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Technical Report No. 4320-

BOUNDARY CONDITIONS OF THE SINO-INDIAN CONFLICT

Prepared for:

OFFICE, CHIEF OF RESEARCH AND DEVELOPMENT
UNITED STATES ARMY
WASHINGTON 25, D.C.

CONTRACT NO. DA-49-092-ARO-10

By: Francis P. Hoerber Yuan-li Wu
 William Rood Maclin Summers
 Ellen Heckler

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Technical Report No. 4320-3

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By: Francis P. Hoerber Yuan-li Wu
William Rood Maclin Summers
 Ellen Heckler

SRI Project No. ETU-4320

Approved:

R. B. FOSTER, DIRECTOR DEFENSE ANALYSIS CENTER

C. S. BABCOCK, DIRECTOR OPERATIONAL TECHNOLOGY DIVISION

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ABSTRACT

BOUNDARY CONDITIONS OF THE SINO-INDIAN CONFLICT

Technical Report (TR-4320-3), June 1963

Hoerber, Wu, Rood, Summers, Heckler.

Unclassified, 154 pages.

Stanford Research Institute Project 4320, Contract DA-49-092-ARO-10

The Sino-Indian border crisis has immediate implications for U.S. policy because this country is committed to the defense of free India. It also has long-range implications for possible and likely actions by Communist China on many fronts. This paper makes a tentative assessment of the political and strategic motivations on both sides of the border and of the economic capabilities of both protagonists.

It is found that, in the short run, China is probably undertaking a cheap and very limited adventure in border rectification, but the action may fit a long-range pattern of much broader implications for Chinese expansionism and aggressive diplomacy, vis-à-vis the Soviet Union as well as the West. On the Indian side, it is found that, while military preparation has been devastatingly inadequate, longer-range potentials are very considerable, if they can be mobilized. Divisive political forces have imposed serious limitations on the effectiveness of widespread positive reactions by the Indian people. A special inhibition is fear of impairment of the economic development program, but the paper finds that, with adequate leadership, a large military program could enhance rather than impede economic development.

CONTENTS

ABSTRACT	v
LIST OF ILLUSTRATIONS	ix
LIST OF TABLES	ix
PREFACE	xi
I INTRODUCTION AND FINDINGS.	1
Objective.	1
Background	1
Approach	4
Findings	4
II POLITICAL AND GEOGRAPHICAL BACKGROUND.	7
Past Pressures	7
Current Indian Response--and Repose.	10
The U.S. Interest.	12
Geographical Setting	13
The Battle Areas	16
Highways to Tibet.	24
References	28
III GLOBAL IMPLICATIONS OF CHINESE STRATEGY.	31
The Pattern of Chinese Strategy.	31
Extension of Chinese Influence	38
Interaction with Other Nations	42
China as a Sea Power	44
Future Strategy.	45
References	46
IV COMMUNIST CHINESE CAPABILITIES	49
Underlying Factors	49
Conditions of Terrain and Access to the Tibetan Plateau.	52
The Principal Highways	53
Air Supply Routes.	56

Water Transport.	57
Estimates of Chinese Capacity to Support Forces in Tibet	58
Storage Centers and Sources of Supply.	61
Estimated Supply Requirements of a Communist Chinese Infantry Division.	64
Transport Performance and the Size of Communist China's Military Effort in Tibet.	67
Conclusions.	68
References	71
V INDIAN MILITARY CAPABILITIES	75
Tin Soldiers or First-Class Fighting Men?.	75
Tactical Disadvantages	78
References	79
VI INDIAN ECONOMIC CAPABILITIES AND RESOURCES	81
The Dilemma of Underdevelopment.	81
Indian Political Weaknesses.	85
India's Objectives	87
India's Policies	88
India's Performance.	92
Problems of Development in India	96
The Emergency's Impact on India's Development Program. .	104
References	114
APPENDIX A--PARTIAL TEXT OF COLUMN APPEARING IN <u>TIMES OF INDIA</u>	117
APPENDIX B--HISTORY OF THE SINO-INDIAN BORDER QUESTION.	119
APPENDIX C--THE COMMUNIST CHINESE PRESS IN THE INDIAN CONFLICT.	123
APPENDIX D--THE ROLE OF THE DALAI LAMA.	125
APPENDIX E--CLASSIFICATION OF COMMUNIST CHINESE HIGHWAYS.	129
APPENDIX F--FOOD REQUIREMENTS FOR COMMUNIST CHINESE SOLDIER	131
APPENDIX G--SUPPLY REQUIREMENTS OF A DIVISION	133
APPENDIX H--GASOLINE CONSUMPTION OF TRUCKS ON MAJOR HIGHWAYS IN THE TIBETAN AREA	135
APPENDIX I--GAZETEER.	137
APPENDIX J--MAP SOURCES AND NOTES	153

ILLUSTRATIONS

Fig. 1	Ladakh Area.	18
Fig. 2	Se-La Area	20
Fig. 3	Walong Area.	23
Fig. 4	Stylistic Topographical Map of Tibet and Adjacent Areas	25
Fig. 5	Areas Claimed by China	33
Fig. 6	Sino-Burmese Border Area	35
Fig. 7	Highways and Railroads in the Tibetan Area	54
Fig. 8	Supply Points in the Tibetan Area.	62
Fig. 9	Public Plan Expenditures	94

TABLES

Table I	Estimated Truck Arrivals on Major Highways Supplying Tibet.	59
Table II	Estimated Traffic Flow into Tibet and Truck Requirements to Maintain Flow	60
Table III	Monthly Supply Requirements of an Infantry Division.	65
Table IV	Estimated Number of Divisions Supported During Campaign (Assuming 100% motor transport).	68
Table V	Estimated Number of Divisions Supported During Campaign (Assuming 80% motor transport, 20% other means).	68
Table VI	Indices of Output at Full Utilization and Additional Shift Basis.	110

PREFACE

This report is published under Contract DA-49-092-ARO-10 with the Office, Chief of Research and Development, U.S. Army. Within Stanford Research Institute, this contract is part of the program of the Defense Analysis Center.

The cut-off date for data used in this report was 1 May 1963. The research reported herein was conducted in the Defense Analysis Center under the leadership of Francis P. Hoerber.

A draft of this report was prepared and submitted to the Coordination Group, Office, Army Chief of Staff in April of this year. The authors were: Francis P. Hoerber, Program Manager of the economic studies in the Defense Analysis Center; Yuan-li Wu, Professor of Economics at the University of San Francisco and Research Associate of the Hoover Institution, where he is Project Leader on the Stanford Research Institute studies of Communist Chinese economic potential; Harold W. Rood, Associate Professor of Political Science at the Claremont Men's College and a consultant to the Defense Analysis Center; Maclin B. Summers, Economist, and Ellen L. Heckler, Research Analyst, at Stanford Research Institute. In addition, ideas were contributed by another consultant, Prof. K. N. Chang of Loyola University of Los Angeles, who visited India and talked with Nehru during the border hostilities.

On the Indian side of the picture, the analysis benefited by a visit in February and subsequent correspondence with Dr. Eric da Costa, Director of the Indian Institute of Public Opinion, and discussions with Dr. Hadley Cantril and Mr. Lloyd A. Free of the Institute for International Social Research at Princeton, who generously made some of their research materials available after Dr. Cantril went to India early this year to conduct a survey of Indian opinion since the outbreak of hostilities. Correspondence with Dr. S. Chandrasekhar of the Indian Institute for Population Studies, who had assisted in the study of Communist Chinese economic potential, were also very helpful.

The authors are indebted to Dr. F. G. A. Kraemer, of the Office of the Army Chief of Staff, for extensive and useful comments on the draft. In addition, the draft was circulated to a number of specialists in the field, whose comments contributed materially to the report in its present form. These included: Dr. Tom An, Foreign Policy Research Institute, University of Pennsylvania; Dr. Robert B. Ekvall, Far Eastern and Russian Institute, University of Washington; Professor D. R. Gadgil, Gokhale Institute of Politics and Economics, India; Dr. William C. Johnstone, Professor of Asian Studies, The Johns Hopkins University, School of Advanced International Studies; Dr. William R. Kintner, Deputy Director, Foreign Policy Research Institute, University of Pennsylvania; Dr. Paul Linebarger, The Johns Hopkins University, School of Advanced International Studies; Mr. P. N. Menon, Indian Consul General, San Francisco, California; Dr. Norman D. Palmer, Wharton School of Finance and Commerce, University of Pennsylvania; Mr. Prabhaker, University of Pennsylvania; and Mr. H. E. Robinson, Director, Industrial Economics Division, Stanford Research Institute.

The Authors are grateful to all these people and to the considerable number of others in universities and government agencies who helped in many conversations to sharpen the authors' understanding of the problem. Responsibility for the final conclusion and for any errors of fact or interpretation is, of course, the privilege of the authors.

CHAPTER I

INTRODUCTION AND FINDINGS

Objective

This study was designed, after the eruption of fighting on the Sino-Indian border in the fall of 1962, to investigate the boundary conditions limiting the potential roles of the protagonists in both the short and the long run, in terms of the political, military, and economic aspects of strategy.

Background

Since 1961 the Defense Analysis Center at Stanford Research Institute has been engaged, with the Hoover Institution,^{*} in studies of the economy of Communist China and its potential for the support of military and related programs. These Chinese studies have in turn been a part of a long-range program under Army Contract DA-49-092-ARO-10, to investigate the economic constraints on both the members of the Communist Bloc and the United States and its allies that form a part of the strategic framework of national defense.[†]

* The Hoover Institution on War, Revolution and Peace, Stanford University, Stanford, California.

† See:

Yuan-li Wu, Francis P. Hoerber, and Mabel M. Rockwell, "The Economic Potential of Communist China," Technical Report 2, two vols., Contracts DA-49-092-ARO-10 and DA-04-200-506-ORD-710, SRI Project 4320, Stanford Research Institute, Menlo Park, California (June 1963).

Francis P. Hoerber, "Potential for Expansion of National Security Programs," Contract DA-04-200-506-ORD-710, SRI Project 2351, Stanford Research Institute, Menlo Park, California (October 1960).

Francis P. Hoerber and Robert W. Campbell, "Soviet Economic Potential, 1960-1970," Contract DA-04-200-506-ORD-710, SRI Project 2351, Stanford Research Institute, Menlo Park, California (May 1961).

Francis P. Hoerber, William B. Dale, and Sperry Lea, "The Economic Feasibility of Proposed Revisions in NATO Strategy, 1962-1975 (U)," Technical Report 31, Contract DA-04-200-506-ORD-710, SRI Project 2351, Stanford Research Institute, Menlo Park, California (SECRET).

In the spring of 1962, the Program Manager of these economic studies was in the Far East in connection with the Chinese studies, and in India. His briefings to the Army on his return emphasized the contrast in the dynamics of Communist China and India, and the potential military conflict where the two meet. It was a natural step therefore, when the border fighting erupted in October, to recommend to the army that some of the resources of the Chinese studies under the above contract be devoted to an assessment of what could and might happen on the border after the winter moratorium on hostilities. The present report is in response to Army approval of this suggestion.

Historically, India's frontiers have always been unstable. The technique for ensuring Indian security has for centuries been to develop and bolster buffer zones, rather than to face the threats directly.

When China* took over Tibet in 1951, most of the buffer zone (except for Nepal, Sikkim, and Bhutan) disappeared, and India and China came face to face. Though India should not have been surprised at the results of this confrontation, she was by no means as prepared for the inevitable applications of pressure as she should have been.

Chinese needs and capabilities were such that the attack on India was likely to be inexpensive and to involve little or no risk of failure, with extremely high pay-off in terms of both short-range and long-term objectives, many of these not directly connected with India at all.

Chinese internal difficulties might seem, on the one hand, to preclude border adventures, or, on the other hand, to demand such adventures to distract the Chinese people from the regime's inadequacies. In fact, border consolidation, along with the extension of power over contiguous territory, is an essential accompaniment to domestic consolidation and centralization. Absorption and consolidation of territories bordering China tend to strengthen the central authority, just as strengthening the

* For convenience and brevity at many places in this report, the Peoples Republic of China is referred to as "Communist China" or simply, "China"; where reference is to the Chinese government recognized by the United States, the Republic of China or the "Nationalist Chinese Government" is specified.

central authority makes possible the expansion and consolidation of Chinese border territory. That is, successful foreign policy strengthens the regime as much as strengthening the regime helps promote successful foreign policy.

Administrative and territorial consolidation are characteristic of the stage of nationalism through which Communist China appears to be passing. The long-range operations that China has undertaken have been within the capabilities of a nation as yet unable to realize more than a small fraction of its full economic and military potential. The astute use of diplomacy, the manipulation of internal weaknesses of the countries bordering China, and the discriminating employment of military power, have been economical means for China to use to acquire the building blocks for a potentially successful Central Asian policy. The inexpensive Chinese program for expansion into Central Asia and Indo-China has been shaped as much, no doubt, by China's inability to implement a more powerful policy as by the natural Chinese predilection for astute diplomacy.

The failure of India to achieve a more rapid pace in economic development is not due to a lack of resources. The shortage of capital and of certain resources, such as fuels, is amenable to correction. The fundamental problem in India is the absence of national unity and a sense of common destiny that could provide a nexus among all its people. Though India is a state--a geographic area under a common political administration--it is not as yet a nation: a state of people with common values and objectives.

The British, even as their colonial policies became more liberal, could foster only a transient unity based on the common desire for independence. Neither independence nor the efforts of the central government of India since independence have brought about Indian unity. American foreign aid has not lessened the tendency toward fragmentation. It may be, however, that Chinese aggression will provide the impetus toward unity where all else has seemed to fail.

We cannot wait, however, for Mao to achieve for India what others have not. Secretary McNamara said before the House Armed Service

Committee on January 30, 1963:

"The security and independence of India are matters of urgent concern to the entire Free World. We have already made massive investments in that country's economic development, to help the people of India and to demonstrate to the people of all underdeveloped nations that there is a straighter and smoother road to economic and social progress than Communism. Now we consider what is required to help defend the fruits of our mutual efforts."

Moreover, any overt aggression by Communist China raises grave questions that are fundamental to long-range U.S. strategic planning. This paper attempts a preliminary assessment of the border conflict and of the constraints on each side's response; it gives a first statement of the boundary conditions, or limits, of the conflict.

Approach

While it would be presumptuous to attempt to reproduce or "second-guess" intelligence estimates of the current situation, an integrated economic, political, and geographical appraisal may shed further light on the conflict. Therefore, probable and possible Chinese political and strategic objectives are considered. The physical characteristics and historical background of the border are reviewed. Drawing heavily on the above-mentioned SRI studies of Chinese economic potential, Chinese logistical and economic capabilities are evaluated. At the same time, consideration is given to Indian response in terms of political and economic potential.

Findings

- (1) The short-range objectives of the Chinese Communists in seizing disputed border territories appear to be:
 - (a) To secure the principal road lines to Tibet;
 - (b) To reinforce nationalism during the domestic economic crises;
 - (c) To demonstrate to both the West and the Soviet Union that Communist China has a strong military capability and the will to use it; and

- (d) To take cheap, safe, small steps toward long-range objectives.
- (2) The long-range objectives of China, for which the border consolidation may be a step, could include the following:
- (a) Rectification of all borders in preparation for resumption of an historical policy of expansion;
 - (b) Acquisition and developments of westward routes to ensure control of border areas and for possible use for future expansion;
 - (c) Opening of the possibilities for extension of Chinese influence into Africa and the Middle East;
 - (d) Establishment of a secure position in the Middle East, Near East, and Eastern Europe with a view to the encirclement of the Soviet Union;
 - (e) Entry into alliances within Western Europe with the goal of isolating the Soviet Union from the West as well as from the East; and
 - (f) Expansion of Chinese influence into the Americas, as in Cuba, for example, to provide bases for eventual challenge to American power and influence and to further divide the Western Alliance.
- (3) Short-term Communist Chinese capabilities on the Indian border are limited primarily by transport facilities. These facilities are presently estimated to be capable of supporting continuously, during combat operations, something between roughly 100,000 and 250,000 men, or the equivalent of 8 to 19 infantry divisions. This would take from 5 to 10 percent of China's estimated supply of trucks, and the ultimate constraint would probably be the policy decision as to how heavy such an allocation should be.
- (4) Long-term conflict with India would burden the economy of Communist China primarily in terms of transportation and oil facilities, even if not in the aggregate, and is

therefore probably not desired at this time by the regime. Communist China's capabilities for pursuing its long-range objectives may be expected, however, to grow over the years, and the present leadership does not appear to believe that resources will prove inadequate in the long run.

- (5) The Chinese transport bottleneck in warfare--dependent on a road-and-pass strategy--makes any Chinese campaign particularly vulnerable to guerrilla attack and also to air interdiction wherever fear of escalation does not prohibit.
- (6) Indian preparation to meet the not-unforeseeable border contingencies was abysmally inadequate.
- (7) The Indian economy can support much greater efforts; such efforts would benefit rather than delay Indian economic development.
- (8) There have been signs of a strong Indian response to the crisis, but it does not appear that Indian leadership is exploiting this response. Indians are still divided among themselves; India is a state, but not yet a nation. Gandhian principles of non-violence are still a possible divisive force in Indian politics.
- (9) The long-term course of Indian response will be a function of the rate of continued pressures by Communist China.
- (10) U.S. policy will need persistently to seek to stiffen the Indian backbone.

CHAPTER II

POLITICAL AND GEOGRAPHICAL BACKGROUND

Past Pressures

Events occurring in Central Asia have often cast their shadows over the rest of Asia, the Middle East, and Europe. The delicate balance between the Soviet bloc and the Free World is especially susceptible to cataclysmic alteration under the impact of events in areas that until recently appeared to be of small consequence to American interests.

The frontiers of India have historically been unstable areas. The traditional means for promoting Indian security was to ensure the integrity, neutrality, and, where possible, the alliance of all the border states from which India might be attacked.^{1*}

The main drive of Indian foreign policy after independence seemed to be to hold to non-alignment and to exercise leadership of the non-aligned powers as a means of providing some defense against Communist China without resorting to an alliance with the West.²

The isolation of India from the traditional buffer states was brought about through Chinese diplomacy, outright aggression, and Indian negligence, and has exposed India to direct Chinese military pressure. Only Burma, Nepal, Bhutan, and Sikkim interrupt the long frontier between China and India; these border states appear increasingly susceptible to Chinese influence.

In occupying Tibet in 1950 and 1951, the Communist Chinese began a systematic consolidation of the approaches to India's frontier. Chinese control of Tibet before 1956 depended upon long supply routes based on two major roads across extremely rugged terrain between China and Lhasa.

*References are listed at the end of the Chapter.

One road began in Szechwan and the other in Tsinghai province. The Kham uprising in Eastern Tibet in 1953 led the Chinese to develop alternatives to the long and difficult routes and to improve a little used route from Ho-tien (Khotan), Sinkiang, across the Aksai Chin in Eastern Ladakh to Rudok, Gartok, and Purang, thence along the boundaries of Nepal to Sikkim.^{3,4}

Between 1951-56, the Indian response to the elimination of Tibet as an independent state seemed well summarized in Prime Minister Nehru's assertion that Indian foreign policy was an extension of Indian tradition, history, and philosophy and that the principles of non-violence were the only way to achieve peace. One does not, as he pointed out, change one's principles because someone else departs from them or violates them.^{5,6}

Yet it is clear that Indian foreign policy did not ignore the possibility of Chinese Communist expansion toward the Indian frontiers. Where Indian judgment seemed to fail was in the estimates of the timing of the conflict and of its chief location. Concern of the Indian Government for its frontier security seemed focused largely on the borders of the Northeast Frontier Agency, where, from 1950 onward, efforts were made to strengthen Indian defenses. While Pakistani threats to Kashmir were a major Indian preoccupation, the potential significance of the Ladakh region to the Chinese did not seem to arouse Indian concern until quite late. Because the Ladakh region was inaccessible, the Indian Government maintained no regular patrols in the area, nor were border posts erected there until 1961.⁷

The Chinese Government surveyed the Aksai Chin route in 1956 and announced completion of a road there in October 1957. It was not, however, until the spring of 1958 that Indian reconnaissance parties actually confirmed the existence of the road on Indian territory.^{7,3}

Actual Chinese incursions into Indian territory had begun as early as 1954, when Chinese troops attempted a crossing of the border into Barahota, Uttar Pradesh. In 1955, Chinese troops intruded ten miles

into Damzan, Uttar Pradesh and the following year the Chinese Government claimed the region as Chinese territory. In October 1957, a Chinese party intruded into the Northeast Frontier Agency at Walong. In September 1958, Chinese troops arrested an Indian patrol in the Northern part of Aksai Chin, Ladakh. In 1959, China claimed 36,000 square miles in the Northern Frontier Agency. After the abortive Tibetan revolt in March 1959, Chinese troops attacked the Longju garrison in the Northeast Frontier Agency. In October 1959, Chinese forces advanced in Ladakh to occupy a total of 31,000 square miles.*

Indian concern for the Northeast Frontier Agency developed from 1954 onward. However, it was not until the violation of Indian territory in Ladakh had been established in 1958 that the Indian Government began efforts to reduce Chinese strategic advantage in that area. Surface and air transportation into areas adjacent to the disputed territory were improved between 1960 and 1962. Fifteen new Indian military posts appear to have been established in 1961 and 1962 to frustrate Chinese control of territory in dispute. Until 1961, it had been both Chinese and Indian practice to withdraw military posts during the winter months. As the threat to Ladakh became more apparent, Indian efforts to establish year-round control of the area were increased. The Indian objective appeared to be to block Chinese routes of advance and to cut Chinese supply lines.† Indian success in establishing military posts in the disputed territory may be measured by the heat of the Chinese charges of Indian aggression.

The harder Indian view of Chinese incursions must have become apparent in July 1962, when an Indian post was established that threatened the supply route to a Chinese post on the Galwan River. The failure of

* For chronology, see Ref. 8.

† Detailed accounts of the New Indian posts are given in Ref. 9. For Ladakh Road, see Ref. 10. For Chinese Posts in Ladakh, see Ref. 11.

Chinese forces on the spot to intimidate the Indian Commander into withdrawing appears to have influenced the Chinese decision to launch a vigorous campaign to clear the area.*

Between July and October 1962, the Chinese made further and more vigorous incursions in the Northeast Frontier Agency until 20 October, when large-scale attacks were launched along the McMahon Line at the same time that attacks were launched in the Chip Chap Valley in Ladakh. Thereafter, the Chinese advance soaked up strategic centers in both Ladakh and the Northeast Frontier Agency.

Current Indian Response--and Repose

As might have been expected, the large-scale attacks by the Chinese aroused public anger in India in a way that the nibbling away of frontier areas over a seven-year period had not done. But at the height of a successful Chinese campaign and before Indian resistance became effective, the Chinese Communists announced a unilateral truce and withdrawal from areas only recently seized by Chinese forces.

While the Indian Government clearly appreciated the immediate threat to Indian territory posed by the Chinese attacks, the military response was largely unsuccessful. Lack of military preparedness in the Indian Army, coupled with heavy military commitment to the defense of Kashmir from possible Pakistan attack, all contributed to Indian inability to resist the Chinese.

