111</td>
</tr>
<tr>
<td>Kyushu, 77, 136</td>
<td>Management Control, 109</td>
</tr>
<tr>
<td>Leroute, T., ... 255 (n 92)</td>
<td>Manchuria, 77</td>
</tr>
<tr>
<td>Lenghier, Col. T. G., 255 (n 92)</td>
<td>Mandalay, 57, 60</td>
</tr>
<tr>
<td>Latin America, 13</td>
<td>Manila, 26, 42</td>
</tr>
<tr>
<td>Lecl, Maj. B. A., 252 (n 45)</td>
<td>Marco Polo, 237</td>
</tr>
<tr>
<td>Leach, Lt. Col. ... B., 255 (n 92)</td>
<td>Mariana Islands, 1, 42, 50, 60-61, 73-74, 80-82, 84-86, 96, 134, 137, 143, 151, 162, 214, 239, 274 (n 72)</td>
</tr>
<tr>
<td>Lefroy, Adm., 101</td>
<td>Marietta, Georgia, 53</td>
</tr>
<tr>
<td>Lodo, 253 (n 70)</td>
<td>Maritime Province, U.S.S.R., 61, 83</td>
</tr>
<tr>
<td>Lord Haig, 50, 55, 56, 112, 121, 140, 148-51, 152</td>
<td>Marrakech, 187-99</td>
</tr>
<tr>
<td>Marshall Islands, 42, 50, 61</td>
<td>Marshall Islands, 42, 50, 61</td>
</tr>
<tr>
<td>Lasson, E. S., 255 (n 92)</td>
<td>Marseilles, 177</td>
</tr>
<tr>
<td>Letters, 177</td>
<td>Material Command, 7</td>
</tr>
<tr>
<td>G3, 229</td>
<td>MATTHEW, 66-75, 78-80, 82-85, 87-89, 99-100, 102, 103, 115-17, 119, 123, 129-30, 135, 138, 140, 144-51, 159-60, 163-64, 168, 171, 173, 175, 177, 179, 181-82, 186-89, 192-93, 195, 201-02, 205-13, 215-16, 219-21, 224, 228, 231-33, 238-39, 241, 252 (n 44), 254 (n 57), 257 (n 123), 263 (n 79)</td>
</tr>
<tr>
<td>Le-day, 32</td>
<td>Mediterranean, 38, 44, 96, 180, 190, 227</td>
</tr>
<tr>
<td>Luzon, 28, 34, 61, 98</td>
<td></td>
</tr>
</tbody>
</table>

---

THIS PAGE Declassified IAW EO12958
Melbourne, 190
Hardees of Death, 14
Middle East, 33
Middle west, 168
Mina, 141
Mykay, 40, 44
Nomin, 162
Nandanco, 86, 227-28
Minister of Communications, 165
Ministers of Finance and Defense, 165
Pinneriya, 177-78
Piro, C. C., 255 (n 92)
Min River, 160, 166
Mission Bay, 202
Mitchell Daily, 12, 93
Mitsubishi, 14
Mora, 21, 10
Monroe Doctrine, 20
Morrison Field, 191
Moss, Col. F., 255 (n 92)
Mountbatten, Lord, 74, 111,
113-17, 121-22, 131, 148-49,
176-78, 208, 211
Mt. Vernon, (U.S.S.), 190
Myakty, 121

91st Sq., 204
92d Sq., 204
93d, 204
930th Eng. Av. Lst., 146, 151
Nagoya, 142
Nagpur, 142
Nacht, 31, 180, 197
NAGI, 202
Navy, 12, 15, 16, 32, 30-40,
48, 49, 69, 75, 84, 86, 102,
105, 202, 274 (n 2)
Navy Dept., 12, 18, 93
Navy Flicker, 89
Nazi, 19
Nairobi, 177
Netherlands East Indies (N.E.I.),
2, 42, 74, 80, 83-84, 87, 175,
177
Newark, 189
New Delhi, 114, 116, 120-22,
124, 191
Newfoundland, 19, 23, 278 (n 62)
New Guinea, 50
Newport News, 139-90
New York, 19
Nimitz, Adm., 87
Nissen, 153
North African Wing, 193-94, 223
Nunshar, 161
NYSE Committee, 14