Chinese success in undermining the Indian diplomatic position with the other non-aligned powers and India's inability to maintain control of its own frontier areas left the Chinese free to combine withdrawal and cease-fire with arrogant demands for a border settlement favorable

* Based on assertions made in Fisher and Rose.³ See also Nehru statement in Parliament, November 28, 1961. Despite eleven border violations since April 1960, Nehru said, "We do not want war" but India was building up her military position to the point where she could take "effective action to recover the lost territories."¹²

to China. In effect, China offered a trade in which China would renounce its claims to territory in the Northeast Frontier areas in return for a renunciation of Indian claims in Ladakh.

Indian rebuffs to Chinese demands for Ladakh and parts of the Northeastern Frontier Agency apparently were based largely on appeals to the legality of Indian title to the disputed areas, rather than on the basis of a wider Chinese threat to India¹³⁻¹⁸ Reference to the legality of India's position was meant partly to influence the "non-aligned" powers, whose sycophancy to China led them to support the Chinese position. The lack of Indian military strength, plus the firm defeats administered by Chinese forces in October and November left little alternative to the Indian Government save to take refuge in legal claims.

Despite the apparent enthusiasm on the part of the Indian public for ejecting the Chinese from Indian territory, the Indian Government tacitly acceded to the Chinese cease-fire and withdrawal without any effort to keep Indian forces in contact with the Chinese.

While India readily accepted offers of arms and equipment from the United States and United Kingdom, she did so without any pretext of abandoning her nonalignment policy nor her support of Red Chinese U.N. membership. Even at the very height of the crisis, Indian leaders, while assuring the country that the invaders would be driven from India, also cautioned that defense and continued fulfillment of the Third Five-Year Plan must go hand in hand. For example, in an address to a mass meeting in Bombay on December 23, 1962, Mr. Y. B. Chavan, the Union Defense Minister, said that the first and foremost task before India was to create and keep in readiness a strong well-organized, and modern army. He said, "It might take two or three years to achieve this, but it must be done because India cannot afford to be complacent again."¹⁹ The same theme was repeated by Mr. Morarji Desai, Indian Finance Minister, speaking at New Delhi, December 10, 1962, where he stated that Indian defense expenditures had been about 2-1/2 percent of national income and would probably have to be raised to 5 percent. Referring to the

Third Five-Year Plan, the Finance Minister said, "It should be fulfilled though there might be some adjustments here and there."^{20*}

In the face of an Indian public enthusiastically hostile to the Chinese, the Indian Government's rather leisurely response to Chinese aggression was no better reflected than in the operation of the new Indian Defense Council. Despite the urgency of the frontier threat in October 1962, the first meeting of the Council was not held until November 1962 and the Council met only once a month thereafter.

The ambivalence of the Indian position is well summarized in an article in the Times of India, April 8, 1963, reprinted in Appendix A.

The U.S. Interest

It has been U.S. policy since Indian independence to support India as a democratic power in Asia. Frequently India and the United States have seemed at cross purposes on issues concerned with American relations to former colonial powers, and American relations to Pakistan. Yet the long-term interests of the United States are obviously best served by the continued existence of a stable, democratic India.

In the past, the promotion of India's leadership of the non-aligned powers and of Indian influence among the Afro-Asian bloc has seemed to help frustrate the Chinese bid for leadership in Asia. Even an India firmly devoted to nonalignment provides some impediment to Chinese or Soviet expansion in Asia. The progress of Indian democracy in fostering social change and industrialization outside the strictures of Marxist-Leninist socialism may well be a potent counter to Communist assertions of superiority.

In any case, it is clear that Indian leadership in Asia would serve U.S. interests better than Chinese leadership.

* See also "All Out Effort to Maximize Production First Task in the Long Struggle," ". . . National thrift and economy can make surplus available for defense purposes;"²¹ Refs. 22-24.

The Chinese attack on India's frontier was taken as one more manifestation of the Communist challenge to the Free World. Within a few days after the beginning of Chinese attacks, American and Commonwealth support made itself felt in the form of weapons, equipment, and supplies. No effort was made to commit India to an alteration in her policy of nonalignment. Despite the immediate response of the United States and Great Britain to the Chinese aggression, there is some question about the productivity of U.S. military assistance lent for the defense of India.

Whether military assistance to India can promote American policy in Asia depends upon the strength of the Indian will to resist Chinese demands and upon the Indian Government's capability for organizing India's defenses. This capability is open to considerable doubt, in view of India's rather quixotic foreign policy and her apparent reluctance to recognize more than a superficial threat from China, even after having been attacked.

Geographical Setting

When Americans think of the Himalaya mountains, it is Everest and Kachenjunga and Kashmir that come to mind; but there are many different kinds of Himalayas. The fighting that has been going on has had at least three radically different climatic settings, in all of which the troops of both sides have had to cope with some of the geologically youngest and most rugged terrain in the world.

Geologic data indicate that the Himalayas were formed during the late Cenozoic Era and may still be building. The whole area is subject to violent earthquake activity, and caution is required in correlating maps of different dates.

The Himalayas form a wall nearly 1500 miles long. For most of that length, one can trace three major types of ranges: Foothills border the plains and the Middle Hills rise above alluvial valleys, the High Himalayas rise above them all to form the edge of the Tibetan plateau. In the North lies an incredibly complicated belt of terrain nearly 200

miles wide, from the plains edge of the Siwalik Hills to the crests of the High Hills. That belt is compressed at the Bhutan end of the ranges to a width of less than 100 miles in some places.

The Siwalik Hills rise one or two thousand feet above the thousand-foot elevation of the plain and slope easily to the long and wide alluvial valleys that divide off almost the entire band of foothills from the tangled ridges that are the Middle Hills. In the Middle Hills, the ridges usually rise steeply to altitudes of 15,000 feet and more, towering above wild, glacier-fed streams, whose beds have been cut deep into the sedimentary layers. Since the floors of the V-shaped valleys are often only two or three thousand feet high, it can be seen that the problems involved in crossing the Middle Hills can be complex. Ten miles of air distance can mean 50 to 100 miles of road, if a road can be built at all.

Climate in the Himalayas is dependent on two factors: rainfall and altitude. The major differences between Assam and the northern ranges are due to results of rainfall. The rains, in turn, depend on the monsoons--the great seasonal wind patterns, part of all continental weather pictures but especially spectacular in (and most commonly associated with) India.

There are two monsoons; when the monsoons are inadequate or are deflected from their usual paths, India starves. Under usual and "prayed-for" circumstances, the Southwest Monsoon blows from June through October and brings "The Rains" to the Punjab and to Uttar Pradesh, central and northern India, and to the whole wall of the Himalayas from Kashmir to the Burmese border. While it is still raining in Assam, the winds shift and the Northeast Monsoon begins, contributing its moisture to the 400 inches of rain that some years falls on the Khasi Hills in Assam. During November and December, this monsoon also soaks the plains of southern India, especially the Deccan, which during the summer monsoon was in the rain shadow of the Western Ghats. The Northeast Monsoon brings most of the snow to the passes, either directly (as in the southeastern ranges

above the Northeast Frontier Territory), or indirectly (as in the northern ranges, where it takes the form of mountain thunderstorms).

When the monsoons come to the Himalayas, the effects on a given area are radically modified by the blocking effects that depend on the heights of the various ranges. The foothills modify the rains only slightly. When the rains are heavy on one side of the Siwalik ranges they are heavy on the other side; this also applies to the outer, 5000-foot ridges of the Middle Hills.

Ladakh, on the other hand, is in a rain shadow that has made the valley of the Indus and the plain of the Aksai Chin a desert, albeit a desert almost 12,000 feet above sea level. If it were not for the water of the Indus river, whose headwaters and tributaries are glacier-fed, there could not be a town of Leh. Only three inches of precipitation falls on Leh in a year, most of it as snow.

In Nepal, the rainfall patterns are similarly marked by rain shadows. The long alluvial valleys between the foothills and the 15,000-foot ranges of the Lesser Himalayas receive the full force of the monsoons, but in the midst of the Middle Hills the valley holding Katmandu has a climate parallel to that of Kashmir and the rain shadows of the High Himalaya fall on the edges of the Tibetan plateau.

As one approaches Sikkim and follows the ranges into Assam, the effects of rain shadows become even more striking. Exposed ridges and slopes can be very wet, while areas in shadow are relatively dry. The degree of dryness depends on the degree of shelter the mountains afford. In some areas, the shelter is so complete that the area in shadow is nearly devoid of water. Katmandu receives an average of 56 inches of rain per year. Darjeeling (170 miles to the east on a ridge-top 7,100 feet high) receives an annual average of 123 inches of rain. The southern slopes of the Khasi hills receive up to 400 inches; Cherrapunji has recorded 452 inches in one year. The Brahmaputra Valley and the Manipur Basin are both in rain shadows and are probably the driest areas in the Assam and the Northeast Frontier Agency area, but even these receive from 50-75 inches as annual averages. These patterns extend even into Tibet.

Climate in the Himalayas also differs vertically. The wide valleys at about 1000-3000 foot altitudes resemble the Gangetic Plain in terms of climate, as well as agriculture, population density, and cultural patterns. In the V-shaped valleys of the Middle Hills where altitudes are from 3000-7000 feet, most of the farms are terraces and must be irrigated most of the year. Where the 5000-6000 foot valleys are wide, they are temperate in climate and emphasize fruit as their crop. The villagers from above the 8000-foot levels (some of them have built towns above the 15,000 foot level) also irrigate their terraced gardens and grow potatoes and barley and (where possible) winter wheat, but they usually desert their farms at the first snowfall and winter their animals at the lower levels.

Broad intermontane basins are very rare in the Himalayas. The two most famous ones--Kashmir and Katmandu--are both between 5000 and 6000 feet altitude and are more than 20 miles wide; both typify all that is pleasant in a temperate climate. They average about 50 inches of rain a year, falling in several different seasons and seemingly related to cyclonic activity rather than directly to the monsoons. Their temperature differential is limited. Though both valleys receive some snow, it tends to be light and lasts only briefly.

The Battle Areas

Newspapers have labeled the three major combat areas Ladakh, Se Pass (Se-La) and Walong. These labels are useful, even though rather misleading in that they are more limiting than was the actual area of the fighting.

In the Ladakh area, the fighting has involved some 3000 square miles with battles of various sizes in many different areas. Some of the first clashes took place in the Chip-Chap River Valley, at the feet of the Karakoram ranges. When the cease fire was announced, there was a seige in progress at the Chushul Airfield, nearly two hundred miles south of Karakoram Pass. Fighting was in progress in a dozen areas between the two points during most of October and November.

The Se Pass is on the border between Bhutan and the Northeast Frontier Agency, about 60 miles below the McMahon Line. The area does not quite include Longju, a town that is just below the McMahon Line (on Western maps) nearly a hundred miles east of Se Pass. (It was at Longju that a 200-300 strong detachment of Chinese forces engulfed the Indian outpost of Border Guards on the 25 of August 1959, and extended the conflict to the Northeast Frontier Agency area.)

The Walong area is the eastern end of the Northeast Frontier Agency. In this area, the fighting had almost reached the Brahmaputra above the town of Ledo (and the oil refinery) when the cease-fire was announced.

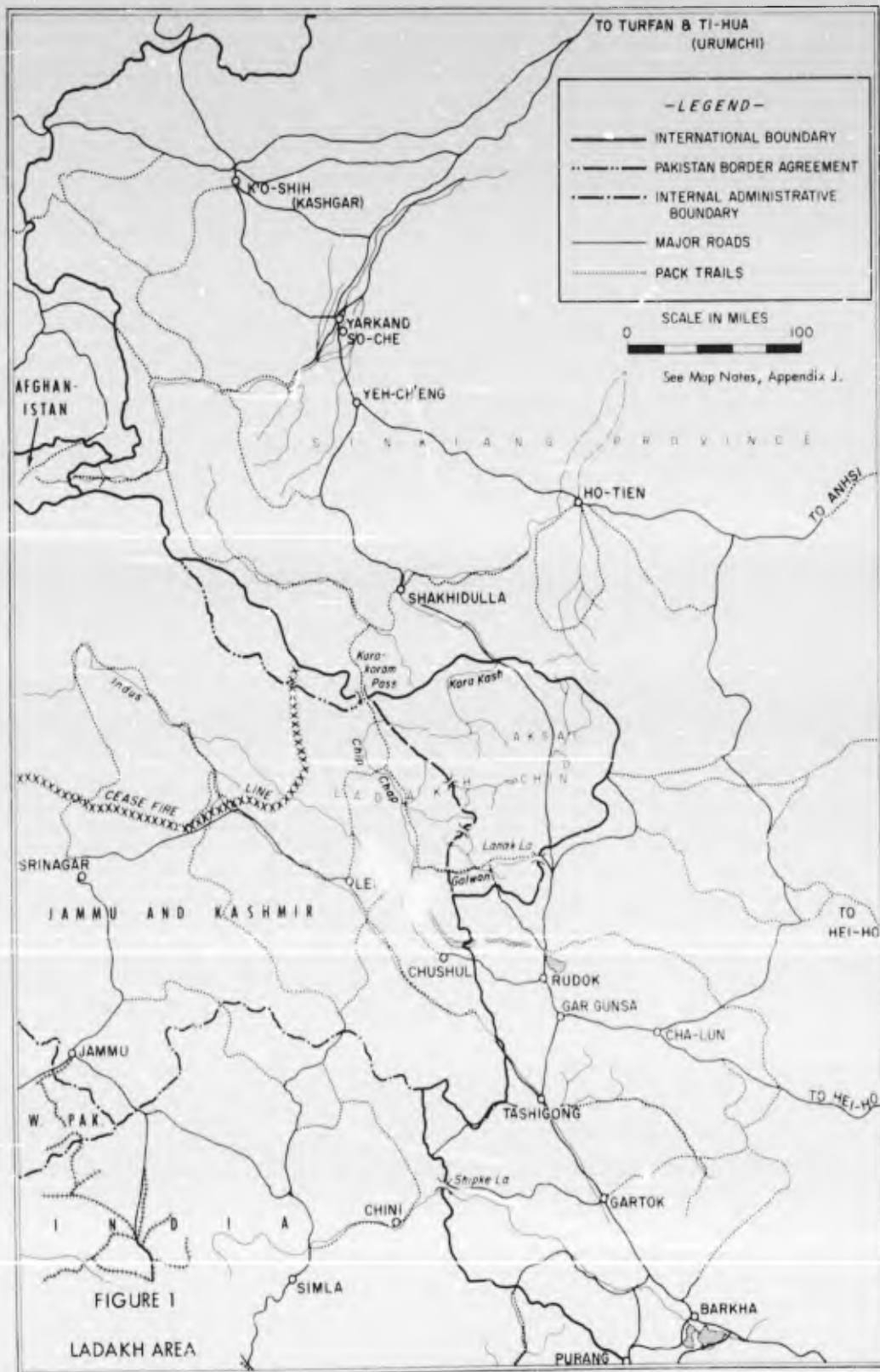
1. The Ladakh Area (Fig. 1)

The Ladakh area is surrounded by 20,000 foot ranges and contains two mountain ranges nearly that high; these ranges are cut by the gorges and canyons of the upper Indus and its tributaries. Leh, the capitol of the area, lies at an altitude of 11,500 feet, a relative lowland. As noted above, it is in an area that is in almost total rain-shadow. What agriculture there is near Leh depends on irrigation and migratory animal husbandry.

For many centuries, Leh has been a major stop on the caravan route between Kashmir and Western Tibet that goes on to Yeh-Cheng and Kashgar in Sinkiang. Under the British, Leh was the take-off point for mountain hunting parties and for the climbing expeditions that explored the Karakoram ranges. It has been a major garrison point for the border patrols since about 1850.

The road to Leh is via Srinagar in Kashmir. The only other Indian access to the area is via several rugged pack trails that parallel the Indus or via a series of trails from Simla.

Northeast of Leh, the Ladakh range, low by Himalayan standards, separates the Indus from the valleys of the Galwan and Chip Chap rivers. The Indus headwaters come from glaciers on the Chinese side of the border above Nepal. Many tributaries, especially the Chip Chap and the Galwan, are fed by glaciers in the Karakoram ranges, which divides the Aksai Chin from the rest of Ladakh.



There is some justification for the position of the Colombo Conference: China's claims to areas below India's version of the border are not completely unreasonable. This is especially true of the Aksai Chin.

China's suzerainty over Tibet had been an accepted part of diplomacy until after World War II. With this in mind, it is rather startling to discover that China has been party to none of the discussions and agreements related to the boundary between Tibet and India. The final Simla Conventions of 1914 were not even initialed by China, much less signed.* The so-called McMahon Line, named after the British delegate to the Simla Conventions, properly refers to the line on maps accompanying the Anglo-Tibetan Notes, not those attached to the convention. Since 1947, Nehru's government has insisted that the Simla Convention maps of 1914 were binding--this in spite of the fact that China did not at that time recognize the agreements as legal and has never directly or indirectly accepted the boundaries as shown on the maps initialed by Britain and Tibet in 1914.

2. The Se-La Area (Fig. 2)

The Chinese poured down into the Se-La area via a road through Tsona Dzong and the 14,200-foot pass that lies on the McMahon Line. The cease-fire found the Chinese beyond the town of Bomdila, less than 60 miles from the Brahmaputra River and the railhead at Tezpu. The headquarters for all of the military activity in Assam and the Northeast Frontier Agency.

The Tsona pass has been heavily guarded and thoroughly fortified for more than ten years by the Chinese. Refugees tell of deep tunnels at the top of the pass, filled with many truckloads of supplies.

*This subject is explored in Appendix B.

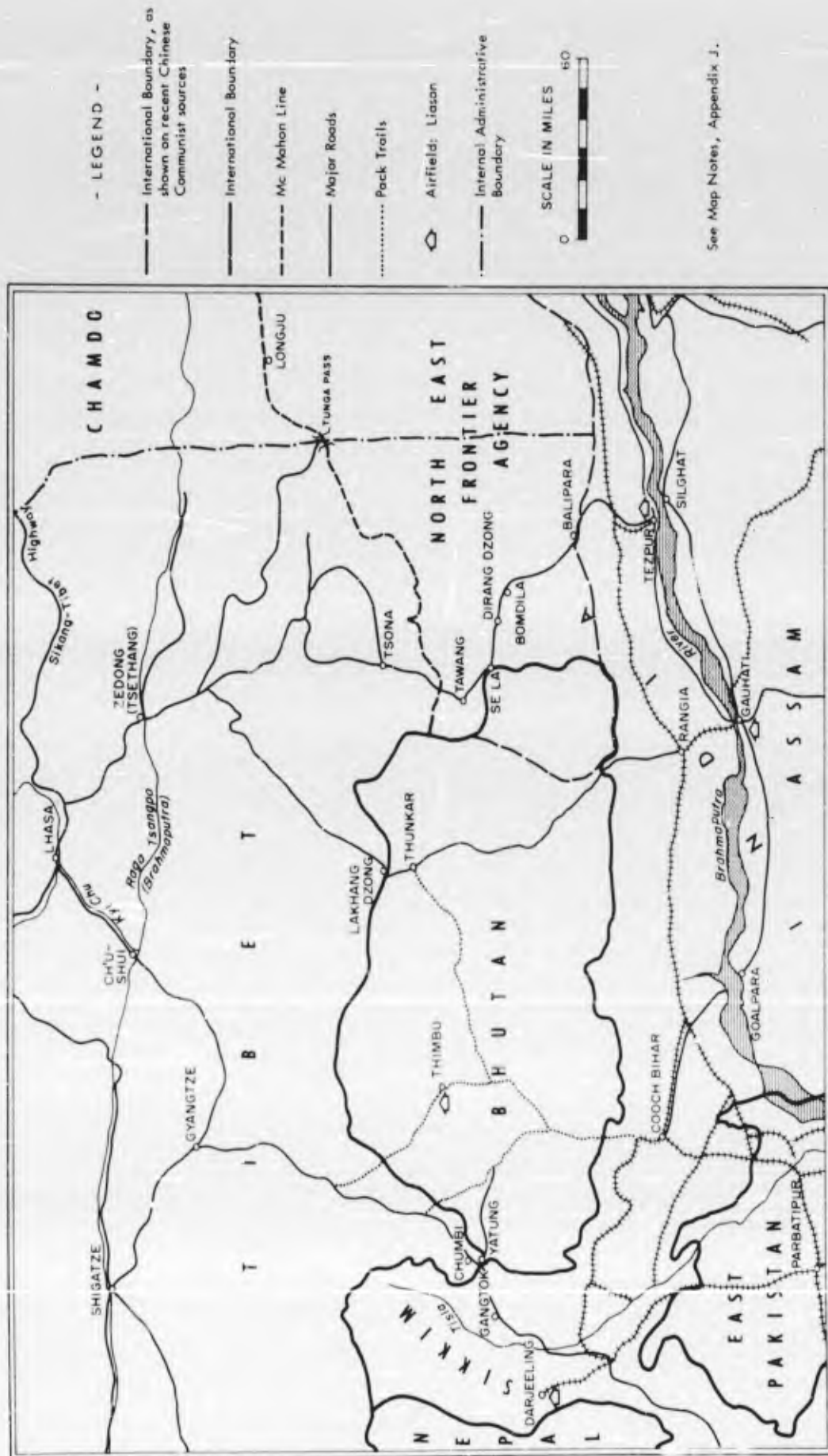


FIGURE 2
SE LA AREA

On the Indian side, Tawang was a garrison town for the border guards. Despite many years of road building, this town was customarily reached by pack train, though jeeps could get through. It is a fairly good road by Himalayan standards but even this road is subject to extensive periods of unuseability.

The area is part of the belt that receives rain from both the summer and winter monsoons. Even in the rain shadows, the area is wet by any normal standard. Tezpur, in the Brahmaputra valley (a relatively sheltered area and a dry area by Assamese standards) customarily measures from 50 to 75 inches of rain per year. Se-La is on an exposed ridge at more than 13,000 feet. The lower southern slopes probably receive close to 200 inches of rain per year. Since the entire complex of ranges from Tawang south are composed of sedimentary rock, even less than that much water could wash away whole mountain sides as easily as a thunderstorm cuts a road or washes out a bridge or an earthquake shifts a painfully carved ledge. Since all of these events are commonplace phenomena in this area, maintaining roads in the Northeast Frontier Agency is even more difficult than building them.

Building roads is difficult enough. Near Tezpur, the flora and fauna are tropical jungle, with leeches, biting insects, orchids, teak, and tigers. The altitude shifts from near sea level at the river to more than 24,000 feet at the major peaks. Between the river and the peaks lie less than a hundred air miles of knife-edged ridges and gorge-like valleys of graduated depths and heights. On the Tibetan (northern) side of the mountains, rain shadow and altitude combine to make the climate a more nearly temperate one. Even the snow is much lighter on the northern slopes and passes. Road building on the far sides of even the Indian mountains is a much easier task, because the erosion is so much more easily controlled. The valley floors are higher and the grade of the slopes of the ridges is less extreme in the higher hills. The flora of the area near Tibet is more nearly like an Alpine meadow or arctic tundra than like the rain forests of the lower hills.

3. The Walong Area (Fig. 3)

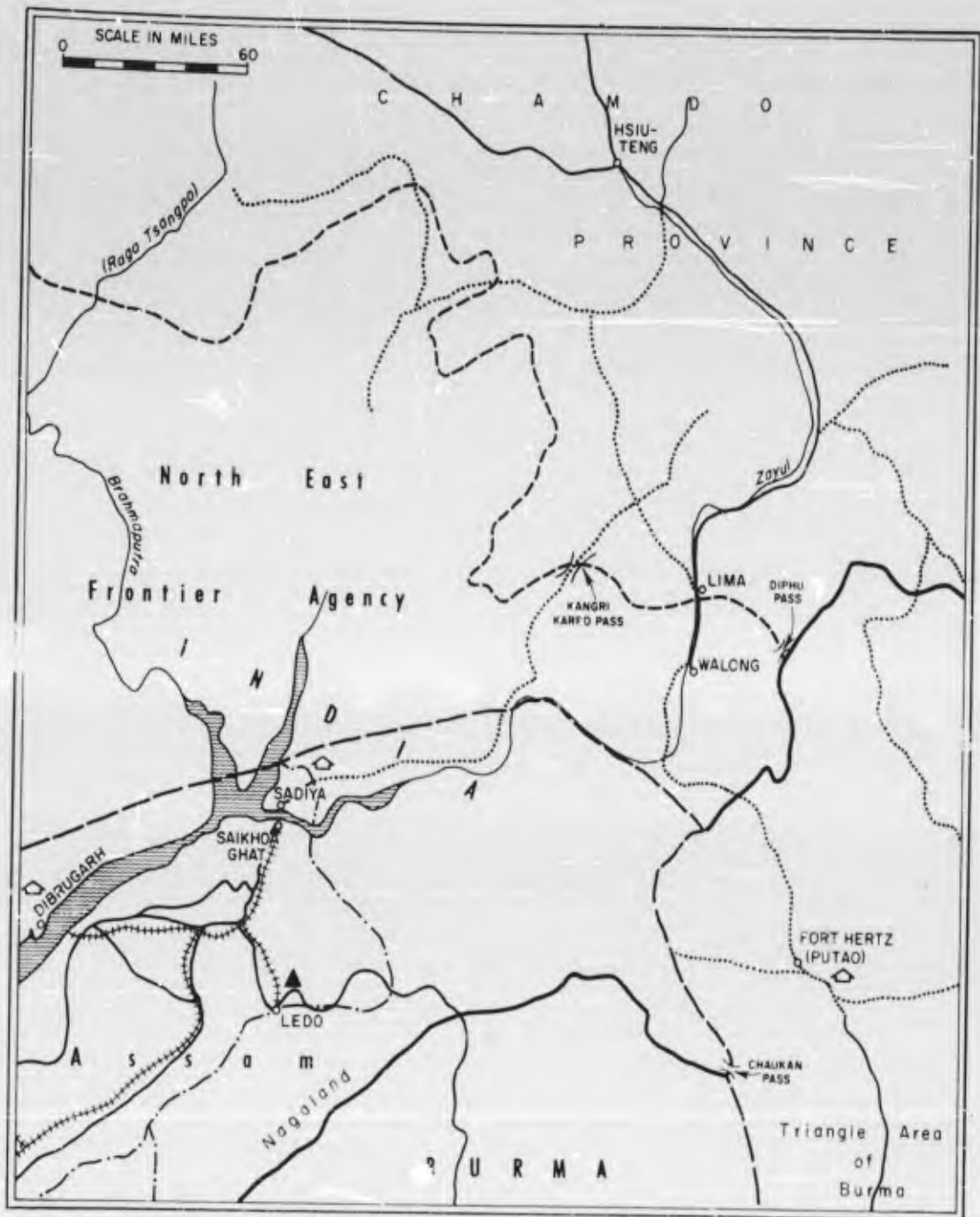
The Walong area is directly adjacent to Burma's Triangle area; the problems, terrain, altitudes, and climate are closely parallel. Reports from the Burma road, the Stillwell campaigns, and the flyers over the hump have described this situation many times.

The Chinese supplied this area via a road to Walong through Lima (Rima on some maps). This road connects directly both with Lhasa and with the Sikang-Tibet highway to Ch'eng-tu. They seem to have expanded the ancient trails over both the Diphu Pass and through the valley of the Zayul river. When the cease-fire came, they had very nearly reached the end of the old British military road at Sadiya in the oil fields, an extension of the Ledo Road of World War II.

The Indian supplies moved into the area via rail either to Silghat, via the highway on the southern side of the Brahmaputra; or on beyond Tezpur by rail for transshipment across the river at Dibrugarh. (The railroad that once went all the way to Ledo has been partially dismantled.) From Sadiya porters and pack animals were the only feasible transport for the trails available to the Indian army, and the emphasis was on porters. In all, it would be difficult to find a more difficult and inaccessible series of places in which to try to fight a modern war.

In India, there is an extensive British-built railroad net, and in most of India, a forty-mile trek in any direction will reach a rail line. This rail net crosses the Siwalik Hills in several spots and touches the borders of Nepal and Bhutan at several other points. As has been said, India's logistic problems were not those of getting materiel to the mountain edges. India's problems were (1) to acquire the materiel needed for that kind of war, and (2) to move materiel the 200 air miles across the mountains from the railheads.

From the Chinese side, most of the problems are those involved in getting materiel across the 1,000 miles between the railheads and the areas from which the troops could be supplied rather than those of supplying the troops once the fighting had started.



See Map Notes, Appendix J.

- LEGEND -

- | | | | |
|-----------|--|-------|------------------|
| ——— | INTERNATIONAL BOUNDARY, AS SHOWN ON RECENT CHINESE COMMUNIST SOURCES | ——— | MAJOR ROADS |
| ——— | INTERNATIONAL BOUNDARY | | PACK TRAILS |
| - - - - - | MC MAHON LINE | ◻ | AIRFIELD: LIASON |
| | PROVINCIAL BORDER | ▲ | OIL REFINERY |

FIGURE 3
WALONG AREA
23

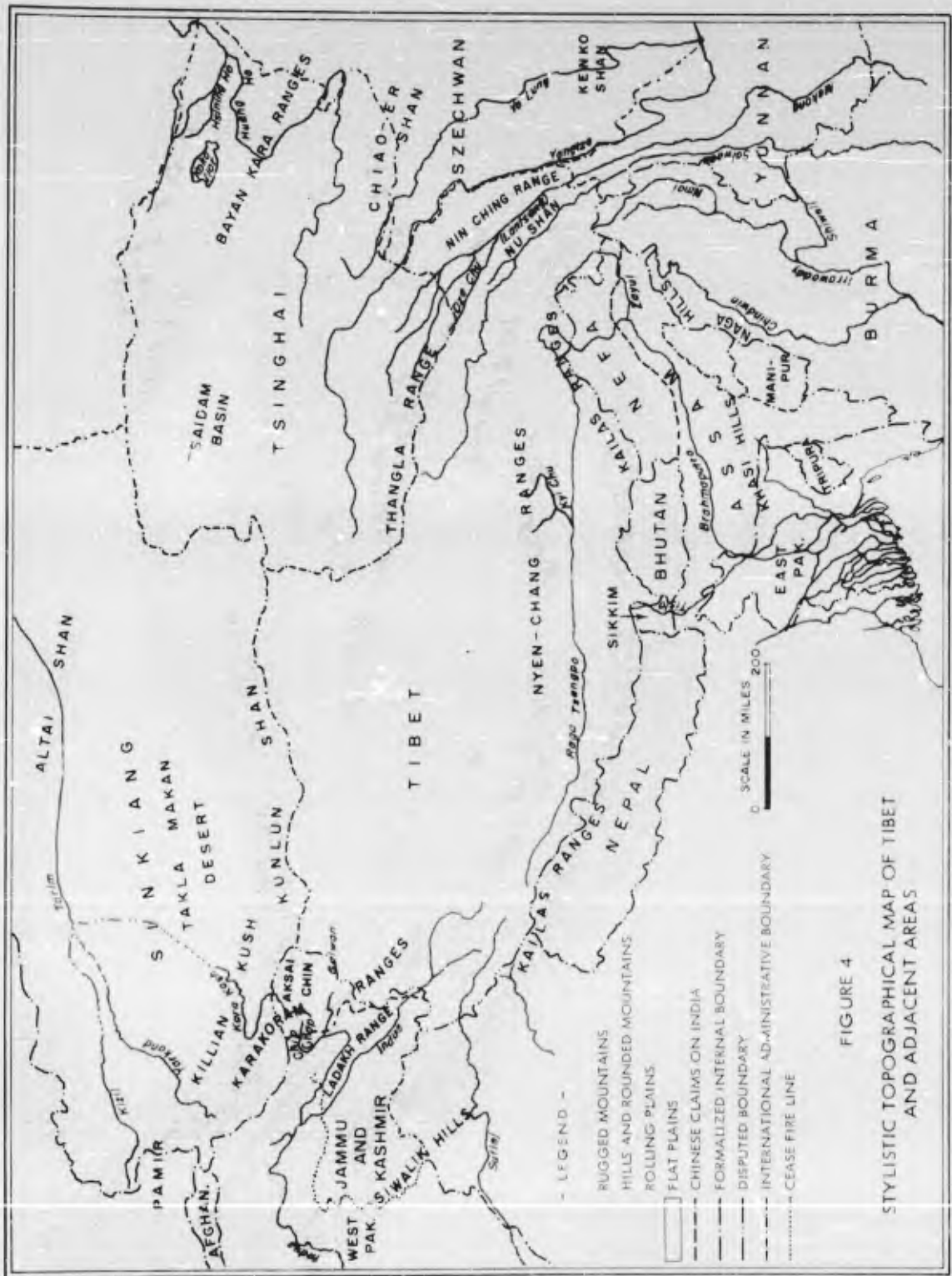
Travel on the Tibetan Plateau itself is complex at best, but getting there is worse. On the Eastern side, backing up the serrated edges of the plateau are extensive karst terrain areas. (The South Dakota Badlands National Monument is similar in appearance.) Then there are the other mountain ranges, separating the gorges of several of the more powerful rivers of the world.

Highways to Tibet

The highways into Tibet follow ancient caravan routes and are usually the routes of easiest access. The hazards even these routes surmount are daunting (see Fig. 4).

The railroad from Lan-chou to Hsi-ning evades some of the more spectacular karst areas by following the valley of the Hsi-ning Ho. The highway leaves Hsi-ning and goes along the banks of the Koko Nor, a huge lake at the altitude of 10,515 feet. Having crossed a 13,000-foot pass the road runs along the edge of the Tsaidam Basin at the foot of the Bayan Kara Range to Golmo (Kaerhmu). (At Golmo it meets an alternate road that crosses the railroad to the north at Hsia-Tung, near Anhsi.) The road then goes up into the Bayan Kara Ranges over the shoulder of Supakanli Shan via a 16,000-foot pass and becomes involved with the various headwaters of the Yangtze River. The Bayan Kara rates as a relatively low and minor mountain range, yet 20,000-foot peaks are numerous among them. This includes the peaks in the Yangtze area where the valley floors are 10,000- and 12,000-feet high. The road goes on across the 16,175 pass K'och'ennaerh Shank'ou (Kagchinar La) to face more of the headwater tributaries and their gorges before reaching Tang Pass (16,760 feet) in the Thangla Ranges, where it actually enters the province of Tibet. Here the gorges that feed the Salween River cut the plateau before one reaches Hei-Ho (Nagchhu Dzong).

Between Hei-Ho and Lhasa, one more pass must be crossed: the 15,000-foot Zhangzhung La in the Nyen-Chang Hills, but the plateau has been reached and, though even the valley floors are over 11,000 feet, travel has become comparatively easy.



See Map Notes, Appendix J.

The railheads are at Cheng-tu and Ya-an. As one enters Tibet from the East, there are even more awe-inspiring barriers to be crossed. Ya-an lies on the Min Ho, a tributary of the Yangtze in the foothills of the Tasueh Shan. The road goes on up to K'ang-Ting which lies in a valley below the Kung-Ko-Shan. This peak rises a majestic 19,500 feet above its adjacent valleys to an altitude greater than 25,000 feet.* From here, the road follows several river valleys, crossing the Kenko Shan above Kantse, on the Yalung River. The Bayan Kara range and its subsidiaries have now been surmounted. The Shaluli Ranges form the other side of the Yalung Valley. When these have been crossed, one of the major gorges of the Yangtze River (Chin-Sha Chiang) lies below, forming the border of Chamdo Province. One is now in cultural Tibet, though political Tibet is still far away. The road is now in the land of the Kham (Cham, Kam, Lolo, et al.) who are spiritual and (in their own eyes) temporal subjects of the Dalai Lama. These people have never willingly (or otherwise) submitted to Chinese sovereignty. Each time an attempt to invade Tibet has depended on crossing Kham territory, the attempt has failed. This statement has held true both since and long before the thirteenth century and Kublai Khan.

The road goes up from the Yangtze to Lache Shank'ou, a 14,000-foot pass that heralds the crossing of the Nin-Ching ranges. Beyond these lies Chamdo (Ch'ang-tu) and the Mekong River (called the Lants'ang in China) which has cut several gorges in this part of its course. Between two of these Mekong gorges lies the Lamata 'o Shank'ou (a 15,000 foot pass). The road that will reach Hei-Ho crosses this, then the Dze Chu gorge then goes on to Enta. This road is relatively new and will be discussed in a moment. The road that reaches Lhasa via Tai Chao is the

*This might be compared with Mt. Whitney, our highest mountain, which rises 14,000 feet above its adjacent highway. Mt. Whitney is an extreme oddity and does not need to be circumvented in the normal course of travel. No other peak in the conterminous United States rises more than 8000 feet above its adjacent valleys.

traditional Sikang-Tibet highway and goes south from Chamdo via the Mekong Valley, crossing the divide between the Mekong and Salween Rivers above Pangta (Bomda Gompta). The divide between the Salween and the Brahmaputra and Irrawaddy Rivers comes next and the road then follows various tributaries of the Brahmaputra into Lhasa.

The newer road that goes to Lhasa via Hei-Ho goes northwest from Enta and generally parallels the tributary valleys of the Salween. It stops in a desert area of the plateau between the Dalai Lama range and the Nyen-Chang range. Like the Aksai Chin, this type of area once was too dangerous and forbidding for mechanized travel; water and feed were too scanty to have permitted caravan use.

The only successful invasion route to Tibet that history records is quite a different story. From the railroad at either Ti-Hua or Turfan, the road to Ko-Shih (Kashgar) avoids mountain terrain almost completely, and stays in desert or oasis for almost 1,000 miles of gradually increasing altitude. It follows the edge of the Tarim River Valley in what is otherwise the Takla Makan Desert. Both Kashgar and Yarkand are at altitudes of less than 5,000 feet. Going south from Yarkand, the Chinese built their new road in 1954 from Yeh-Ch'eng over the Killian Kush to Shakidulla, most of which route followed an ancient winter caravan trail into Baltistan. From Shakidulla the road goes up the Kara Kash river valley onto the plateau--the Aksai Chin--and, after one more pass, stays on the high, relatively undissected plateau clear to Gartok. The 800-mile Tibetan segment of this road is all above 10,000 foot altitude, but desert terrain means easy road building and motor traveling, no matter how high.

It should be noted that the Urumchi-Gartok route goes from 1,000 feet to 12,000 feet as a slope with only two short segments of mountain terrain to cross, one of which lifts the road the last 7,000 feet in about 150 miles. There are no major passes and no major river gorges to cross in more than 1,400 miles.

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CHAPTER III

GLOBAL IMPLICATIONS OF CHINESE STRATEGY

The Pattern of Chinese Strategy

It is conceivable that Chinese Communist goals are no more ambitious than the rectification of ill-defined boundaries. Yet, it would appear that Chinese action at the Indian frontier has deeper significance than a mere dispute over a boundary.

While these pages were being written, an exchange of notes took place between Moscow and Peking. The New York Times, Western Edition, reported on March 9, 1963:

" . . . but if Mr. Khrushchev is seriously taunting them about allowing 'imperialists' to remain in Hong Kong and Macao, he ought to know that he is opening the subject of all the old treaties imposed upon China in the nineteenth century by Russia as well as Western countries."^{1*}

Treaties on the Chinese list that seemed to apply most specifically to Russia were: The Treaty of Aigun (1858), which ceded to Russia part of the Amur River district, creating a corridor along the Chinese frontier from Siberia toward the present city of Vladivostok; The Treaty of Peking (1860), which led to Russian possession of the Ussuri River region; and The Treaty of Ili (1861), which allowed Russian annexation of Chinese Turkestan.

*References are listed at the end of the Chapter.

¹Reference 1 reports editorial in Jenmin Jih Pao (Peking), March 7, 1963, which lists Chinese treaties with Imperial Russian Government, which among other treaties "annexed Chinese territory in the north, south, east, and west" and which the present Government in Peking considers "unequal" and impermanent.

These bold words open the way for the conjecture that the Indian affair is, in the long view, but a part of a general policy of both border rectification and expansion.* Indeed, the cool deliberateness of Chinese actions preceding and accompanying the attack on India seems to confirm the workings of an ambitious and wide-ranging Chinese policy of expansion.

Events that preceded the Chinese attacks on the Indian frontier in October 1962 seem to reveal a discernible strategic pattern. The occupation of Tibet in 1950 and 1951, despite Chinese preoccupation with Korea, was followed by the consolidation of Chinese control of Tibet, a triumph over both extremely difficult terrain and strong Tibetan resistance. The Tibetan revolt against Chinese authority was followed by the construction of roads to Tibet through Ladakh from Sinkiang, supplementing existing routes from Szechwan Province and Tsinghai Province.

While Communist China's Tibetan policy was being brought to fruition, efforts were being made to settle the disputed boundaries between China and Burma. The Burma-Chinese boundary dispute had defied settlement for three-quarters of a century. In November 1955, there was an actual clash between Chinese and Burmese forces in Wa State. There followed protracted negotiations between the Burmese and Communist Chinese governments, conducted in a spirit of give and take on both sides, which resulted in a treaty signed in October 1960. The settlement, despite the preponderance of Chinese military power, appeared to be fair to both Burma and China.^{2†}

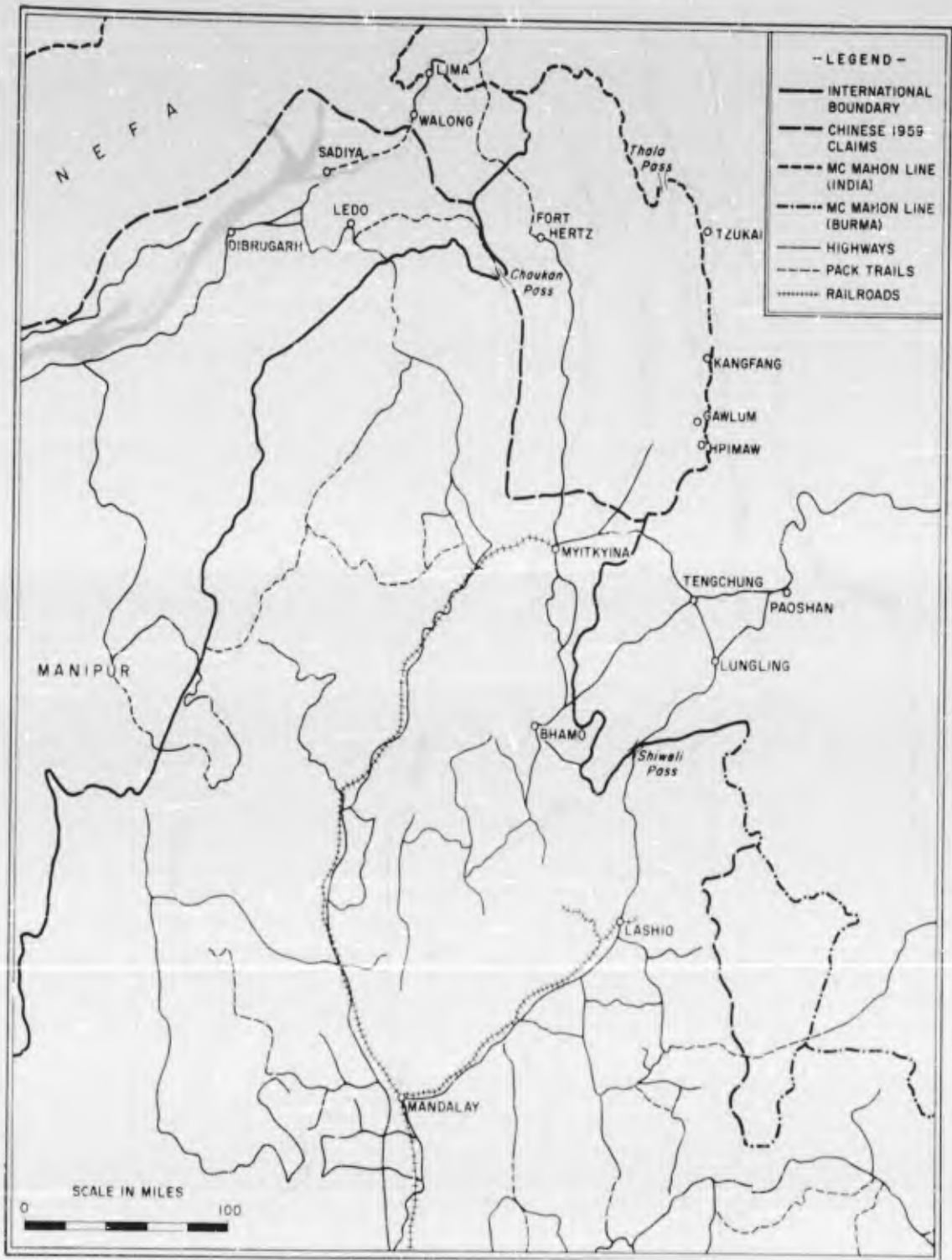
The Chinese display of good manners and restraint hastened the settlement and left the Chinese free of preoccupation with a disputed boundary, thus clearing the way for future Chinese pressure on India in

* See map (Fig. 5) which shows territories claimed by China to be Chinese.

† Details of negotiations and settlement as well as text of treaty are in Ref. 3.

Northeast Frontier Agency. At the same time, Chinese opportunities for exploitation of Burma's internal weaknesses are increased, even as the Treaty of Friendship and Non-aggression between Burma and China may lead to Burma's resumption of her traditional position in respect to China. Historically, Burma has been a tributary of China; China had at times exercised some rights of sovereignty over what was called the Inner Kingdom. The acquisition by China of Hpimaw, Gawlum, and Kangfang gives China control of both sides of the Hpimaw Pass and both sides of the Chimeli Pass, which provide easy entry via the Salween into the upper Ngawchang Valley and Shweli Valley. The area is strategically important to the defense of Northeast Burma and includes the routes which Chinese raiding parties into Burma had traditionally followed (see map, Fig. 6).

In addition to settling the boundary dispute with Burma, the Chinese agreed to undertake the construction of roads in northeastern Burma.^{4,5} This construction would extend the Chinese road net from Yunnan Province along the Burma Road to the usable port of Bhamo on the Irrawaddy River to Myitkyina and Fort Hertz (Putao) in Northwest Burma, close to the Chaukan Pass into India. An alternate route would run from Myitkyina to the Indian border opposite Ledo, following the Stillwell Road of World War II. Chinese possession of the passes on the Burmese frontier between Hpimaw west of the Salween River north to Tz uk ai and Thala Pass provides the basis for a fairly elaborate road net across Northern Burma toward the southeastern border of Assam between Nagaland and Tibetan frontier northeast of Walong. It will be recalled that Walong was one of the major objectives of the Chinese attacks into the Northeast Frontier Agency in October 1962. One must remember the relative ease with which the Japanese advanced to the Chindwin River in their drive toward Imphal, using the relatively primitive roads and trails that existed at the time of World War II. Chinese access to Northeast Burma, if based on the development of more elaborate road nets, suggests the possibility of a coordinated campaign against Northeastern Assam and the Northeast Frontier Agency; such a campaign could be mounted from both Burma and Tibet.