O

187th Eng. Av. Bn., 146, 151
187th Eng. Av. Bn., 149, 151
188th Eng. Av. Bn., 149, 161-52
190th Eng. Av. Bn., 146
Cahus, 54
Oliver, Brig. Gen. R., 59, 142,
144, 161, 164
OPD, 106, 199, 252 (n 44)
Optimum Use, Timing, and Deployment
of V-1 Bombers, 79, 87, 100-51,
125, 175
Oran, 190
Oregon, 136
Orlando (Fla.), 260 (n 34)
OSS, 76
Over-all Plan for Defeat of Japan,
74. See also AAF Plans for
Defeat of Japan.
Oxford Cn訓, 14

P

P-42, 46, 202-04, 250 (n 95)
P-47, 202-04
P-61, 65, 204
P-61A, 201
P-65, 204
P-67, 65
P-621, 201
PACAU, 228-29, 231-34
Palmu, 42, 50, 60, 80, 84, 95
Paloemung, 42, 82, 87, 175-76
Panajerh, 142, 209
Peirce, 16, 17, 181
Peiskr, 12

THIS PAGE Declassified IAW EO12958
Pan-Germanism, 19
Pearl Harbor, 17, 34, 168, 280 (n 91)
Feis, Air Chief Marshal Sir R., 114-15, 117, 123, 126, 177
Fengshen, 162, 167, 271 (n 134)
Fifield Bldg., 106
Fayre, Col. G. R., 255 (n 92)
Fellgett, Col. A. W., 255 (n 92)
Philippines Islands, 14, 28, 32, 34, 83, 86
Peres, 142-44, 151, 157
"Plan for a Combined Bomber Offensive," 37
Point Barrow, 31
Pond, 27
Ponape, 50, 85
Porto, Sir C., 116, 124
Port Moresby, 89, 274 (n 2)
President (Roosevelt), 19-20,
22-23, 29, 62-63, 66-67, 69-70,
72, 74, 84-85, 86, 100, 111,
130-31, 157, 159-60, 161, 163e,
164, 166-69, 187, 195,
252 (n 44), 257 (n 123)
Popham, 136
Prime Minister (Churchill), 69,
72, 74, 139-40, 264 (n 11)
PRO, 237
Pune, 162

QUADRANT, 49, 53-54, 59-60, 62,
73, 110, 112-14, 137, 252 (n 44)
"Quarantine" speech, 19

R
R-3550 engine, 4, 63, 191-93, 197
RAINFOREST, 27
Re. 5, 27
Re. 5, 31-32
Regen, 60
Reich, 59
Reich's budget, 175
Reich, 88
Request for Dats EX-403, 6
Richardson, Gen., 85

Roy, 255 (n 92)
Royal Air Force (RAF), 33, 58,
91-95, 97, 114-15, 142, 155, 176-77, 203
Royal Navy, 91, 190
Russia, 25, 28, 34, 61. See
also U.S.S.R.

2d Air Force, 53, 106
2d Air Transport Sq., 194, 216, 223
2d Marine Div., 1
7th Air Force, 1
7th Bomb. Gp., 222
60th Sq., 204
73d Bomb. Wing, 70, 143, 161, 162, 214, 238
700th Petroleum Distribution Co., 153
707th Petroleum Distribution Co., 153
708th Petroleum Distribution Co., 153
709th Petroleum Distribution Co., 153
Saigon, 42
St. Ewgen, 197
Saipen, 1-2, 80, 222
Salina, Kans., 53, 108, 196-98,
252 (n 45)
Samoa, 16
Saunders, Gen., 174, 229-30
Seamen, Col., 145, 152
Secretary of War, 17
SETTING SUN, 53, 58, 137, 184,
251 (n 24)
Sevastopol, 93
SEATANT, 62, 69-70, 72, 74,
84-95, 86, 99, 109, 116-17,
121, 137-38, 140, 146-47,
153a, 169, 175-76, 166-99,
202, 206-07, 212
SICILY, 80
Shen, 162, 271 (n 134)
Siberia, 28, 34-35
Sicily, 38, 44, 133, 202
Sicily, 175