See Map Notes, Appendix J.

FIGURE 6
SINO-BURMESE BORDER AREA

Pressure on Indian security in Assam and the Northeast Frontier Agency is further threatened by the demands for separatism in Nagaland, demands which have long plagued the Indian Government.⁶⁻¹⁴

India's diplomatic position vis-a-vis Nepal had been undermined apace by the Chinese settlement of the Nepal boundary dispute and by continued expressions of Chinese sympathy for the Nepalese in their disputes with India. This tends to isolate India from a country that traditionally has been considered important to the security of India's northern frontiers.^{15,16}

To cap Indian discomfiture, Chinese rapprochement with Pakistan has led to conclusion of trade agreements and to settlement of the disputed boundary between Pakistan and India in Kashmir.

Negotiations between Pakistan and China over the ill-defined boundary between Sinkiang and Pakistan-controlled area of Kashmir were being openly considered as early as October 1959. Significantly, actual negotiations began in Peking on 12 October 1962, about eight days before the opening of the Chinese offensive against India. On 28 December 1962 a joint Pakistan-Chinese communique announced agreement in principle on the location of the boundary; the actual agreement was signed in Peking on 2 March 1963.^{15,17-20}

The Chinese Government seemed to conduct negotiations with the same well-mannered attitude of "give and take" that had characterized boundary negotiations with Nepal and Burma. The southern as well as the northern slope of strategically important passes between Sinkiang and Kashmir passed under Chinese control. Where the boundary ran through a pass, the "water-parting line" became the boundary line.*

A pattern seems discernible in the various Chinese boundary negotiations. In each case, China has been left in control of strategically important passes that provide access to the territory that had been in dispute.

* See text of agreement printed in Ref. 20.

Adept Chinese diplomacy was well-timed to take advantage of India-Pakistan hostility over Kashmir, heightened by Indian acceptance of U.S. and British military assistance. India's attitude toward Pakistan was further hardened by the Sino-Pakistan rapprochement, thereby frustrating American and British efforts to have India negotiate a settlement of the Kashmir issue to free Indian military strength for defense of her borders against Chinese attacks.

The Pakistan-Chinese negotiations were most fruitful for China:

- (1) China achieved a strategically advantageous position in the Karakoram Range on the boundary of Kashmir;
- (2) The possibility of an amicable settlement of the Kashmir dispute between India and Pakistan was further frustrated,
- (3) India was prevented from freeing military forces deployed in Kashmir for service against future Chinese attacks; and
- (4) Pakistan's position in the U.S. alliance system was made highly problematical.

The possibility must be entertained that both the Burma and Pakistan border agreements with China were tied to later territorial compensation at the expense of India in Assam, Nagaland, Manipur, Tripura, and West Bengal. The promise of such concessions would tend to keep Pakistan sympathetic with Communist Chinese policy, since the tenuous position of East Pakistan as an enclave surrounded by Indian territory must be a constant source of anxiety to the Pakistani Government, particularly in the face of continued hostility over the Kashmir issue. Enlargement of East Pakistan at the expense of India (as part of a general Chinese program of truncating India's power in Asia) could be an overpowering temptation for Pakistan. Indeed, the Indian press has reported that bridle paths in East Pakistan in the area opposite Tripura are being widened into military highways. Pakistani military patrols have been reported operating in the disputed area between Tripura and East Pakistan, in

violation of an agreement reached in September 1962. At the same time, the Pakistani Government has announced a \$19-million project for expanding rail capacity in East Pakistan.^{21,22}

In an apparent effort to complete the isolation of India and to develop further strategically favorable positions in Central Asia, conversations are about to be undertaken in Kabul for the settlement of boundary demarcations between China and Afghanistan.²³ If China manifests the same diplomatic astuteness at Kabul that she has shown in such transactions with Burma, Nepal, and Pakistan, then it must be expected that the Chinese will emerge with another friend in Central Asia and a further enhancement of the Chinese strategic position. In addition, a Chinese settlement with Afghanistan would frustrate Indian efforts to use Afghanistan to distract the Pakistani.

At the same time, China is now in a position to strengthen Pakistan against Soviet-supported Afghan demands for an independent Pushtoonistan carved out of Pakistani territory.²⁴

It is possible to assume that Chinese interest in Pakistan, Afghanistan, and Kashmir is only short range, related to nothing more than the diplomatic embarrassment of India and the secure control of Tibet. However, the potentialities of a favorable Chinese position in relation to Kashmir ought not to be underestimated. It would appear, for example, that Chinese support of independence for Kashmir is undertaken with the hope that an independent Kashmir could be brought under Chinese influence. Indeed, it has been reported that Chinese Muslims are being trained for the task of shaping a Kashmiri leftist movement sympathetic to Chinese policies.²⁵

Extension of Chinese Influence

Close Chinese relations with Pakistan and Afghanistan and access to Kashmir would provide China with additional entries to the Indian subcontinent and the basis for a forward policy in the area around the southern rim of the Arabian Peninsula and along the coast of the Red Sea. Chinese interest in the area has already been manifested by assistance

to Yemen in road construction and by attractive trade offers to Somali. A successful forward policy in the Middle East, if based on secure lines of communications in Central Asia, would permit widening Chinese influence along the Arabian coast of the Indian Ocean. China has already demonstrated more than passing interest in the newly-independent or about-to-be-independent countries of Africa.*

Any considerable extension of Chinese influence into the Middle East and into Central Africa would provide a link between the Chinese position in Central Asia and the Mediterranean, where Chinese influence is already paramount in Albania. Ideological competition with the Soviet Union in countries like Algeria and Egypt, should it lead to Chinese ascendancy, might well lead to Chinese efforts to consolidate a strong position in the Mediterranean. This could have two results:

- (1) It would thrust China into Europe politics; and
- (2) It would put China in a position to bring pressure on Soviet Russia from both the Middle East and Central Asia.

Chinese pressure from the Middle East and Central Asia could threaten the detachment of Soviet Asiatic territories, a factor that must be considered against the background of traditional Chinese claims to much of Soviet Siberia. Chinese policy would, in effect, be aimed at isolating the Soviet Union and eventually encircling it. While it might seem that such a Chinese policy is too remote and devious for serious consideration, one must recognize the pattern of the systematic and painstaking Chinese Communist policy of isolating and encircling India, which is even now continuing.

* See Ref. 26 for report of an article in Nation (Nairobi, Kenya) of a Chinese friendship society and documentation of Chinese efforts to suborn a Congolese official in the interests of the Chinese Communists. For an analysis of Chinese Communist interests in Africa, see Ref. 27.

Were Chinese influence to become firmly established in the Mediterranean, then China would be in a position to pursue constructive alliances with Western European powers, which would threaten the Soviet Union's European position. It is usually assumed that Soviet-Chinese competition is no more than ideological. It must be considered, however, that such ideological conflicts are only symptoms of deeper and more fundamental differences. The classic encirclement that could come about from Chinese alliances with European powers would be attractive to China, with her apparent interest in Russian Asiatic provinces, and attractive to any European power interested in countering Russian influence in Central Europe without having to depend upon alliances with Great Britain and the United States.

Certainly the situation in the Middle East is always ripe for new alignments, which (in the short run) might seem to counterbalance both American and Soviet influence in that area. The new African nations are especially susceptible to the kind of role that China so plausibly plays as champion of newly independent nations.

The possibility of a Chinese alliance with one or more European powers must not be dismissed lightly, for its effects in Europe could be cataclysmic.

Recall the classical pattern of European alliances with powers outside Europe:

- (1) The French alliance with the Ottoman Empire, aimed at counterbalancing Austrian power in Central Europe;
- (2) The British-Ottoman alliance, aimed at frustrating Russian and French ambitions in the Middle East and the Mediterranean;
- (3) The German-Turkish alliance in World War I, aimed at German hegemony in the Middle East, as insurance against Russian occupation of the Porte, and a challenge to the British position at Suez;

- (4) The German-Iraqi alliance during World War II, aimed at challenging British power in North Africa and the Middle East, as a support for the German position in Southeastern Europe and as the other arm of the pincer against the Russian Caucasus, and
- (5) The Franco-American alliance during the American Revolution, aimed at preventing Britain from playing an effective role in Europe.

When an Asiatic nation becomes an effective power, that is, one that can exert pressure, it becomes a likely candidate for European alliance as a means to compensate for an actual or threatened imbalance in Europe or elsewhere. Examples of such alliances include:

- (1) The Anglo-Japanese Naval Alliance (1907-1920), aimed at freeing British naval units in the Far East for service in the North Sea and the Atlantic, as an answer to Germany's threatened naval preponderance in Europe.
- (2) The German-Japanese-Mexican Alliance proposed in 1916 and 1917 to prevent the United States from playing an effective military and naval role in the European war; and
- (3) The German-Japanese Alliance in World War II, aimed at providing a threat to Russian Asiatic provinces as a means to reducing Russian resistance to invasion, and also aimed, hopefully, at tying American power down in the Pacific. From the Japanese point of view, the alliance was designed to tie American forces in the Atlantic and Russian forces in Europe to allow Japan a free hand in the Far East.

Even the prospect of such alliances can be disquieting. For example, a major concern of the Army and Navy between 1907 and 1920 was that the

Anglo-Japanese alliance might be aimed at American naval power. The threat was considered sufficiently serious to give rise to the Joint Army-Navy Basic War Plan Red-Orange for the contingency of a naval war with a Japanese-British coalition.

Interaction with Other Nations

Consider the recent French demands in Europe, for example, where, based on a Franco-German rapprochement, France has contrived to begin the isolation of England and the United States from Mid-European politics. Following directly on the heels of France's pro-German, anti-British moves was a French pact with Spain for commercial purposes and for joint military maneuvers. Within days of the announcement of the Franco-Spanish agreements, Spain approached the United Kingdom with a proposal for joint Anglo-Spanish military tenancy of Gibraltar.

Traditional French policy has included the use of alliances outside of Europe to bolster its European position. The classical mechanism of alliances is such that it must be assumed that China will become an attractive ally for European powers, once she is in a position to exercise more than nominal pressure on the Soviet Union's southern and eastern flanks. At the same time, an alliance between China and a European power or powers becomes attractive to China as a means for lowering Soviet resistance to Chinese incursions. The Chinese appear to be more than adept at practicing the principle of economy of force, using strategic position to exert maximum pressure with a minimum force.

The Franco-German-Spanish alignment is aimed today at countering American and British influence in Europe and the Mediterranean. Considering the ideological split between China and the Soviet Union, Chinese influence in Albania and Chinese aims in Asia, the possibilities of a Chinese-French-German alliance bear consideration. For the Chinese, the ideal arrangement for bringing pressure on the southern flank of the Soviet Union would be an alliance in Western Europe. A Chinese-French-German alliance would serve China's ends admirably. A German-Far Eastern alliance is within the tradition of German foreign policy and consonant

with present German preoccupation with reunification, rectification of the Polish boundaries with Germany, and revisionism in Eastern Europe.

Soviet response to Chinese pressures on her southern flank, the threat of German-French hegemony in Europe, and fragmentation of Soviet Asiatic provinces could lead to Russian efforts to consolidate Western Europe (through rapprochements, or, conceivably, through attempts at direct conquest) as a base for Soviet defense and as a way of eliminating the threat of a two-front war.

Even within short-term Chinese strategic goals, the Indian frontier may be the key to Chinese success in Asia. It is possible that Communist China and Nationalist China, in pursuit of a common interest in promoting a unified and powerful China, may find their ideological differences submerged in the pursuit of Chinese aggrandizement. The ideological conflict between the two Chinas did not, for example, prevent the Nationalist Chinese from supporting Chinese claims to Indian territory. On the problem of revising India's China Frontier, the two Chinas appear to be as one.²⁸

A solution of the Formosa problem in favor of the Chinese mainland would encourage Japanese inclinations for a rapprochement with China. Solution of the Formosan problem, Japanese-Chinese rapprochement, and the added prestige to be had among the nonaligned countries from an American setback in the Far East, would encourage the continuing Chinese thrusts into Central Asia, the Indian frontier, along the approaches to the Middle East, and so on. Were the Chinese policy aimed at no more than the truncation of Indian power in Asia, a logical course of action would be to extend Chinese influence into the large islands off the Asiatic coast. Not only would such a course be a logical complement to the road-and-pass strategy that China is following on the mainland, it would also be an ideal fashion in which to complete the isolation of India. Thus, the threat of Chinese operations from Burmese, Pakistani, and Ceylonese ports, to be carried on simultaneously with operations on the northern frontier of India, could eliminate India as a threat to China's advance in Central Asia. The reunification of Formosa with China

and the drive to extend Chinese influence into Indonesia could well lead to the development of Chinese seapower.

China as a Sea Power

The development of Chinese seapower would furnish the means for strengthening Chinese influence in Indonesia at the expense of both the Soviet Union and the United States. Extensive Chinese influence in Indonesia would pose direct and solid threats to both the Philippines and Australasia. Australia with its great space, scant population, and well-developed industries is a prime potential objective for a nation whose great strength and weakness lies in overpopulation. At the same time, Australia is strategically located for the domination of the Indian Ocean and the Western approaches to the Middle East.

Such strategic projections are not fanciful nor lightly dismissed when one recalls the ease with which the Japanese advanced to the threshold of Australia and to the borders of India in the first six months of 1942. Not only did the Japanese use only eleven divisions for the advance, but they also had to initiate the drive from bases in Formosa, the home islands, and Indo-China, while the bulk of their forces were engaged in China itself. Consider how effectively the Chinese have used military power (where necessary) and diplomacy (where appropriate) to achieve strategic position in some of the most forbidding territory in the world. The combination of peaceful and forcible penetration along the paths of least resistance and with the use of minimum numbers of troops has characterized the Chinese advance in Asia.

The logic of controlling the sea approaches to Asia cannot have escaped the Chinese. The Chinese advance into Central Asia has been facilitated by an adherence to a road-and-pass strategy. Control of strategic passes out of Chinese territory first is sought as part of an extension of road building within Chinese territory. This is followed by road building outside Chinese territory, once the passes have been controlled. Should the Chinese show the same perception for strategic position on the sea, they will aim at domination of strategic waterways as a means for controlling the sea approaches to the Asiatic mainland.

If Chinese economic resources seem scant for supporting such varied and ambitious strategic goals, it may be remembered that the Chinese also appear capable of operating effective armies over monumental distances on what is, relatively, a shoe string.

Future Strategy

The strategic steps that China might follow, if given the opportunity, may not even be obvious yet in Peking. The nature of the strategy the Chinese are now following is such as to promise short-term gains, which, as they are made, reveal the enticement of the steps to follow. Chinese ambitions in the Middle East, Africa, the Mediterranean, and Australasia may now be only latent.

Chinese success in India may reveal to Chinese eyes the possibilities for further successes to be had from an ambitious policy of expansion. The Indian Government, while conscious of the short-term threat to Indian territory, appears to be unaware of the long-range strategic possibilities of a Chinese elimination of India as a threat to the flank of the Chinese advance in Asia.

Whatever the nature of the Chinese goals in Asia, the continued defense of India is clearly the key to impeding Chinese expansion. So long as the Chinese can debouch at will into the plains of north India, the defense of India is expensive and may be fruitless. The one clear counter-strategy that would rob the Chinese advance of its effectiveness turns on the very road-and-pass strategy that now promises the Chinese such success. The monumental distances that Chinese forces must cover in order to reach an objective and the great lengths of the roads that must serve as supply lines provide fruitful opportunities for the employment of guerrilla forces within Chinese territory. Guerrilla forces attacking isolated supply points, interrupting traffic along supply routes, and creating security problems in the immediate rear of Chinese forward units could force the Chinese to deploy more and more troops along the supply routes. Additional deployment of Chinese forces in remote areas would increase the burden on supply lines and rob the

Chinese of a heretofore economical method of expanding and consolidating Chinese frontier areas. The greater the Chinese problem of security along supply routes the less forces are available to hold the passes into India. The eventual strategic objective would have to be Indian repossession and control of the passes on the northern frontier. Without significant distraction in the Chinese rear, an Indian offensive to regain the critical passes would be far more costly and protracted.

While the Chinese road-and-pass strategy can be profitably countered by guerrilla operations carried on in remote areas, knowledge of the nature of the terrain is an important factor in determining the most profitable areas of operations. Much of the mountainous terrain where Chinese supply routes might be most vulnerable is terrain over which sustained guerrilla operations would be enormously difficult. Chinese possession and use of the roads in extremely rugged terrain gives the Chinese the advantage of mobility. The points of guerrilla assault would have to be chosen along those stretches of supply routes where access to the road was relatively easy but where guerrilla lines of retreat would lead into bases in terrain difficult to assault. Perhaps the ideal locale for guerrilla operations would be the jungles of North Burma, for example, should the Chinese choose to cross that area to enter Assam. Other likely areas for sustained guerrilla operations would be in those areas containing tribes that have already shown their hostility to the Chinese. Thus, Tibet is a most likely area for a profitable, sustained guerrilla campaign. But even in more remote and rugged areas, where a stretch of supply route could be effectively blocked in two places, the intervening stretch of road could then become an operational area for a mobile base from which to sustain further guerrilla operations.

The Chinese road-and-pass strategy is also vulnerable to air interdiction. The key lies in the political question as to what areas might be given sanctuary against air attack by tacit agreement to prevent escalation.

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CHAPTER IV
COMMUNIST CHINESE CAPABILITIES

Underlying Factors

Why Communist China chose to press the conflict with India in October 1962 really involves two questions. First, why did Communist China choose to engage in external military activities at a time of severe economic difficulties? In the second place, why was India selected as the target of military attack, and why in the fall of 1962?

As to the first question: It is commonly held that an external engagement at a time of domestic difficulties may divert public attention from the nation's domestic difficulties and call forth the patriotic and nationalistic sentiments of the population to the advantage of the regime in power. However, as indicated in Appendix C, the Indian affair was not used as an occasion to initiate massive campaigns to increase production or to bring about widespread political agitation aiming at the consolidation of power, as was the case in the corresponding period in the Korean war.

Nevertheless, an external military engagement at the time of domestic difficulties would demonstrate to the world that, despite economic difficulties, the country's military power had not been weakened and that it was not to be trifled with. This "demonstration effect" is part of a mounting desire of China to assert herself with respect to the Soviet Union and the western world. The entire sequence of events in the Indian affair is undoubtedly directed toward achievement of this demonstration effect.

Reasons for the selection of India as the target of military pressure are many and complex. Assuming first the willingness on the part of Chinese planners to take on an external engagement, a conflict with India could be attributed to a plausible and ostensibly legitimate cause, i.e., the long-unsettled borderline between the two countries. Communist China has never accepted the border claimed by the Indians,

the McMahon Line, or any of the other proposed lines of demarcation. In this respect, it has already been noted (Chapt. III) that the position of Peking has been echoed by the Nationalist Government on Taiwan.

Until the recent appearance of a possible but hesitant and unrequited Soviet attempt at a rapprochement,^{1*} developments in the Sino-Soviet "ideological" dispute showed an increasing friction between the two powers and a mounting desire on the part of China to assert herself. The hypothesis has been advanced that Communist China does not particularly relish the development of close ties between the Soviet Union and India and would not hesitate to thwart and embarrass Soviet efforts to aid India. The desire of China to assert herself has been heightened by what is commonly referred to among Chinese as "The Hundred Years of National Shame."

Successful prosecution of a conflict with India would have the effect of humbling an arrogant neighbor. India has long regarded itself as the logical leader of the neutralist nations; humiliation of India would seem to present itself as a means of enhancing Chinese prestige in the non-aligned bloc.

One key to the conflict is, of course, the Aksai Chin and the Chinese-built road across it (see Chapt. III). Leo Rose has made this statement of the situation:

"The outbreak of a widespread revolt among the Kham tribesmen of eastern Tibet . . . forced a radical revision of Chinese policy in the frontier area, for the uprising threatened the security of communications between China and Tibet.

"The main components of this communications system were two lengthy roads. . . . Both roads had been hastily constructed and were expensive and difficult to maintain. By 1956, their most serious handicap

*References are listed at the end of the Chapter.

"was that they ran through Kham-populated areas. It was obvious to Peking that a long and arduous campaign was required before the Kham rebels, operating in ideal guerrilla country, could be suppressed. A new, more reliable route to central Tibet was essential, and quickly, for the Kham revolt could not long be isolated from the other areas of Tibet.

" . . . The Aksai Chin is most easily crossed in the cold, dry winter months--the time of year that the other two roads are frequently obstructed by heavy snow and landslides . . . ¹¹²

With respect to the Kham rebellion, we should remember that there was a serious revolt against Communist rule in Tibet as late as 1959; furthermore, the mountains that are the southwestern border of Communist China (the Burmese as well as the Indian border) have continued to offer sanctuary and ground for anti-Communist maneuvers by dissident groups. The Dalai Lama has continued to enjoy the protection of India (Appendix D). In total, the situation along the Tibetan border has been a series of attacks on China's self-esteem that dictates consolidation of the areas and integration of the people into a controllable pattern and the saving of Chinese face.*

Lastly, it has been speculated that the Communist Chinese conflict with India was prompted by China's desire to upset the Indian effort in industrial development (see Chapt. VI). It is not at all certain, however, that any diversion of Indian resources to military purposes could or would not be more than offset by an increase in employment and productivity. China's planners probably did not overlook the external assistance that the conflict would bring to India. Further, the unifying effect within India of a threat would have been given due consideration. Adverse effect on India's economic development should, therefore, be considered a secondary (if not purely incidental) goal of the Chinese.

* See the discussion in Refs. 3 and 4.

There is a possibility that a second-stage Chinese objective may be the occupation of Assam and Northern Burma as part of a more aggressive policy in South and Southeast Asia. While such a possibility may appear speculative at this time, the Burma-Chinese boundary agreement would seem to lay the groundwork for such a move. It may even be that actual invasion of Northern Burma would be unnecessary, should Burma once again fall into its traditional role as the "Inner Kingdom." Chinese triumphs would then accrue substance for Burma and Burma would bask in the reflected glow of Chinese success.

In viewing the entire background to the war, it is interesting to note that armed conflict with India is completely consonant with the principles voiced by Mao:

"Victory or defeat in war is principally determined by the military, economic, and physical condition of both sides . . . A strategist cannot expect victory in a war which surpasses the limits set by material conditions. Yet a strategist may, and indeed must, secure victory in a way that is within the constraint of the material conditions."¹⁵

Given the Chinese need for the Aksai Chin, Indian establishment of military posts in the disputed areas (see Chapt. II), and a well-known Chinese habit of mass-attack techniques of warfare, the spread of the originally limited border dispute is not surprising. The Communist Chinese apparently assumed throughout, that fighting with India would involve a relatively small risk of failure and would have an excellent chance of attaining its original objectives. Further, a conflict with India might appear to Chinese planners as the most profitable external engagement available that would not lead to direct confrontation with the United States.

Conditions of Terrain and Access to the Tibetan Plateau

Maintenance of military activities on the Indian front requires the transport of supplies to the border area from outside the province of Tibet. Access to the Tibetan plateau thus constitutes a determining factor in the relative military postures of India and Communist China.

and is basically shaped by certain physical and topographical conditions (see map, Fig. 1). The geography of Tibet and those areas traversed by the various supply routes is examined in Chapter II. It is sufficient to state here that the terrain is difficult, to note that the highway traffic from the East into Tibet has historically been secondary to the route through Northeast Tibet, and to restate that the creation of the highway through the disputed area of Ladakh and across the Aksai Chin provided China with its most dependable, all-year supply line into Tibet. (The history of the Aksai Chin as a route to Tibet is summarized in Chapter II.)

The Principal Highways⁵, 15-24*

Sikang to Tibet--Construction of the Sikang-to-Tibet highway began before the outbreak of the Korean war in 1950 and was not interrupted during the war. The road was opened to traffic in December 1954. A section of the road was cut during the Tibetan revolt, and is still subject to dissident attack. The route extends some 1000 miles westward from Ya-an to Lhasa. As may be seen from the map (Fig. 7), the first portion of the route from Ya-an to Teh-ko coincides with the long-established Tsinghai to Sikang highway. West of Teh-ko, the route passes through Chamdo, Bomda, and Tai-chao to Lhasa. New construction was undertaken during 1960, continuing until the summer of 1961; traffic over the entire line is believed to have resumed in the autumn of 1961. Today traffic is apparently being maintained, despite the attacks by dissidents. The principal supply dumps from which the southwestern border areas have been supplied are Chamdo, Tai-chao, and Lhasa, all lying along this route.

Tsinghai to Tibet--The 1260-mile-long Tsinghai-to-Tibet highway was completed at about the same time as the first road. From Hsi-ning to Golmo, the road follows the ancient caravan trail. From Golmo to

* See also the geographical description in Chapter II.

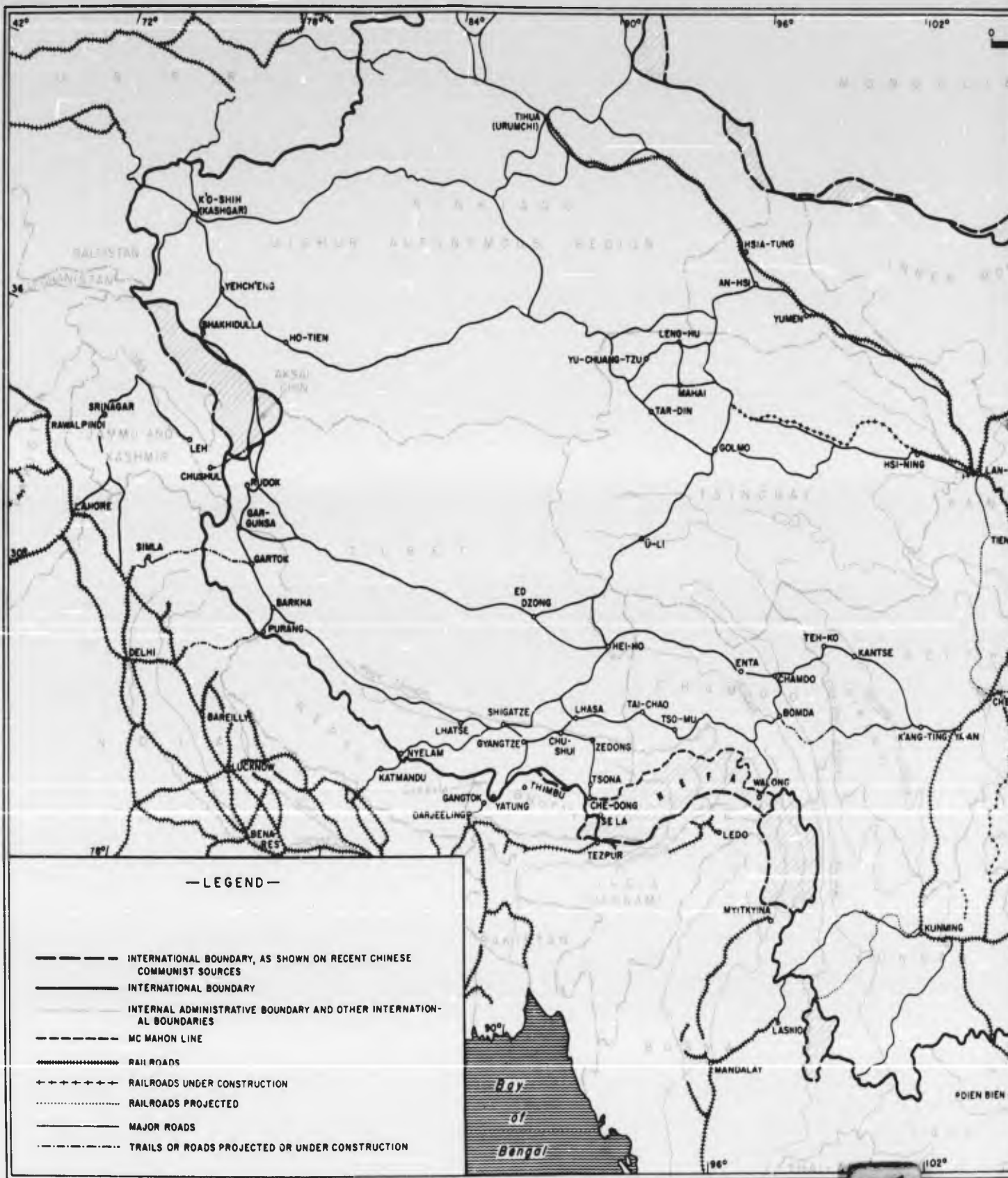


FIGURE 7

HIGHWAYS AND RAILROADS IN THE TIBETAN AREA

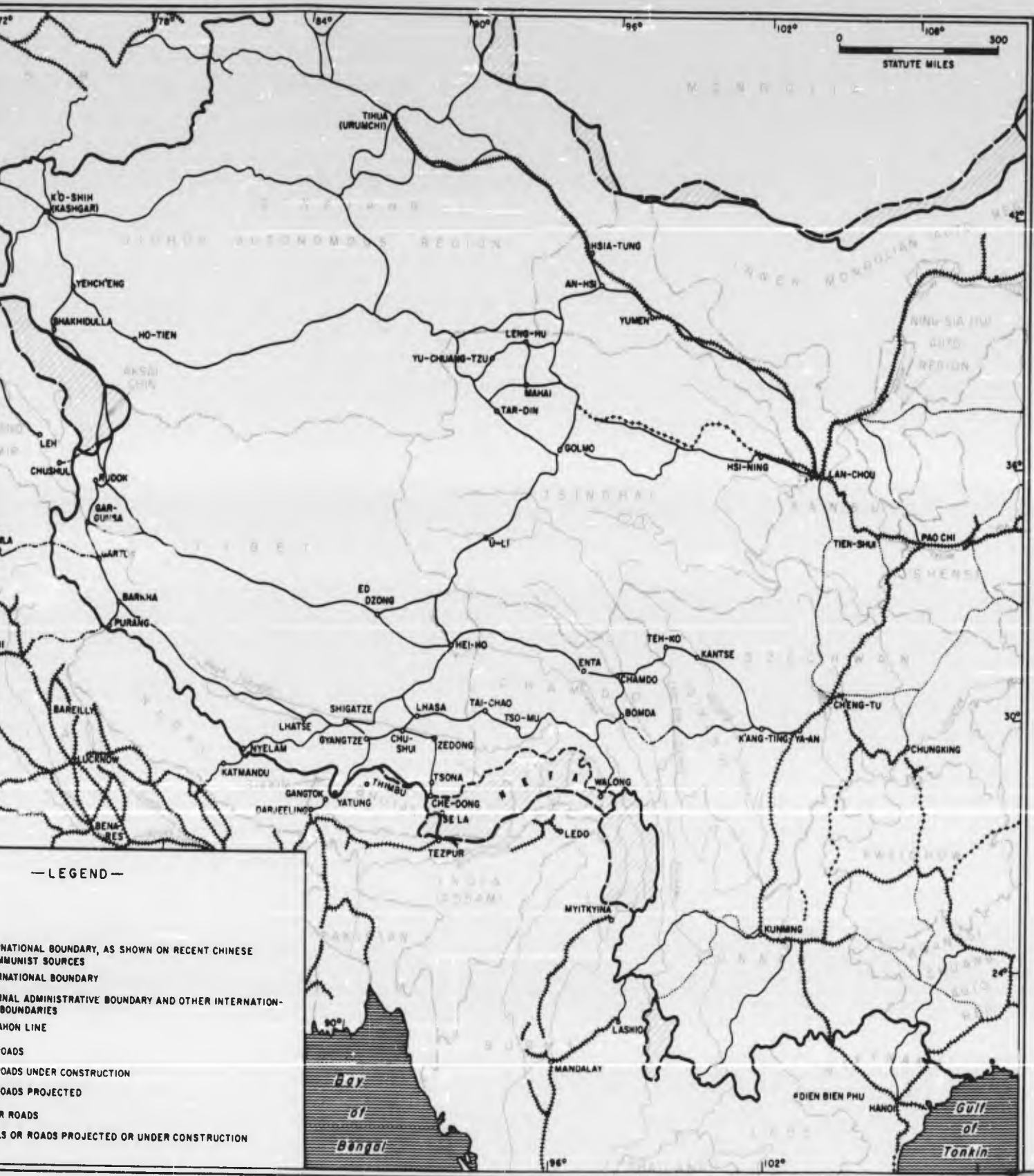


FIGURE 7
RAILROADS IN THE TIBETAN AREA

See Map Notes, Appendix J.

Lhasa, the road traverses a number of mountain passes and goes through the important Tibetan road junction of Hei-Ho. The road was opened to traffic in 1954, but has frequently been blocked by rock falls and collapses of foundation. Work to improve the curvature, slope, and surface of the road has continued, and the route is now reported to meet the standards of Grade 4 highways in Communist China.* Gas stations are said to be located every 60 miles. Road maintenance crews are reportedly stationed at intervals of 6 miles along the highway, and repair stations are located at 12-mile intervals. The need for the road repair crews is evidenced by the temperature ranges in this region--averaging a 60° change in 24 hours--this simulates a daily fall freeze and spring thaw.¹⁵ This does painful things to the usual materials with which roads are built. Ten-ton vehicles are reported to be able to use this highway and its bridges. This is a major trunk supply line into Tibet, and the shortest route from Peking. Under optimum conditions, it takes a little more than a week to travel from Hsi-ning to Lhasa. There are (ideally) some 200 days in the year during which weather does not close the road. Another road, some 70 air miles shorter, exists between Hsia-tung and Golmo. However, the terrain along this route is much more difficult and, therefore, this road has been accorded only secondary consideration in this analysis.

Sinkiang to Tibet--A third transportation line begins at the rail-head at Ti-Hua (Urumchi) in Sinkiang and runs through the ancient caravanserai of Kashgar, thence to Yeh-Ch'eng, Shakhidulla Mazar, and across the Aksai Chin to Rudok and on to Gartok in Western Tibet. The road, some 1400 miles in length, was opened to traffic in October of 1957. Over 550 miles of the highway lie above 13,000 feet; a section of 80 miles lies at over 16,000 feet. Most of the highway is in desert and is open all winter.² It should be noted again that this is the only

* See Appendix E.

route into Tibet that is free from interference by dissidents, that traverses terrain amenable to road building, and that is easier to use in the winter than in the summer. For these reasons, the Chinese have taken great pains to prevent interference with traffic. Chinese military activities in the areas near Kashmir and Pakistan probably derive a majority of their supplies from this road.

In addition to the major highways leading into Tibet from the outside, there are two principal lateral roads in Tibet (see Fig. 7). The northern line runs from Hei-Ho to Gartok, passing through Ed Dzong, Chalun, and Gar-Gunsa, where it meets the Sinkiang-Tibet highway. This 800-mile link was completed in July of 1957. The southern line extends from Lhasa through Shigatse, Lhatse, and Barkha to Gartok. A number of feeders radiate southward from this line, including:

- (1) Chu-shui to Ts'ona Dzong--apparently the supply route for the Communist troops that marched through Towang and the Se Pass during the Indian campaign;
- (2) Gyangtze to Ya-tung;
- (3) Shigatse to Nyelam on the road to Katmandu in Nepal;
- (4) Barkha to Purang; and
- (5) To Walong from Hsiu-teng below Bomda (on the Sikang-Tibet highway from Chamdo).

The amount of materiel moved over these principal highways and feeder routes during the conflict indicates that they are in better condition than commonly thought possible in the Western world.

Air Supply Routes

Air transport is an important supplement to highway traffic. The high altitude, of course, adversely affects the capacity of planes. The importance of supply and reconnaissance by air was highlighted by the fact that both the Sikang-Tibet and the Tsinghai-Tibet highways were

cut by the rebels during the 1959 Tibetan revolt, and the uprising was squashed only as a result of the Communist use of aircraft. Links with Tibet by civil air transport were initiated in 1956; Communist military flights to Tibet were begun as early as 1950.²⁵

There are at least two large jet plane fields in Tibet.^{26,27} One of these is located about 60 miles northwest of Lhasa at an elevation of 14,000 feet. A second field is located at Gartok in western Tibet. The Tang-hsiung airfield near Lhasa has permanent construction covering more than 10,000 square meters and a major runway more than two miles long, completed in 1956. Both the Gartok and Lhasa fields are said to be equipped for flights by all types of Soviet jets. In addition, there are some eight smaller fields and two seaplane stations in Tibet.

In support of the Tibetan airfields are a number of air bases in adjacent areas. Among these are the Golmo jet airfield in Tsinghai, which is said to have a 4-1/3-mile runway and a capacity for 40 transports or bombers, and the Kuang-han airfield outside of Ch'eng-tu, which is believed to be even larger than the Golmo base and which was originally built for B-29's in World War II. There are also airfields at Ti-hua and K'o-shih, which are on regular civil air schedules. Within a 1000-mile radius of Lhasa, in the areas under the K'un-ming, Ch'eng-tu, Lan-chou, and Sinkiang military commands, there are said to be a number of smaller airfields (see also map, Fig. 8, p. 62).

Water Transport

Local water transport is feasible on the Raga Tsangpo (the Tibetan section of the Brahmaputra River) and most of its tributaries, especially with the widely-used animal-skin craft. These vessels have a rather limited capacity, but when large numbers are used, much materiel can be moved. According to a survey conducted by the transport department of the Tibetan Autonomous Area Preparatory Commission in December of 1956, the complex of the Raga Tsangpo and its tributaries between Lhasa, Chu-shui, and Ze-dong could be navigated following some slight improvement of the route. A small motorboat went from Lhasa on the Kyi-chu

River to Ze-dong on the Raga Tsangpo with a 50-ton load. The boat reportedly was constructed at the Lhasa motor repair plant.²⁸ Rivers are not, however, a major source of supplies from outside Tibet.

Estimates of Chinese Capacity to Support Forces in Tibet

We have seen that highways are the principal means of bringing bulk freight into Tibet. Accordingly, the volume and kind of supplies that can be brought into Tibet by road at any period of time would represent the major portion of materiel available for support of Chinese troops. Granted that some food and feed could be obtained in Tibet, expenditure of materiel in other categories in excess of this capacity would have to be derived from withdrawal of stock, which is at best a short-term solution to supply problems.

In general, highway transport to Tibet plays the role of rail traffic in the rest of China.* Limited quantities of materiel may be moved by other means, e.g., draft animals or man power. As pointed out above, air transport can be used to supplement surface traffic. The amount that can be moved using these techniques is somewhat limited, however. A former National Resources Commission specialist states that under the special conditions in Tibet, probably not more than 15% of the total traffic can be moved by draft animals and man power and (except under emergency conditions) not more than 5% by aircraft. By these estimates, truck transport would account for at least 80% of the transport capacity into Tibet.

In estimating the total capacity of goods inflow into Tibet by road, we have examined the three principal highways defined above and shown in Fig. 7. The reported arrivals at the terminals of these trunk lines are presented in Table I. This list also includes arrivals at the end of the road between Hei-Ho and Gartok. While inclusion of this road

* For the significance of different modes of transportation in China, see Refs. 29 and 30.

may lead to some double-counting because of transshipments, this factor may afford some correction for the omission of the various feeder roads from the calculations.

Table I

ESTIMATED TRUCK ARRIVALS ON MAJOR HIGHWAYS SUPPLYING TIBET

Route	Estimated Number of Truck Arrivals	
	Per Day [*]	Per Month [†]
Tsinghai-Tibet Highway (Hsi-ning to Lhasa)	150-200	4,500- 6,000
Sikang-Tibet Highway (Ya-an to Lhasa)	100-125	3,000- 3,750
Sinkiang-Tibet Highway (Urumchi to Gartok)	100-200	3,000- 6,000
Hei-Ho-Gartok Highway	50-100	1,500- 3,000
TOTAL	400-625	12,000-18,750

*Source: Refs. 9, 31, and 11.

†First column × 30.

Transport flow into Tibet is estimated in Table II: these estimates are used later in analysis of the number of troops the Communist Chinese would be capable of supporting in Tibet. It would be wise at this point to consider some of the assumptions made in preparing Table II:

- (1) The length of the highways was determined by a study of the various maps of the routes and survey of Mainland and Taiwanese sources. The estimates have been rounded.
- (2) The average speeds shown represent generous appraisals of estimates from various Mainland and Taiwanese sources. It should be remembered that these average

Table II
 ESTIMATED TRAFFIC FLOW INTO TIBET
 AND TRUCK REQUIREMENTS TO MAINTAIN FLOW

Route	Length of Highway (miles)	Average Speed (mph)	Number of Days to Complete Trip (1)	Estimated Number of Arrivals Per Day (2)	Number of Trucks Required en Route (3)	Number of Trucks to Maintain Flow (4)	Tons Per Day (5)	Tons Per Month
Tsinghai-Tibet (Hsi-ning to Lhasa)	1260	15	8.4	150-200	1260-1680	2100-2800	300-400	9000-12000
Sikang-Tibet (Ya-an to Lhasa)	1000	10	10.0	100-125	2000-2500	3335-4170	200-250	6000-7500
Sinkiang-Tibet (Urunchi to Gartok)	1400	15	9.3	100-200	930-1860	1550-3100	200-400	6000-12000
Hei-Ho-Gartok	800	10	8.0	50-100	800-1600	1335-2670	100-200	3000-6000
TOTALS				400-625	4990-7640	8320-12740	800-1250	24000-37500

- (1) Length of highway divided by 10 times average speed (assumes traffic moves 10 hours per day).
- (2) From Table I.
- (3) Estimated number of arrivals multiplied by number of days required to make trip.
- (4) Number of trucks required en route divided by 0.6 (utilization factor of 60%).
- (5) Assumes two-ton load on 2-1/2 ton truck.

speeds are calculated over the entire length of the highways, which may include long stretches of level desert as well as precipitous mountains. World War II experience in similar mountain terrain (the Burma road) included convoys moving at average speeds as low as 2 mph. On the other hand, today's Communist Chinese convoys have undisputed right of way, and advantage not always shared by their World War II and Korean counterparts.

- (3) The column headed "Number of Trucks Required to Maintain Flow" includes an attempt to account for the breakdown and service factors of truck transport. We assume a generous utilization factor of 60%, rounded from an independent estimate of 56.5% for China-wide utilization.¹⁵ World War II experience was as low as 40 percent for trucks and 35 percent for buses in long-distance hauling.³²
- (4) It is assumed that a 2-1/2-ton truck delivers a net load of 2 tons (the balance of its capacity being occupied by spare parts, gasoline, personnel, etc.). A U.S. 2-1/2-ton truck can carry 5 tons in a pinch and 3 tons almost routinely.³² On the other hand, we are considering operation in terrain above 16,000 feet, under which conditions the performance of an internal combustion engine is seriously degraded, even on level roads. Furthermore, some of the grades encountered on the supply lines to Tibet are reported to exceed 8 percent.

Storage Centers and Sources of Supply (Fig. 8)

Supplying the Communist forces in Tibet is the responsibility of the Tibetan Military Command, which includes the area commands of Chamdo, Lhasa, Gartok (Ah-li), Shigatze, and Hei-Ho.^{27,33} The principal storage



FIGURE 8

SUPPLY POINTS IN THE TIBETAN AREA



FIGURE 8
OIL FIELDS IN THE TIBETAN AREA

See Map Notes, Appendix J.

areas in the Tibetan-Chamdo area are located as follows (see map, Fig. 8):

Food and Feed	Lhasa, Chamdo, Hei-Ho, Shigatze, and Gartok
Jet Fuel	Lhasa
Arms and Ammunition	Lhasa, Chamdo, Shigatze, Gartok, Tai-chao, and Kantse
Other Supplies	Lhasa, Chamdo, Shigatze, and Tso-mu.

The principal receiving bases of external supply in Tibet are clearly Gartok, Hei-Ho, Lhasa, and Chamdo. Shigatze, Barka, Tai-chao, Gyangtze, and Tso-mu are interior storage bases in Tibet.

External supplies probably are derived from the following sources:

Food--The food sent into Tibet has come largely from the food-surplus area of Szechwan. A major supply route extends from the Ch'eng-tu plain to Hsi-ning by rail via Pao-chi and Lan-chou and thence over the Tsinghai-to-Tibet highway. The Sikang-to-Tibet highway is a direct route, but seems to be subordinate. Hsi-ning, Golmo, and K'ang-ting are the principal food supply dumps outside Tibet. It should be noted that some percentage of food requirements, other than rice, has probably been obtained within Tibet. Tibet historically has been a food-surplus area, especially in terms of barley and meat.

Other Non-Combat Supplies--Pao-chi, Shensi, Lan-chou, Kansu, Ch'eng-tu, and Chungking in Szechwan, are industrial areas from which such supplies as fuel, bedding, medical supplies, etc., could be obtained.* Coal, wood, and wool can also be obtained in Tibet.

Arms and Ammunition--The principal ordinance centers are located at Lan-chou and Chungking. Principal dumps are located at Lhatse, Lhasa, Lan-chou, Tien-shui, and Ch'eng-tu.

*For a description of Communist China's industrial bases, see Ref. 34.

Petroleum Products--The Lan-chou refinery supplies most, if not all, of the petroleum products consumed in Tibet. It is unlikely, however, that there is any pipeline in operation between Lan-chou and Lhasa.* It is assumed that aircraft fuel supplies in Tibet are maintained by truck.

Estimated Supply Requirements of a Communist Chinese Infantry Division

Supply requirements of the armed forces obviously vary with the state of combat and the branch of service. For all practical purposes, the infantry division may be taken as the standard unit of measurement for Tibet-India border operations. The typical monthly requirements of a Communist Chinese infantry division of 12,800 men in a "low-level combat" and an inactive position are roughly estimated in Table III.

The following assumptions have been made in preparing Table III:

- (1) Food requirements have been taken at 3.00 lb per man per day, the figure used in the SRI China study.³⁶ This requirement is summarized in Appendix F. Food is included at the same rate for 1,000 locally-obtained laborers.
- (2) The category labelled Other Supplies corresponds roughly to the Class II and Class IV categories of the United States Army, except that heavy armament is usually included in Class IV in U.S. practice.