FOR OFFICIAL USE ONLY
(AFR 190-16)
Signal Corps, Aeronautical Div., 258 (n 7)  
Aviation Section, 258 (n 7)  
Sahagong, 163, 269 (n 111)  
Singapore, 42, 105, 177  
Lintou, 151  
Smoky Hill Air Field, 53  
Solomons, 44, 50  
Somervell, Gen., 56, 169  
Songa, Dr. T. V., 48, 260 (n 7), 263 (n 50)  
SOE, 50, 54, 94, 139, 140, 145, 149, 154  
C3 (CBI), 144, 145  
Chief Engineer, 145  
South America, 162  
South East Asia (SEA), 110, 117-18, 128  
Supreme Allied Commander, (SACEA), 104, 113-14, 116, 121-22, 124-25, 127, 176  
South East Asia Command (SEAC), 104, 113-14, 117, 120-21, 123, 125, 127, 147, 149  
Speak, Gen., 27-28, 34  
Stalin, Marshal, 72  
State Dept., 169  
Statistical Section, 237  
Stilwell, Gen., 56, 58-59, 66-68, 74, 111-13, 117-31, 144, 147-50, 160, 163, 170, 175-76, 192, 180-89, 192-93, 204, 207, 228, 211, 217, 221, 223, 251-54, 266 (n 75)  
Stone, Gen., 9, 59  
Strategy in China- Burma- India, 231  
Strong, Col., 261 (n 31)  
Suez, 56, 150, 202  
Sulaiman, 57, 161, 165  
Sukarno, 122, 175  
Sukho, 201 (n 24)  
Supreme Commander in China, 129. See also Chiang Kai-shek.
TILDEN, 55, 58-59, 61-64,
65-69, 74-75, 116, 138-39, 145,
152, 153, 184-35, 251 (n 24)
253 (n 57)
"Twilight Committee," 141, 144,
161, 164-65
Tydings-McDuffie Act, 14

U

United Kingdom, 22-35, 37-38, 42,
132, 189
United Nations, 45, 49-50, 60
U. S. Air Service, 38
U. S. Chief of Staff, 50, 104,
106, 149. See also Joint Chiefs of Staff.
U. S. Fleet, 23
Commander in Chief, 101-02
U.S.S.R., 39, 61, 83. See also Russia.
U.S.T.A.R., 26, 76
U. S. Strategic Air Forces, 107,
126
Operations Section, 107

V

U. S. Project Office, 106
Virgin Islands, 16
VII Bomber Cnd., 70
Vogelkop, 50
Vollendam, 190
von Clausewitz, E., 132

Wake Island, 202
Walker, Lt. Col., 227 (n 10)
War Dept., 5, 12, 17-18, 20, 22,
93, 135-64, 169-71
Washington, D.C., 1, 23, 36, 45,
59, 68, 72, 84, 96, 100,
104, 107, 109, 113-16, 121, 124,
134, 137-38, 163-44, 173-74,
165, 168-54, 169, 179-80, 183,
187, 194, 199, 203-04, 212,
216-20, 222, 224, 227-30, 235,
247 (n 16) 252 (n 45)

X

X-15, 12
X-17, 12
X-19, 13
X-23, 6-7, 37, 246 (n 20)
X-50, 6
X-81, 6
X-92, 6
X-95, 9, 40
X-99, 9, 40

Y

Yankee, 11
Yap, 60, 76, 80, 84
Yevats, l, 222, 224, 246
Yellow Sea, 80

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