* It is believed that the only oil pipelines in existence or under construction in Communist China at the present are: from Yu-men to Lan-chou, from Karamai (Sinkiang) to Tu-shan-tzu, from Tu-shan-tzu to Yu-men, and from Mang-yen (Tsinghai) to Lan-chou or An-hsi. See also Ref. 35.

Table III

MONTHLY SUPPLY REQUIREMENTS OF AN INFANTRY DIVISION (TONS)

Supply Classification	Requirement for Division in	
	Low-Level Combat	Inactive Status
Food	620	620
Feed	100	100
Other Supplies (Bedding, clothing, housekeeping supplies)	530	410
Gasoline and Other Petroleum Products	520	160
Ammunition	2500	250
TOTALS	4270	1540

- (3) With respect to petroleum requirements, Taiwanese sources have indicated requirements for inactive units as one-half the needs of units in combat. The authors feel that this assumption may parallel U.S. procedures too closely, and have reduced the inactive requirement.
- (4) Ammunition requirements are estimated at 2,500 tons per division per month. Taiwanese sources have indicated requirements for "munitions and arms" at the far-higher level of 12,300 tons. It is assumed that part of this figure is the so-called "basic load" moved with the division. Even after allowance for this factor, however, it is clear that the Taiwanese estimate reflects modern U.S. standards to an excessive degree. The U.S. Army requirements for offensive operations in Europe in World War II were approximately 9,000 tons per division per month (see Appendix G). Despite the trend toward higher firepower for infantrymen, the Chinese by all accounts

used considerably less ammunition in Korea-- probably of the order of half the U.S. World War II figure quoted above, say, 9,000 tons. This was consistent with the well-known propensity of the Chinese to be frugal with supplies in general and ammunition in particular.

Even the latter figure appears high for the Sino-Indian case. The Korean operation was conducted with relatively short supply lines through large bases in the industrially developed province of Manchuria, in a terrain much more felicitous for transport than that of the Tibetan Himalayas. The battles themselves took place in a much less difficult terrain; in Korea, the Chinese were fighting the well-equipped U.S. Army. In contrast, in the Himalayan battles, the Communist Chinese faced an Indian Army faced with logistic problems as formidable as their own. One would, therefore, expect the amount of fire exchanged to be relatively low. Accordingly, the estimate has again been halved, leading to the assumption that a Chinese infantry division in Tibet would require about 2,500 tons of ammunition per month.

The Taiwanese sources indicate non-combat requirements at one-tenth of combat needs, and this ratio is used here. U.S. practice, with its generous training allowances, is nearer a factor of one-half for inactive divisions. It may be argued that even the one-tenth ratio is too high for the inactive requirement, since the Chinese might develop training methods that eliminate all or most of the requirement for the expenditure of ammunition. On the other hand, inactive units in Tibet might be subjected to

harassment by dissidents, which would impose an ammunition requirement.

The figures given in Table III are believed to be conservative. Furthermore, they do not take into account transportation requirements for troop casualties, troop replacement and rotation, or the fuel requirements for transporting supplies into Tibet. A considerable variation from the estimates might be expected.

The actual requirements also depend on the proportion of divisions in combat and inactive status, as well as the intensity of the fighting. Two possible "mixes" of divisions are assumed herein: Mix (A) is a ratio of one man in inactive status to one man in combat; mix (B), two men in inactive status to each man in combat. The monthly supply requirements per division on this basis are:

- (A) Mix--2905 tons per division per month;
- (B) Mix--2450 tons per division per month.

Transport Performance and the Size of Communist China's Military Effort in Tibet

We are now in a position to estimate the number of divisions continuously supportable by the Chinese in Tibet. The range of transport capacity from Table II is divided by the monthly supply requirement per division for both the (A) and (B) mixes of divisions, producing the figures shown in Table IV.

It will be noted that Table IV assumes that 100% of the supply is by motor transport. If we assume, as discussed earlier, that truck transport accounts for only 80% of the supply capacity, the balance being carried by draft animals, aircraft, or manpower, the number of divisions supportable is increased by a factor of 1.25 ($\frac{1}{0.8}$) as shown in Table V.

This basis of estimating implies that the total forces stationed in Tibet would consist of infantry divisions. The maximum of 19 divisions would be equivalent to a total of almost 250,000 men; the

Table IV

ESTIMATED NUMBER OF DIVISIONS SUPPORTED DURING CAMPAIGN
(Assuming 100% Motor Transport)

Tonnage Hauled (From Table II)	Estimated to Sustain	
	(A) Mix [2905 ton/mo]	(B) Mix [2450 ton/mo]
24,000 ton/mo	8.3 div	9.8 div
37,500 ton/mo	12.9 div	15.3 div

Table V

ESTIMATED NUMBER OF DIVISIONS SUPPORTED DURING CAMPAIGN
(Assuming 80% Motor Transport, 20% Other Means)

Tonnage Hauled (From Table II, times factor of 1.25)	Estimated to Sustain	
	(A) Mix [2905 tons/mo]	(B) Mix [2450 ton/mo]
30,000 ton/mo	10.3 div	12.2 div
46,875 ton/mo	16.1 div	19.1 div

minimum of 8 divisions, 105,000, or roughly the number believed to have been in Tibet during the hostilities in the fall of 1962. The actual composition of such forces might, of course, be quite different than the above 8 to 19 divisions. Since the ammunition requirement shown in Table III is over half the total needs for low-level combat (and about one-sixth the total for inactive status), the calculations would appear to provide a generous allowance for other kinds of supplies and for differently composed forces.

Conclusions

The following deductions appear to be warranted:

- (1) The range of divisions that could be maintained by the Communist Chinese in combat on the Indian border extends to 19 under the more generous of our estimates. A more conservative approach to the data would indicate that at least 8 divisions could be supported. This is equivalent to a range of a little over 100,000 to almost 250,000 men in total strength potentially supportable on a continuous basis in this theater. Whatever the precise numbers and composition of forces might turn out to be, it appears that, given the present level of transport, the Chinese Communists are capable of mounting a considerable force in Tibet.
- (2) Maintenance of these divisions seems to have required a large number of trucks (8,300 to 12,500). According to estimates, the Chinese Communists had about 120,000 to 180,000 trucks and miscellaneous vehicles at the end of 1960.^{9,37} It would seem that assignment of such a significant portion of trucks (5 to 10 percent) to a single operation, while feasible, may be out of proportion if the operation becomes protracted. The gasoline requirements for such an operation would also be appreciable; this is examined in Appendix G.
- (3) Any effort involving a larger number of men that can be supported on a short-term basis would have to be supplied out of accumulated stock in depots at Lhasa, Gartok, and possibly Chamdo, the main supply bases in Tibet proper and in the Chamdo area.
- (4) These potentialities within transport-facility constraints are applicable in the relatively short run. They imply a limited type of fighting on the Indian front that would not have an adverse effect,

in the aggregate, on Chinese economic development.*
In terms of the strain on transport facilities, however, and especially in the attrition on trucks, the effect of a protracted effort would be disproportionately large.

- (5) In the longer run--looking, say, more than five years ahead--a broader-scale military operation in India (it might eventuate from a breakthrough of the Assam Plain from the east as well as from the north) would make considerably greater demands on the Chinese economy, perhaps requiring that the Communist Chinese go on a war or partially war footing. The feasibility of such eventualities is not predictable until more is known of the success accruing to the attempts of Communist China to overcome the recent economic crisis and to expand her industrial base.†

One concludes, therefore, that the conflict with India was designed as a limited effort with limited objectives, even though it may have been a first step in a series of moves (see Chapt. III).

Accepting the conclusion that the operation was designed to be limited, its timing was probably chosen so that the onset of winter would prevent any major expansion of the conflict. This would give China some protection, even if some of the assumptions made by Chinese planners should prove to be in error. Although the size of the Indian

*The economic development of China is considered in great detail in Ref. 36.

†See, again, Ref. 36.

counterforce is not clear, it would appear that any estimate of Indian weakness made by the Communist Chinese was well-founded.

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CHAPTER V

INDIAN MILITARY CAPABILITIES

Tin Soldiers or First-Class Fighting Men?

India's army was in sad condition in September 1962. This army had been widely considered one of the best in the world during World War II. It had even recovered from the shock of Partition by the mid-fifties and had adjusted to successive budget cuts. But it had difficulty adjusting when it became a political football. Under V. Krishna Menon, political preferment became the principal means of climbing the military ladder, replacing the rigid British merit system. For those with British training and experience, this created a confusing situation.

In addition, Menon had for several years been able to impose his own viewpoint on the military command, totally ignoring technical advice. The various divisive cultural elements that the British had managed to minimize in the old Indian army had been permitted to increase in importance during the years since independence--in the name of cultural freedom. The army was a group with an esprit-de-corps and pride in independence, but, to some extent at least, also was a collection of corps made up of differing caste and religious groups, each having almost fanatical internal loyalties but little sense of unity. This tendency may have been reversed by the Emergency, with the addition of the reorganization of the Defense Ministry, after Menon's removal, perhaps these psychological hazards can again be minimized.

Ignorant bureaucracy and political preferment had taken their toll in morale, and when the test came, the training and organization of the army were inadequate for the task at hand.

By the end of November the Indian army consisted of about 600,000 men.^{1*} Many of these soldiers were equipped by the British and American emergency aid, and more than a division was clothed in the gift of winter clothing from West Germany.²

* References are listed at the end of the Chapter.

Published statements detail plans for 150 divisions and close to 2 million men under arms within the next two years. Where the officers and non-coms are to come from is not clear, but there is some talk about a "ninety-day-wonder" officer training program similar to the U.S. program of World War II.¹ The official budget requests, however, would seem insufficient to support these rumored plans.

Menon was also in charge of defense production and procurement. The charge that defense monies had gone into espresso coffee machines was only one of the fantastic oddities that were still part of this situation when the Emergency was two months old.² When the outpost reinforcements were shipped into Ladakh, they wore plains-type summer clothing and still had no winter sleeping bags--nor was there any such equipment in India's army warehouses. A blanket for a bed is adequate in Kashmir and Bengal in August but means death by exposure in Ladakh, Garwahl, and Sikkim in December--especially when soldiers born and reared on India's plains are suddenly transferred to 18,000-foot altitudes.

It is of some importance to note that eight years had passed between the first warnings that China was likely to be belligerent about Ladakh and the Northeast Frontier Agency, and the outbreak of real conflict. There were three years between the first shots fired in Ladakh and the first real wave of Chinese attack. At a press conference, 10 June 1959, a full year after the first shooting, Nehru stated that there was no possibility of raising arguments about the McMahon Line in Tibet.⁴ In September of the same year, when suggestions were being made in parliament that the Sinkiang-Tibet road be bombed, Nehru declared that this was ". . . not the way the Government of India would like to function."⁵ No real efforts were being made to prepare for a conflict, were it to come. The border guard reinforcements were barely sufficient to man the stations on a permanent rather than patrol basis, and no consideration seems to have been given to the supplies that would be needed for more massive troop movements.

Many of the crack Sikh and Gurkha regiments were in the Congo, England, or Borneo--earning foreign exchange for India's economy--or were stationed on the Pakistani borders and in Kashmir.

The rifles that India's army were trained to use were World War I and World War II types of bolt-action Enfields. The mountain artillery consisted of a few 20-lb. Howitzers, plus a few mortars, some Sten guns, and even fewer machine guns.

India's air force had 18 different types of planes--none of them modern enough to handle the problems of supply at 20,000-foot altitudes, much less to handle the problems involved in interdiction or other combat.³

These types of equipment were put into a field of action where, at the outset, 20,000 Indian troops faced over 100,000 Chinese. The Chinese were armed with automatic and semi-automatic rifles; they had two and three machine guns per unit and were backed by tanks and mortars; there were at least two squadrons of MIG's in the area; their winter equipment had been thoroughly tested in Korea by the men who were using them--men acclimated to the high altitudes by their several years of service in Tibet.⁶

The Chinese supply situation was adequate to the point where no man needed more than a three-day supply of food and ammunition. Airfields and roads appeared behind them as fast as they went forward. Whole villages were pressed into labor battalions to serve as porters and to build the road.

The supply situation on the Indian side was a tragic story, especially during the first few weeks. Time after time, supply lines by yaks, pack mules, or porters--lines frequently eight days long--failed at a critical moment, and the troops had to fall back. They fell back not to previously prepared positions but to positions even more difficult to supply because new paths had to be broken, often on hills too steep for pack animals. The loss of equipment in those first few weeks was a permanent loss.⁷

In all fairness to the Indian army, it should be said that the Emergency did not last long enough to be a real test of capability. It is quite probable that no army faced with the kind of massive surprise that the Chinese threw at the Indians would make a good showing in the six weeks that the attacks lasted. One is reminded of the effects on the United Nations forces in Korea in 1950, when the first Chinese waves began to roll out of the North. Our forces were present in great number, were superbly equipped, and had a logistical backing as generous as such a backing could be. Despite such advantages, the U.N. forces were pushed back from the Yalu River past the 38th parallel in October of 1950 and did not recross the parallel until 24 May 1951.⁸

Tactical Disadvantages

Militarily, the Chinese position was excellent by October. Thanks to ten years of road-building on the Tibetan side, most of the major passes had roads that could handle jeep traffic up to their crests, and many of the roads could handle trucks and tanks. Military stockpiling had been in progress for many years, often at the heads of the passes themselves. Airfields suitable for military supply had been built at several points along the ranges, and troops had had several years in which to become accustomed to operating above 15,000 feet of altitude.

When the shooting started, the Chinese had the tactical advantage at almost every point. With supply points on the crests of the ridges, supply lines were short and almost entirely downhill. The major fortified points were almost invariably on high ground with respect to the Indian side, and after the first of October the initiative was China's in every case. It is, of course, true that India fired the first shots in the conflict. But the decision to turn the border squabble into a major conflict has been China's from the beginning. Menon's orders to throw them out were a marvelous excuse, but the Chinese must have been aware from the beginning that there was no real danger--except to India--in such pronouncements.

The power and inclination to initiate an attack, especially in surprising force in an unexpected area, are a major advantage--and this was

China's from the beginning. After every gain of ground, the Chinese had the time and found the manpower to build roads, set up new forward supply points, and generally consolidate before starting a new push or before any really serious threat could be developed by the Indians. Where an Indian defensive position was too strong to take cheaply, as at Se La, it was bypassed. Once cut off from the Indians' painfully organized human supply lines, a point could survive only briefly.

The Indians had also been building road for ten years, but the problems involved and the results obtained were quite different. The road building problems have been discussed in Chapter III. It is enough to say here that no really "motorable" road had reached the tops of any of the border passes from the Indian side.

The road system in Ladakh, which was mentioned several times by Nehru and Menon, is inadequate at best, impassable at worst, and in general dependent on the weather.

In September of 1962, there were two airfields in the Ladakh area, aside from the one at Leh. The one near Pangong Lake was lost almost immediately; the other, at Chushul, was under heavy seige at the time of the cease-fire. There were no airfields within a several days' walk of the border in the Northeast Frontier Agency though, fortunately, there were several adequate airfields in the Brahmaputra Valley. It was from these that the American and British aid was delivered, via a fairly extensive airdrop program, in late November. The cease-fire was announced for 1 December.

It is too early to draw conclusions as to India's current military capability. Whether any further hostilities will be met effectively and in the Indian military tradition will depend on the timing and nature of any further hostile acts by the Chinese Communists as well as the further political developments in India.

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CHAPTER VI

INDIAN ECONOMIC CAPABILITIES AND RESOURCES

The Dilemma of Underdevelopment

The fact that India and certain other nations are consciously seeking industrial development and welfare through the mechanism of some degree of central planning should not be misread as a Soviet-type approach. The controls exercised by the Indian government and its direct participation in economic activities are similar in many ways to the roles played by governments during the "industrial revolution" of the Atlantic nations. These governments all participated in a direct way in certain types of social overhead investment--roads, dams, education, etc. Their participation also, on occasion, consisted of support extended to particular classes and groups within the economy in the forms of permissiveness, legal controls, financial aid, etc. Even in these countries, despite the absence of many of the particular barriers peculiar to India and despite the relatively moderate pace of their transformation from essentially agricultural societies to industrial ones, each breakthrough in economic development has met with bitter resistance.

England was the first major nation to undergo the process of evolving from an agricultural economy to one based primarily on commercial and industrial activities. For several centuries, changes in the productive processes and social institutions consisted of a number of widely-spaced incidents, in themselves minor, occasioned in the main by inventions. Each improvement exacted its toll: the enclosures, which deprived the people of their land; the profitability (and consequent exploitation) of child and female labor under the most miserable of working conditions; the loss of income from labor performed in the home (cottage industry); the necessity of working extremely long hours under exacting supervision; the emergence of slums and the consequent filth and character deterioration; and so on. Each advance fell trip-hammer hard on one segment or another of the population.

Over the past two centuries, the pace at which development proceeded increased greatly, both temporally and geographically. The long-run benefits in material gain continued to exact their price in dislocation, displacement, and consumption foregone. Throughout this entire process, governments inevitably played a major role in economic development, and they do so today. The major periods of growth in the United States are directly associable with the role played by government: the early construction of roads and canals in the early 19th century; the construction of railroads during the latter half of that century; the construction of highways, which made possible the automobile industry; and the explosion in public utility development in the first half of the present century.

It is difficult to say in what form, and at what pace, these developments in transportation would have occurred without massive government interference and subsidies.* It is quite clear, however, that had these developments been left exclusively to private investment, their scale of size and rapidity of occurrence would have been greatly reduced. The external benefits associated with the development of transportation capabilities would have suffered similarly; these benefits are not

* Many of these subsidies are quite obvious, such as grants of money and public lands, subscription to issues of stocks and bonds, and direct labor in construction and surveying activities. Other forms of subsidies were much less obvious, though indeed important: granting pre-emptive rights; training engineers (Forest G. Hill, in Ref. 1 at the end of this Chapter, points out that West Point, as the major source of engineers for many years, provided a vital capability in the development of private transportation facilities); remitting duties on iron connected with railway construction; granting of monopoly rights and tax exemptions; permitting lotteries to raise capital; loose regulation of rates, public safety measures, and stock issues; and so on.

confined to matters of economic efficiency, but extend throughout the entire socio-political structure.*

The development of the different western nations was to a large degree complementary, owing at least in part to the fact that England was first and that economic self-sufficiency for England was patently absurd. Changes in the economic order and the consequent shifts in social and political relationships did not go unopposed, but in England the economic forces were ineluctable. England's entrepreneurs automatically exploited the principle of comparative advantage long before the scholars of that country formalized it into a theorem.† England,

* A few of the obvious benefits: increased employment, huge demands for iron and coal and the consequent development of these industries on a massive scale, increased trade between all regions, better communication, thereby promoting intercourse among people and binding the union more firmly, opening the West, providing a basis for division of labor and thereby the benefits of specialization, widespread training in technical and managerial skills, etc.

† The advantages stemming from individual and geographic specialization, coupled with the exchange of goods and services, were recognized as early as Plato. Simply stated, the principle of comparative advantage is that each country (or area or individual) should specialize to some degree in producing those goods or services in which it is relatively more efficient. Whether or not one country is more efficient than another in all types of production is irrelevant. If each country specializes and trades with the other, both will benefit. For example, a doctor may be a better typist than his secretary, as well as a better doctor; obviously, however, if each specializes in the skill in which he is relatively more efficient, both will earn more than if they divided their time among the two occupations.

by pursuing those policies that were to its own immediate interests, unintentionally benefited many others.*

If India is successful in achieving economic growth within its present framework, the fact that the barriers to economic progress in India are so fundamental and ubiquitous will greatly enhance that success. It could become a symbol of the capabilities of democratic procedures in satisfying peoples' material wants without destroying their freedom. Recognition of the overriding importance of this fact has led some to suggest that one of the factors motivating China's attack on India was the hope to disrupt India's development program, and, thereby, to degrade this method of approach to material progress.†

India's past attempts to remain neutral, have at times appeared to indicate pro-Soviet and pro-Red China attitudes. Despite this, the West must recognize that it has a vital stake in the outcome of the current struggle. Hopefully, India will recognize the futility of attempted non-involvement and the hazards of failing to recognize that the example to the world of a democratic, prosperous India is directly contrary to Red China's long-run objectives. It should not be expected that an open

* Whether or not, on balance, India benefited from British occupation and rule is an extremely controversial and complex subject. Nothing can be said with certainty as to "what might have been," but, given the restrictive and rigid culture in India, it is not clear that wealth appropriated by the British would have been used productively in the absence of that appropriation. Whatever the costs to India--in terms of saddling the peasants with debts, solidification of the zemindar class of tax farmer-collectors into a parasitic middle- and upper-class group, or extraction of minerals, ores, and other wealth--from the viewpoint of economic development potential today India is in a much better position than most other countries. India inherited universities, irrigation canals, widespread communication facilities, and above all an extensive (though still woefully inadequate) transportation system. (India's railroad network ranks third in the world.) For a brief summary of the major issues of this polemic, see Ref. 2.

† Regardless of the complexity of motives responsible for China's invasion, and their order of importance, any significant improvement in the welfare of India's masses would constitute a threat to Communist China's aims in Asia.

military alliance with the West will result in the near future, but the threat of Red China could galvanize India into becoming a strong, alert force, aware of its responsibilities and of the fact that the most likely result of offering the other cheek to Red China is the loss of a province or two.

Indian Political Weaknesses

The Chinese attacks on the Indian frontier have aroused Indian nationalism to a degree equalled only by the spirit shown by Indians at the time of independence. Yet, there are significant internal political weaknesses, which tend to dilute Indian resistance to Chinese aggression. One of the chief preoccupations of the Indian Government is the fear of a fragmentation similar to that which led to the establishment of a separate government in Pakistan at the time of Indian independence. The Central Government of India has attempted to extend its political control in the face of linguistic, racial and local opposition. The caste system still prevails in Indian society as a divisive influence; social progress made in cities is more than offset by the backwardness and parochialism of rural areas. The fact that northern India is threatened by Chinese invasion seems to awaken little concern in Southern India, where the problem seems at once remote and at times a government diversion to foster greater central control.*

* See for example, statement by Mr. C. Rajagopalchari, Leader of the Swatantra Party, October 27, 1962: "No danger to India's security and no cause for alarm." He asserted that full blame rests on Government and Congress Party and accused Government of making a war out of border dispute in order to cover up domestic economic failures.³ See also Ref. 4. An independent state for the south of India asked in the Rajgo Sabla (Upper House) by Mr. C. H. Annadurri, leader of the Dravida Munnetro Kazhagam, who stated that there should be an independent Dravida because they were a different race from the people in the north. Also, "Karunanidhi released";⁵ he had been imprisoned for participating in state-wide picketing carried on by DMK party, which advocates an independent Deccan or Dravidan state.

Further, internal preoccupations are centered on completion of India's industrialization and programs of social reform. Such programs, undertaken by the Congress Party, appear to arouse little sympathy in rural areas of India. Congress Party leaders in such areas appear more concerned with personal advancement than with unifying the country. Rural leaders professing Congress Party ties often look to other parties for support against their own party and the Central Government.*

The inevitable party and district divisions within India occur against a background of schism between the Indian intellectual and the ordinary citizen, who lacks worldly sophistication. Instead of making the intellectual more conversant with the demands of the real world that face the ordinary Indian citizen, education has seemed to detract from the intellectual's grasp of events. Typical of the Indian intellectual spirit is the assertion of the principles of non-violence, particularly where they have influenced India's foreign policy of non-alignment. Indian internal policy has certainly not eschewed violence when it was in the interest of centralization. Yet one cannot consider the inherent weaknesses in Indian foreign policy without considering the effects of what are now called Gandhian philosophical tenets, which hold that "good ends can only be achieved by good means." While Indian action against Goa appears to have followed the principles of Realpolitik, Indian response to Chinese suppression in Tibet appeared to be guided by philosophical preconceptions, combined with a certain naïveté as to China's long-run ambitions.

It is the conflict between the two different approaches to foreign policy pursued by the same party in the same government that is in part responsible for the disquietude expressed by many in their assessment of Indian resistance to Chinese demands.[†]

[†]The Rural-Urban Problem is described in Refs. 6, 7, and 8.

[†]For explanation of non-violence or the "satyagraha position" see Refs. 9-11. For Goa, see Ref. 12.

India's Objectives

Any assessment of the potential economic consequences of the Emergency rests in part on the effectiveness imputed to India's planning efforts to date, in terms of the objectives pursued, the policies adopted to achieve those objectives, and the degree of success realized in attaining those objectives. The greater the effectiveness imputed, the more likely are the conflict's consequences to be negative.

India's Planning Commission has stated that, "From the beginning, it has been stressed that the objective of planned development is not only [emphasis added] to increase production and attain higher levels of living, but also to secure a social and economic order based on the values of freedom and democracy in which 'justice, social, economic, and political, shall inform all the institutions of the national life.'"¹³ This declaration makes it quite clear that objectives other than an increase in productivity also played a significant role in serving as criteria in formulating the Third Five Year Plan (TFYP). It is ironical that, while economic development is the most certain way to destroy the barriers to economic development, attempts to compress the time span of the initial stages of industrialization tend to strengthen the resistance of these barriers.

These other objectives--such as "attain higher levels of living"--may correctly reflect society's preference and, in that sense, be an optimum. It might even be reasonable to argue that India's planning has represented an optimum development pattern, on the grounds that India (as a free society) would simply not accept the sacrifices necessary to attain more rapid development. However, history offers ample evidence of the sacrifices people are willing to make when their nation is threatened by another.

Welfare and equity are certainly laudable objectives, but they are the product of, not the cause of, economic development.

India's Policies

Any critique of broad, general policies is essentially a critique of the objectives that gave rise to those policies. The primary source of the disesteem accorded certain of India's economic policies is, in reality, dissatisfaction with the lack of greater emphasis on development in establishing the economic goals. The criticisms of governmental policies by both Indian and Western economists usually are not directed against centralized control. Most critics take issue with India's failure to adopt broader controls and to reduce emphasis on short-run welfare considerations, such as certain types of make-work employment and nonessential consumption in favor of greater investment in capital facilities, technical education, and increased agricultural efficiency.

Since economic development and efficiency have not been the sole criteria for planning in India, planning has been much less rigorous and comprehensive than, for example, in the Soviet Union. In Russia in 1918, a debilitating war, an oppressive socio-economic order, and widespread hunger gave vitality to the slogan, "Peace, Land, and Bread" and set the stage for major changes in the existing institutional pattern. The breakdown of law and order accompanying this upheaval made possible the seizure of power by the Bolsheviki under Lenin. Lenin and his cohorts drew their major support from the workers, disgruntled military elements, and certain of the intelligentsia. Their dedication was to industrial development (and, of course, consolidation of their own power), not to the amelioration of living standards among the peasantry. Many peasants recognized this and almost succeeded in destroying the revolution in its incipient stages. The Bolsheviki, through absolutist policies backed by a ruthless use of power, forced the population to make the sacrifices necessary for rapid industrial growth. In contrast, the philosophy of Gandhi and his disciple, Nehru, has been oriented to the desires of the peasantry. In turn, this peasantry formed the major base of the ascension of these leaders to power, and today accounts largely for the overwhelming dominance of the Congress Party. This is not to say that agricultural improvements and an amelioration of the lot of the rural classes are not

desirable goals, but rather that the doctor should provide the proper treatment, not permit the patient to write his own prescription. The problem is both to increase agricultural output and to put the greater part of that increase to more productive uses. Increased efficiency in the agricultural sector of the economy does not inevitably have to be employed to improve the peasant's lot. While both Gandhi and Nehru have envisioned and prepared plans for a better tomorrow, their preoccupation with present desires did little to prepare tomorrow for those plans.

None of this should be construed as sanctioning political or economic totalitarianism. The question at issue is whether India's economic objectives and policies have represented the maximum exploitation of its economic potential, operating within the framework of a constitutional democracy. On many accounts, a number of economists have answered, no.* The major areas of criticism have been: the fiscal and monetary policies of the government; certain of the forms of investment, such as the encouragement of household industries and other make-work schemes; the inadequacy of other investments, particularly in the key areas of coal, steel, transportation, and power; and certain agricultural policies (or the lack thereof).

The success of any development program depends on both the level and the types of investment. Where the government is the prime mover in capital formation, the level of investment is determined in part by the level of taxes. It may, at first glance, appear that the imposition of additional taxes in a country as poor as India would simply be unreasonable. However, the 45 percent increase in income during the Second Five-Year Plan, against a 1 percent increase in savings as a percent of national income, suggests that the limits of taxation have not been unduly stretched. Tax revenues in India were about 8.5 percent of

* See, for example, Refs. 14-18.

national income in 1960, and the TFYP estimates an increase to only some 11 percent. In the United States, taxes were over 30 percent of national income in 1960. While a tax level of 30 percent of national income would probably prove uncollectible in India at this time, a 50 percent increase in the present level of 10 to 12 percent is not unfeasible.

Underdeveloped economies must rely more heavily on indirect taxes than do industrialized nations, simply because such taxes are easier to administer and to collect. However, indirect taxes, since they are not directly based on the ability to pay and are more easily shifted than are direct taxes, are somewhat inconsistent with welfare objectives. The welfare advantages attributed to indirect taxes vis-à-vis deficit financing in the TFYP may be somewhat overstated.¹⁹ It may well be that too little inflation has occurred in India in terms of maximizing economic development. Price controls over certain essentials (primarily foods and cloth) would ameliorate the most harmful of the adverse welfare effects, and the savings induced by inflation might then be channeled into investment. In addition, certain antiquated capital equipment, whose utilization is not profitable under present price levels, might be brought into production at higher prices.

Aside from fiscal and monetary policies, certain of India's investment policies--such as rebuilding the cottage industry--do not appear to be consistent with development objectives. While the labor thus employed may appear cost-free, the resultant product must be matched against any excess capacity created in factories engaged in this same line of production. Further, other opportunity costs of the resources thus invested are, in the case of India, undoubtedly quite high.* While

*The "opportunity cost" of any activity is the value of the best alternative use of the resources devoted to that activity. If the resources would otherwise go unused, then their value in the best alternative use is zero--there is no cost because there is no lost opportunity. The fact that other uses of these resources are conceptually possible is irrelevant if, in fact, such uses would not occur in the absence of the given activity. In this case, the opportunity costs are quite high in that, omitting any welfare implications, more productive uses could have been made of this capital.

investment in capital-intensive enterprises normally means a high capital-to-output ratio, the same is likely to be true of undertakings that involve the large-scale utilization of unskilled labor. Though capital requirements per unit of labor are reduced by this procedure, inefficiency may be increased because output is reduced more than proportional to the decreased capital requirements. The Chinese attempt to develop a "cost-free, backyard" steel industry illustrates how an effort to make use of certain seemingly zero-opportunity-cost resources (labor and land) may simultaneously involve a wasteful utilization of other quite valuable resources (coal and iron ore).

Another serious risk in cottage industry development is that population size, under conditions of poverty, normally responds quite rapidly to any increase in income. Thus, an increase in consumption might more than offset the increase in productivity and thereby decrease the resources available for investment purposes (again analogously to the Communist Chinese experience in the Great Leap Forward). Further, birth control measures are usually much less successful in the rural areas, where the cottage industry is located.*

Policies justified on the grounds of social welfare or political popularity are frequently in conflict with those that a strict economic rationale would apparently dictate. Such policies may also lead to internal inconsistencies. For example, increased rural prosperity might lead to an increased entrenchment of the caste system, the abolition of which is also a major objective. Attempts to alleviate the unemployment problem may necessitate large expenditures of capital on social overhead in the form of housing, sewerage, domestic utilities, etc., with little increase in output. In India, political nationalism, coupled with the disproportionate political power of certain vested interests, has favored

* In contradistinction to the nations of the West, the portion of the Indian population dependent on agriculture increased during the first half of this century.

an economic program that has sacrificed a number of available areas of specialization in favor of economic self-sufficiency. (These autarkic principles are much in evidence throughout southern Asia.)^{*} Thus, instead of increased specialization and foreign trade, the emphasis has been on a more-balanced supply of everything at the sacrifice of economic efficiency.

These are not easily solved problems. Even the authoritarian practices of the Soviet regime have not yielded the desired agricultural goals. The establishment of an industrial complex entails many costs with no short-run increases in output. Similarly, education yields greatly increased returns in the long run, but is both costly and essentially nonproductive in the short run. The task is to increase output while simultaneously providing a basis for continued future growth. Even highly industrialized nations have not solved this problem satisfactorily, perhaps because individual motivations of all sorts are frequently in conflict with socially desirable measures.

India's Performance

During the first two five year plans (1950/51-1960/61) real national income in India increased by some 42 percent.[†] When compared with the stagnation during the first half of the century, this performance is impressive. Further, from a welfare viewpoint, because population also

* M. Lipton observes that, "South Asia is full of balanced supply plans, in which every country, ignoring comparative advantages, produces everything to the detriment of all--Pakistani sugar and Philippine cotton; India growing jute as well as processing it, and Pakistan processing as well as growing; everybody doing everything, nobody exchanging anything, and all without foreign exchange."²⁰

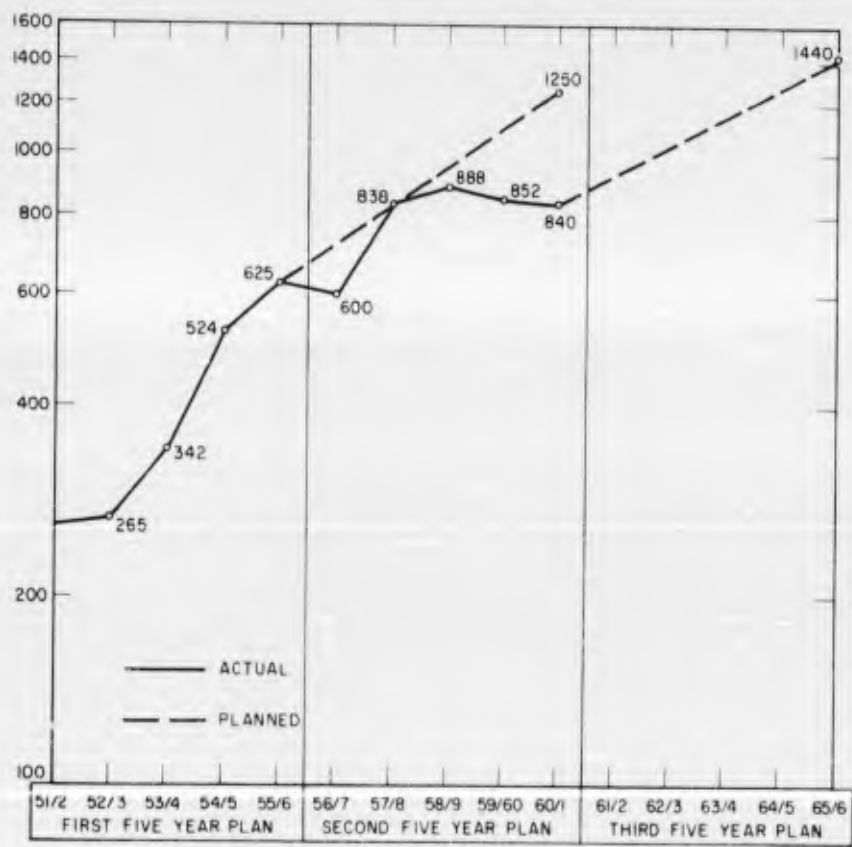
† See Ref. 21. National income is the basis used in the Five Year Plans and is used herein in lieu of GNP, our customary basis of estimating and comparing national economic data, because the scope of the present study does not justify the extensive analysis that would be required to make an estimate of GNP for India comparable to those the SRI Defense Analysis Center has obtained or made for several other countries.

increased during this period, the increase in national income on a per capita basis amounted to only some 18 percent. It must be remembered, though, that India started from an extremely low level and that any reasonable rate of increase must be land-sustained if adequate levels are to be reached. Performance during 1961-62 was considerably beneath expectations. National income increased by slightly over 2 percent and there was no increase in per capita income.

The First Five Year Plan turned out quite well, due in part to the impetus provided by the enthusiasm engendered in initiating such a grandiose venture, and also to the fact that bureaucracy was less entrenched and stultifying than at the present, despite the fact that many of India's leaders are both imaginative and honest. Further, agricultural techniques were so completely inadequate that any improvement was destined to provide a reasonably large payoff. These improvements, combined with reasonably good weather in the early and middle 1950's, produced a rapid increase in agricultural production during this period. The First Plan also received major benefits in the form of foreign aid from both the West and the Sino-Soviet Bloc. Each group, of course, sought to influence the role that India, as one of the leaders of the newly emerging nations of Asia and Africa, would play in setting an example to those nations.

The Second Five Year Plan (1955/56-1960/61) proved disappointing in a number of respects. Though its goals were considered by many to be inadequate, even these were not attained. One of the major deficiencies was the failure of public plan expenditures to reach the targets, as shown in Fig. 9. The broken line in the Second Plan period shows the growth of expenditures (in 1952/53 constant wholesale prices) that would have occurred if the Second Plan had been fulfilled at a steady rate of increase, and the solid line the actual expenditures. The broken line in the Third Plan projects public expenditures at a constant rate.

A number of individual features of India's economic performance to date, even in attaining the goals set by the Plans, show unsatisfactory



Source: Ref 22

RA-3562-170

FIG. 9 PUBLIC PLAN EXPENDITURES

results. The key to the Indian economy is, of course, still agriculture. From 1956/57 to 1961/62, agricultural production rose only 2.4 percent per year. Industrial production, including consumer goods, fared better, increasing by 6.2 percent per year from 1956 to 1961.

Perhaps the most serious deficiencies in performance to date have been the failures

- (1) To increase domestic savings,
- (2) To prevent the steady diminution of foreign exchange holdings, and
- (3) To instigate any significant land reforms.

Domestic savings as a percent of total investment declined from some 96 percent during the First Plan to about 72 percent in the Second Plan. India's sterling balances declined from Rs. 832.4 crores in 1950/51 to Rs. 97.43 crores in December 1962, a decline of 88.3 percent.²³ Some land reforms have occurred; a national farm extension and community development service reaching over 200 million people has been instituted. Cooperatives of various types (production, marketing, and credit) have been organized. Fertilizers and irrigation are much more extensively employed than in times past. Despite these significant advances, millions of peasants grubbing out a pitiful existence on plots of land less than 10 acres in size form the basic pattern of Indian agriculture.

It would appear from all this that India's Second and Third Five Year Plans were unduly optimistic. It is obvious that, prior to the Emergency, the Third Five Year Plan was already in considerable difficulty.* Regardless of the Emergency, economic development at the pace achieved during the Second Plan and the first year of the Third Plan would not free any significant number of the population from poverty

* Exports were below expectations; the cost of debt repayments, interest on loans, and imports were all in excess of the Plan's estimates; industrial development had slackened; and the rate of increase in output had fallen from some 7 percent to roughly 3 percent.

for many years. The effect of the Emergency on India's economic development will be determined by its effect on the innumerable barriers to development in the form of economic constraints and social, political, and philosophical obstacles.

Problems of Development in India

India's economic problems are not simply those of breaking free from a "vicious cycle of poverty." Poverty and its natural concomitants--such as inadequate technology, lack of skilled workers, managers and administrators, extreme illiteracy, miniscule multipartite land holdings, and the severe shortage of foreign exchange--are, however, impressive barriers, indeed.

The immediately obvious problem in India, as in most underdeveloped countries, is inadequate capital. It is essential not only that methods be found for increasing the amount of capital available for productive purposes, but also that whatever capital is made available be invested in the best possible way. The problem is that there are no objective criteria for determining what portion of a nation's output should be devoted to economic development, nor for allocating the funds made available among the multitude of alternatives.*

Also immediately obvious is the closely related problem of India's lack of adequate foreign exchange for the importation of petroleum, industrial goods, etc. Part of India's foreign exchange problem is the severe competition from established countries in industrial and commercial pursuits. While India and other newly emerging countries enjoy the advantages of the latecomer in their programs of industrialization, that is, the availability of knowledge and techniques acquired through a long period of experimentation in the West, the fact that a number of other nations possess productive capabilities far in excess of their own is a

* A great deal of the recent literature in economics has been devoted to the problem of formulating dynamic allocation criteria to maximize development. A sampling of some of this literature includes Refs. 24-27.

formidable barrier. Simply stated, the problem is that the industries basic to industrialization--petroleum refining, steel, metalworking, chemicals, electric power, and all forms of transportation, including pipelines--are subject to increasing physical returns to scale.* This means that an optimum size plant or facility in many industries is quite large and, therefore, that the investment required may represent a considerable drain on an underdeveloped economy's available capital. Further, there must also be an effective demand, however provided, for the resultant mass output.

Despite this barrier to extensive industrialization, an attempt by India to adhere strictly to policies formulated in accord with the present pattern of comparative advantages does not appear to be the most favorable development pattern. For one thing, the demand for traditional Indian exports is quite inelastic.† Any attempt to concentrate the exploitation of agricultural production for export purposes to support the importation of manufactured goods would run into this barrier, and the consequent balance-of-payments difficulties. (Of course, increased agricultural output would directly benefit the balance of payments problem by reducing requirements for food imports.)

*The principle of increasing physical returns to scale refers to the fact that, under most conditions, most basic industries are capable of expanding their output with a less than proportionate increase in the factor inputs required. For example, the material used in a container is determined primarily by the surface area, but the capacity is the actual volume enclosed. Since the volume of similarly shaped containers increases faster than the surface area, capacity increases faster than the material requirements. This same principle also benefits furnaces, kilns (also heat loss per unit of capacity is reduced), pipes, electrical conductors, etc. For an excellent treatment of this subject, from which the above examples were extracted, see Refs. 28 and 25.

†An inelastic demand for certain goods means that the quantity of these goods demanded does not change substantially in response to changes in the general income level or to changes in the prices of the goods themselves. Total revenues cannot be increased by lowering prices on such goods, since the decrease in price, by definition, will be proportionately greater than the increase in quantity demanded.

A number of obstacles also inhibit India in exploiting the apparent advantage of extremely low wage rates. This is due in part to the fact that the domestic market for many such products is quite small in any one locale. Thus, any attempt to centralize production--so as to obtain the advantages of minimum-cost plant sizes--often involves prohibitive transportation costs. Further, a number of barriers may prevent the development of a sufficiently large export market. Consequently, the development of large-scale productive enterprises so as to exploit potential economies of scale may not be the best alternative either, particularly in the short-run.

The fact that many industries are subject to increasing returns to scale, combined with the importance of external economies^{*} in determining the relative efficiency of alternative development programs, poses serious problems in formulating investment decisions, even when the goals are clearly understood and the decisions are made centrally for the total economy.[†] It is quite obvious that the existence of these factors makes planning on the part of individual investors something less than socially optimal. There is also the fact that investment in the private sector is normally devoted to those activities that yield the highest profits

* The phenomenon of external economies refers to the fact that improvements in any sector of the economy normally benefit other sectors as well, through decreased production costs and/or increased demand. For example, an improvement in the process of manufacturing steel may reduce the cost of producing goods requiring steel. This will free resources for other uses. If the price of these other goods is also decreased, more of them may be demanded, and, if economies of scale are present, the prices of these goods may fall even further, and so on.

† In highly developed economies, because a thoroughly integrated economic complex has evolved over time and because of much greater mobility of both capital and labor, the market place is an excellent guide to individuals as to the desirability of various types of investments. In underdeveloped economies, imperfections in the capital market, gaps in various productive factors, and the absence of a well-ordered industrial complex are serious impediments to rational investment on the part of individual, uncoordinated investors.

to the individual investors. In underdeveloped economies, the social returns from private investments are normally far less than from socially planned public investments. In fact, the social returns on private investments may even be negative, e.g., the processing and sale of narcotics may be quite profitable, but harmful to society.

These economic problems, in total, mean that if India is to achieve any significant increase in its rate of development, its people and leaders must reconcile themselves to enduring a great deal of sacrifice--partly in the form of consumption foregone--for a number of years. It is only through the process of various forms of sacrifice that India will be able to establish the extensive industrial base that will permit it to exploit whatever comparative advantages it possesses and to compete on reasonable terms with the already developed nations. However, India's attempts to mitigate the dislocations and hardships that are the normal concomitants of development while simultaneously speeding up the process of industrialization may prove extremely frustrating. Simply stated, a large-scale cottage industry is incompatible with a high level of industrialization. The histories of economic development in the West, in the Soviet Union, and in China are all similar in that industrialization has been accompanied by long periods of adversity in the rural areas. In attempting to industrialize and simultaneously improve economic conditions in the rural areas without recourse to harsh, authoritarian practices, India may have embarked on a course beyond the skills of those who must chart the way.

While a number of the factors that account for India's lack of real success to date are economic in substance, many are not. Any analysis of India's development program confined simply to economic aspects alone would be both unrealistic and misleading. These non-economic barriers in the case of India, and many of the other newly emerged nations of Asia and Africa, are in many respects insoluble in the short run under normal conditions. These barriers, incidentally, make economic development in those countries a much different course of obstacles than it was in the Western world. To explore these obstacles in any detail is beyond

the scope of this brief memorandum, but the impact of the emergency on certain of the more crucial ones will vitally affect India's future.

These obstacles take many forms:

- (1) Horizontal and Vertical Immobility--Millions of Indians have never been a hundred miles from their place of birth, and the caste system, though cracked, still mirrors the prevailing mode.
- (2) Political Instability--Democracy is far from deep-rooted and stability to date has rested largely on Nehru's almost universal appeal. Further, as yet there has not appeared any likely successor.
- (3) Political Divisiveness, Despite Intense Nationalism--Demands for far less central control and more regional autonomy, though voiced by a minority, are widespread, yet Indian economic self-sufficiency (at considerable cost) and support of national policy in such matters as Goa and Kashmir (also at considerable cost) are vastly popular. Though a state, India is not a nation.
- (4) Traditionalism, Despite the Apparent Desire for Materialistic Improvement--The population has shown considerable reluctance to adopt reforms vital to economic development and to part with their Amish-like patterns of behavior. This is particularly evident in their continued imbuing of their children with values inimical to social and material progress, the Hindu adherence

to the doctrine of karma,^{*} the reluctance to change dietary habits,[†] etc.

- (5) Conflicting Objectives--Both Gandhi and Nehru have stressed relief of poverty and unemployment and a more egalitarian distribution of income. These objectives, though laudable, are not in the short-run consistent with the objective of rapid industrialization.

These barriers are extremely real, and the problems they pose raise many issues not easily resolved. However, India's leaders, whether because of their own predilections or in response to their assessment of the popular will, have not attacked these obstacles as vigorously as they might have. One authority says:

"The Indian development designers see their first task as one of freeing the economy from the grip of certain shortages--a shortage of technology,

* Karma is the concept that each man determines his individual fate by his own actions, commencing even in the fetal state. It is essentially the law of cause and effect--as ye sow, so shall ye reap. But punishments and rewards are not confined to this life alone. Under Hinduism, karma is combined with another fundamental tenet, that of reincarnation. A good life (dharma - duty - fulfilling one's ordained functions) is rewarded by promotion to a higher state in the next life. Failure to lead a good life is punished by reincarnation in a lower caste or by going back to the animal or even insect level (thus, animism). Karma though essentially meritorious, is a drawback in this context, in that it reinforces the caste system, since the fulfilling of one's ordained functions is not possible outside of one's own caste. Naturally such doctrines are eminently suited to the perpetuation of the status quo and thus the power of those who profit by postponing change.

† This aversion to changes in eating habits takes varied forms: ahimsa (love of life--thou shalt not kill), reinforced by karma and animism, accounts for the scraggly cows and passive acceptance of destructive crop raids by monkeys; delay in acceptance of the hard wheats, of which the United States has a large surplus available under Public Law 480; excessive polishing of rice and thereby the destruction of most of its nutritive value; etc.

"a scarcity of professional and skilled personnel to carry out transformation of technology, and a lack of public-administrative and other organizational resources."²⁹

There can be no question that these constitute vital needs, basic to any development scheme. Yet, this same author points out that India's broad economic objective contains not only self-sustaining economic growth, so as to become self-supporting in the international market, but also the promotion of social equity for underprivileged groups, greater equality of income distribution, a reduction in massive unemployment and underemployment, and other similar welfare targets. Thus, one of the barriers to economic development in India is the internal inconsistency of policies necessary to attain these laudable, broad economic objectives simultaneously.

The key to all these goals is economic development, and the key to development is sacrifice. It is fundamental to our way of thinking that development should not be purchased at the cost of giving up freedom in the form of orderly constitutional processes developed in a democratic framework. This does not mean that leaders should not lead, nor that compulsion based on free consent and understanding is to be shunned.

The inadequacy in leadership has manifested itself in many ways.* The increase in imports and in consumption of non-necessities has been purchased at the expense of increased productivity foregone. Increased awareness of the material wealth of Western nations was undoubtedly one of the stimuli to develop planning. Much of this benefit has been dissipated, however, by expending increased incomes on Western consumption standards.

* During a recent broadcast, Lowell Thomas reported a conversation with an Indian friend, wherein he asked this friend to explain India's poor showing against the Chinese armies when many of India's people and especially certain "ethnic" groups have a long history of warlike traditions. Thomas' friend replied that India had many warlike people, what it lacked was warlike leaders.

The lack of vigorous assault on developmental requirements has also been manifested in the inadequacy of coordinated public investment. While India's Government exercises certain controls (as does the United States Government) over imports and some prices, the principal tool employed in its central planning activities is public expenditures. In 1960 public expenditures amounted to only six percent of national income. In the United States in that same year government expenditures on goods and services amounted to some twenty-four percent of national income.

Such examples could be expanded at great length. The struggle with Pakistan over Kashmir--leading to an intensification of that enmity and a heavy drain on resources--has been another unrewarding policy. By deploying its best troops against Pakistan, India was unable to offer any significant resistance in Assam, with its oil fields and refineries (one of India's major needs), jute (almost 40 percent of the world's supply), and the tea industry (which provides approximately ten percent of India's total export earnings). In addition, this policy set the stage for the Sino-Pakistani accord and interposed difficult obstacles to U.S. aid. (From the U.S. viewpoint, the Sino-Pakistani accord raises doubts as to Pakistan's future role in SEATO.)

Perhaps the most significant example of all was the failure of India's leaders to recognize China's threat, and their consequent failure to build an effective fighting force or to secure a firm alliance, such as within SEATO. It might be added that though little was done in terms of increasing the size of the armed forces or providing those forces with post-World War I weapons, this did not prevent Krishna Menon from expending large sums in attempting to develop a supersonic fighter.

Most of the defense of India's actions has been on the grounds that other courses of action were simply not available if India were to seek development in an orderly, constitutional manner. Whether this defense is justified or not is not the issue here. Whatever was true at the time when different decisions were made and activities undertaken, in terms of concessions needed to gain political acceptability, is not true now.

India has a long way to go; techniques and resources are available for more rapid development. What is required is initiative and resoluteness.

The Emergency's Impact on India's Development Program

The probable effects of the Sino-Indian conflict on India's economy may be considered in terms of the conflict's impact on: welfare; stability; and growth in productivity. These consequences are highly interrelated. The choice of discussing one as opposed to another is primarily a matter of emphasis. Since most of the public discussion has centered around the matter of the effects of the current conflict on India's development program, the following discussion is oriented principally to this issue.

The costs of defense to India, in terms of diverting resources from other purposes, must be balanced against certain potential stimulating effects. An external threat may affect a national economy in a number of ways; in particular, it may provide political and psychological stimuli that accelerate social changes of various types leading to increased effort and productivity. Where, as in all underdeveloped countries and particularly in India, there are large untapped resources, such stimuli may bring into use otherwise idle resources, more than compensating for the resources diverted to nonproductive defense uses. India will no longer be able to afford its traditional tolerance of inefficiency and corruption. Further, certain direct economic benefits may be expected from the military procurements and the accompanying necessity to create the supporting economic capabilities or infrastructure. Steel, coal, transportation, and power are all vital to both defense and development, and these sectors may be benefited by drawing resources--particularly managers and technicians--from less productive uses, from retirement, or from foreign countries. Finally, because the enemy in this case is the Chinese, India may well find itself receiving military and economic assistance to such a degree that the over-all effect on its foreign trade balance proves favorable.

The hypothesis that the Sino-Indian Emergency will serve to degrade India's economic development may be true in some sophistic sense,

along the lines that TFYP correctly represented India's social preference; thus, any change is, by definition, inferior. However, the point at issue is whether the conflict will serve to retard India's rate of growth in productivity. Whether the long-run consequences of the Emergency will prove to be harmful or beneficial cannot be answered with certainty. There is no way to predict the outcome of such determining variables as the intensity and duration of the conflict, the quantity and types of economic and military assistance available from external sources, and the manner in which India's leaders and its people respond to the demands of the conflict. Assuming that the Emergency continues over a period of several years, that the intensity is both sufficient and constant enough so that India undertakes a vigorous and continuing defense effort, that there is no major destruction of India's productive capabilities, and that India conducts its affairs so as to elicit the necessary external aid, the over-all impact of the conflict may result in a marked increase in India's rate of economic development.

It would appear that the major threats to India's development as posed by the Emergency are:

- (1) A major Chinese attack;
- (2) A foreign exchange bottleneck, which would prevent acquisition of the innumerable commodities required to sustain both the defense effort and development programs; and
- (3) An inappropriate response to this challenge with respect both to recognizing Red China as a long-term menace and to seizing the opportunities presented for invigorating and accelerating the processes of social change.

Hopefully, the most important outcome of this conflict may be a large-scale waste of resources by China and a dissolution of many of the barriers to a more efficient use of resources by India. A number of the factors that account for India's inability to make full use of her

economic potential to date may be mitigated as a result of this external threat, to a degree not feasible under normal circumstances. Properly to assess the extent to which this may prove true, a number of the major obstacles to development discussed earlier must be reviewed in the context of the environment assumed above.

Despite India's ostensible emphasis on investment, in the last year of the Second Plan, net investment was only some 11 percent of national income.* In part, this is due to the fact that roughly 45 percent of the national income is derived from agricultural pursuits.† A substantial portion of this income is consumed, either directly or in exchange for other types of consumer commodities. Since most of the savings in this sector are extremely diffused as small individual holdings, the mobilization of these small multipartite hoards for investment purposes is intractable under normal circumstances. Since the relatively low level of domestic savings in India and the nonavailability of part of those savings constitutes one of the major economic constraints

* Inadequate statistical data, particularly with respect to unorganized private investment and the household sector, reduce the reliability of the available estimates. There is also a considerable discrepancy between estimates on capital formation prepared by the Central Statistical Organization and those prepared by the Planning Commission. The difference between gross and net concepts is frequently confusing, as are the variations in certain accounting differences. The figure in the text showing net investment as 11 percent of national income (from Ref. 30) differs by a factor of two from that supplied by the United Nations ("Economic Survey of Asia and the Far East - 1961") showing developmental outlays as 23 percent of gross national product.

† The available data indicates a high propensity to save on the part of corporations, but this sector is too small to make a significant difference. Corporations received less than 1 percent of the national product but, in addition to depreciation, provided approximately 5 percent of total net savings. In contrast, rural households, though receiving some two-thirds of national income only supplied one-fourth of national savings.³¹

on the total level of investment,* the Emergency may assist greatly by enhancing appeals for increased savings and their use for investment.

There are a number of indications that the conflict has, in fact, initiated just such a response. A case in point was the donation by some Indian women of their wedding rings to the government. The quality of this sacrifice is not in the monetary worth of these rings, but in their value as sacred objects that would not have been parted with under other circumstances. This sacrifice, though small in scale and perhaps only a short-lived aberration from the normal pattern of clinging to traditional modes of existence, may represent the beginning of a major breakthrough in altering that pattern.

Other precursors of increased awareness as to the seriousness of the current situation and as to a national unity of purpose have been the donations to the national defense fund and increased private savings. The Emergency also opened the door to increased prohibitions on imports, particularly consumer luxuries. Finally, there is substantial evidence that external economic and military aid, as well as loans and acceptance of rupees for India's imports, may more than compensate for the drain on capital for defense purposes. Such a trend can already be seen in the U.S. foreign aid program for the current fiscal year, from which India will receive over \$800 million, far more than will any other country and over one-fifth of the total. From World War II through last year, India had received slightly less than \$4,000 million, or only about one-twentieth of the total U.S. foreign aid.

This external aid also ameliorates another of India's most serious economic problems, noted earlier, the severe shortage of foreign exchange. (The increased restrictions on imports also assist in this regard.) The

* The fact that over 70 percent of the population participate in only some 45 percent of India's income does not adequately picture the extreme inequality of income distribution, because within that sector there is also a tremendous disparity between the few very wealthy and the poverty-stricken masses.

maintenance of a strong defense force not only provides a motive for other nations to render assistance, but also improves the recipient nation's capability to utilize that aid. (It may also moderate contention, if any among the donor countries as well as among the participating agencies within any donor country.) Under conditions of military service, it is possible to accustom large numbers in a short order to discipline and organizational routines. Thus, the establishment of a large-scale military complex immediately produces certain direct benefits, in the form of aid, acquisition of skills, and development of organizational techniques. Further, a good deal of the aid and of the labor made available may go directly into forms of development such as infrastructure, which greatly benefit productive activities of all sorts.

There is, of course, the threat that, where democracy and constitutionalism are not firmly entrenched, the establishment of large military forces may pose a threat to the established social order. In the absence of an overwhelming defeat, such an event seems quite unlikely in India. Rather, the necessity of melding large numbers of people from different geographical areas and different social levels may exert a democratizing influence and provide economic benefits in breaking down the barrier of vertical immobility alluded to earlier. The necessary movement of millions out of their village confines is certain to generate an ever-increasing horizontal mobility. (Sort of a case of "How you gonna keep 'em down on the farm after they've seen New Delhi?")

All of the above does not justify a conclusion that military demands cannot constitute a significant drain on productive resources, both human and capital. However, with respect to human resources, the productivity of a substantial portion of the population is, for all practical purposes, zero. The fact that a portion of the labor lost will consist of individuals who have been trained in skills of various sorts is a problem, but one that can be compensated for in a variety of ways, particularly in the context of repelling the Chinese as opposed to the Kashmir dispute. More serious is the problem of utilizing industrial capacity for defense purposes rather than normal development. Here again, there is ample

evidence that remedies are available. First of all, there was under-utilized industrial capacity prior to the emergency. Table VI shows the potential increases in various activities that would be possible under a full utilization of existing capacity (1961 basis), and also if two shifts were employed.*

Any detrimental effects attributable to the necessary reallocation of resources must be offset

- (1) To the extent that the resources so utilized had a zero opportunity cost, and
- (2) To the extent that the use of these resources produces products--goods and skills--that are also beneficial to economic development.

Further, there is ample evidence that a nation's productive capacity is always much greater when menaced from without than is normally suspected.† The more ominous that threat, the more likely are the sacrifices, in the form of longer hours, female labor, increased efficiency, less or different consumption, etc., to be successfully borne.

* The estimates in Table VI are subject to a certain margin of error, particularly the general index figure because of the weighting problem. The computation of two shifts as increasing production by a factor of 1.8 appears reasonably conservative. What is omitted in the picture is the drain on these resources to provide the additional workers the necessary training and housing and to satisfy their increased consumption demands.

† The headlines below selected at random from the India News, November 12, 1962 are an indication as to a few of the potentialities inherent in the current situation:

Record Tea Exports
2 New Aluminum Plants to be Set Up
Tremendous Response to Defense Savings Effort
Nation Responds to Prime Minister's Call
Spectacular Rise in Sugar Exports
Bhilai Furnaces Set New Record.

Table VI
 INDICES OF OUTPUT ON FULL UTILIZATION, AND ADDITIONAL SHIFT BASIS, 1961
 (Base: 1956 = 100)

Industry Group (1)	No. of Items (2)	1956 Weights (3)	Normal Index (A) (4)	Full Utilization Index (B) (5)	Additional Shift Index (C) (6)	Percentage Rise or (7) over (4)	Percentage Rise or (8) over (4)
GENERAL INDEX	301	100.00	139.0	153.6	196.4	+ 13.9	+ 46.2
Mining and Quarrying	2	7.47	147.2	147.2	147.2	--	--
Manufacturing	198	86.85	136.3	152.3	209.4	+ 11.7	+ 47.0
Food Manufacturing Industries	8	13.99	129.0	137.0	161.0	+ 6.2	+ 24.8
Beverages and Tobacco Industries (cigarettes)	1	1.49	135.0	168.4	227.4	+ 8.0	+ 45.9
Manufacture of Textiles	20	61.76	109.3	126.7	167.4	+ 14.1	+ 53.2
Manufacture of Footwear and Other Wearing and Make-up Textile Goods	2	0.28	166.0	294.7	539.4	+ 77.0	+ 219.5
Manufacture of Wood and Cork except Manufacture of Furniture	4	0.24	131.4	130.4	203.7	--	+ 52.7
Manufacture of Paper and Paper Board	4	1.39	181.8	187.8	187.8	+ 3.3	+ 3.3
Manufacture of Leather and Leather Products	3	0.18	113.9	210.2	384.7	+ 87.2	+ 236.8
Manufacture of Rubber Products	44	3.04	157.3	206.3	399.3	+ 7.1	+ 36.8
Manufacture of Chemicals and Chemical Products	43	3.58	177.7	236.2	337.1	+ 34.0	+ 89.7
Manufacture of Petroleum Products	1	3.79	156.8	136.8	136.8	--	--
Manufacture of Non-metallic Mineral Products	14	2.47	176.8	309.0	301.0	+ 14.2	+ 70.2
Basic Metal Industries	23	9.25	183.0	214.3	233.3	+ 16.5	+ 26.9
Manufacture of Metal Products	13	0.99	147.9	203.4	350.2	+ 38.9	+ 136.8
Manufacture of Machinery, except Electrical Machines	15	1.10	269.8	307.8	428.6	+ 14.1	+ 58.9
Manufacture of Electrical Machinery, Apparatus, Appliances, and Supplies	14	2.41	188.7	202.2	309.4	+ 7.2	+ 59.2
Manufacture of Transport Equipment	7	2.86	130.3	187.0	277.8	+ 28.2	+ 113.2
Miscellaneous Manufactures	1	0.03	240.4	345.2	616.0	+ 17.8	+ 112.1
Electricity	1	3.68	198.8	198.8	198.8	--	--

Note: (1) Index (A) is the Normal Production Index with 1956 as base published in the July 1962 issue of "Monthly Statistics of the Production of Selected Industries of India."

(11) Index (B) the Full Utilization Index is based on the assumption that the entire installed capacity for the industries is utilized in normal manner (here no extra shifts have been taken into consideration). For industries where production exceeds installed capacity, the figures for actual production have been considered instead.

(111) Index (C) the Additional Shift Index is computed by estimating the installed capacity by adding one extra shift for industries operating on single and double-shift bases; installed capacity for the industries operating on 3-shift basis remains unchanged. It is, however, considered that an increase of a shift may not result in an exact increase of production, mainly because of repairs and maintenance works which will probably increase with fuller utilization of plants. On this consideration, the inflated figures are reduced by 10%, i.e., 2.7 shifts work instead of 3 shifts and 1.8 shifts work instead of 2 shifts are taken into consideration.

Source: Ref. 32.

Germany, and to a somewhat lesser extent Japan, had reasonably full employment prior to the actual opening of hostilities in World War II. Despite the assignment of large numbers of their respective labor forces to military duty, both were able to increase production after war was declared. In the United States, with its plethora of unutilized labor and industrial capacity, the change was even more dramatic--GNP increased over 59 percent (in constant dollars) from 1940 through 1944. Despite the tremendous burden of building up to eleven million men in the armed forces and the vast demands for defense purposes, consumption during the same period increased by almost 11 percent.*

During World War II, India was able to expand production in response to the Japanese attack. The recent example of unions in India foresaking the right to strike during the period of national peril is a healthy indication of a similar determination and sense of purpose. A recent editorial in an influential Indian economic journal sums up the productivity situation as follows:

"Obviously, a large component of determination and urgency has entered into the Indian scene. The Indian Institute of Public Opinion believes that, while this factor has not been of any great importance up to the present time, it will lead to greater productivity by reason of fewer strikes and less absenteeism and by earnest attempts from management to get more from the existing units in the national effort. The raising of hours, both in Government and in private sector offices, has been one indication that there is likely to be a substantial improvement in the operation of institutions by reason of the overhanging danger of

* See SRI report, "Potential For Expansion of National Security Programs," Francis P. Hoerber, October 1960, especially pp. 25-33 on the sources of wartime expansion. The facetious statement to the effect that, "There's nothing like a real good war to get an economy rolling," appears to be richly substantiated by history. Of course, this is economy in a completely materialistic sense of the word, and cannot be balanced against the costs of lives lost, disrupted homes, and pleasures foregone.

"renewed Chinese aggression. In the light of all these factors, one may say that the economy is in good heart, the mind of the people adjusted to the necessity for greater work, and the opportunities and challenges for the country are likely to receive wider appreciation."³³

There is a growing body of evidence that India possesses all the essential material requirements to create a large-scale industrial complex and to provide its people with a vastly improved standard of living.* Even the apparent major deficiency in commercial fuels is susceptible to a number of remedies. There are apparently very large supplies of thorium and even some radium. Development of atomic energy, new discoveries of petroleum and coal, and imports, are all available to one degree or another. What has been lacking is the conviction that to some extent social advance may have to be slowed or even suspended temporarily in favor of increased productivity

Recent developments indicate that such an awareness may have been produced by the Emergency. It is not yet certain how deep or permanent this awareness is.

India's latest budget is a good deal more austere than any in the past. Current expenditures are up over 34 percent from last year's original program. This will be covered partly by the natural increase in revenues, but mostly by new taxes, with only a minor deficit anticipated. In addition, compulsory savings have been imposed at a rate of 3 percent on most personal incomes over about \$312 a year. A new surtax has also been imposed on taxable personal income as well as on corporate profits. One other indication of increased realism in India's approach to the total situation is the acceptance of partition, at least in principle, as a reasonable solution to the Kashmir problem. While no effective settlement is yet in sight, this is a marked departure from Mr. Nehru's former intransigent position on this matter.

* For an evaluation of India's resources see Ref. 34.

While the non-economic barriers to material progress have long been recognized, it is only recently that their overwhelming significance has begun to be appreciated. A growing number of economists have taken the position that economic theories are not an adequate explanation of the failure of many nations to develop, that the problem is not their lack of resources but their inability to use them correctly.*

To what extent India, in seeking economic development within a democratic framework, should rely on compulsion as opposed to hortatory techniques cannot be stated. The major thing is that India's leaders and its people must commit themselves to a vigorous and sustained effort with respect to both development and defense. If they succumb to a pattern of seduction--rejection by alternate states of relaxation and excitation (a familiar technique of Communist powers, a pattern that appears at the present to be most favorable to and consistent with China's strategic goals and means)--the potential benefits of the emergency in breaking down certain of the barriers discussed above will be vitiated. Under the assumptions that India recognizes China as a continuing and deadly threat, that other nations will prevent the foreign exchange problems from becoming an acute bottleneck, and that the other major obstacles in India's development are soluble with proper leadership and a strong sense of national unity and purpose, the present Emergency should greatly enhance the effectiveness of hortatory measures and the consent to compulsory ones.

It is too soon to predict that India will react in this healthy way, but it can be concluded that continued overt pressures by Communist China may well push India in this direction. Certainly, India's leaders should be urged to lead and to reject the thesis that the present Emergency demands a choice between defense and development.

* An excellent discussion of this topic is presented in Ref. 35.

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APPENDIX A

PARTIAL TEXT OF COLUMN APPEARING IN TIMES OF INDIA

The ambivalence of the Indian position in regard to the Chinese threat in Tibet is exemplified by the following column by "N.J.N.," which appeared in the Times of India for 8 April 1963.

"Since the immediacy of aid and crisis are no longer in the forefront, Washington has obviously turned its attention to the long term implications of the Sino-Indian situation. Not how many planes or how many guns but what India is expected to do and how she is expected to behave in relation to China. In other words a stage has been reached in Indo-U.S. relations where little is frankly said but much is dangerously assumed.

"This latest miasma of misunderstanding is threatening to arise primarily because both New Delhi and Washington are inclined to interpret the Chinese threat as something other than what it is--the United States since it has been unable to discard its earlier obsessive anti-communism and New Delhi since it has still to recover from the shattering experiences of October-November last year. The American phrases that have helped to bring about an unhelpful exaggeration of the truth include such grandiloquencies as the Indian 'way of life,' the factor of 'non-communist thinking throughout Asia,' India's task of 'setting the pace for the rest of Asian peoples' and so on. Have we not here the seeds of another, less obtrusive yet real enough, crusade against communism primarily, but also against China to the reality of which Washington has never reconciled itself.

"New Delhi has acquired, even if belatedly, a new and permanent awareness of China's mischievous potentialities. This does not mean that India can ever agree to a role that identifies it with a group of Asian Powers in unconditional hostility towards Peking. Some of the truth of Mr. Nehru's earlier utterances need to be repeated even though the Prime Minister himself has not done so in the present climate of public opinion. One of these is that China, Communist or otherwise, aggressive or peaceful, is a neighbor with which somehow India

"must learn to live. It is a geographical truth that cannot be wished away, however convenient it may be to do so if it were possible. Admittedly in New Delhi's own interests it must transform non-alignment into a very much more positive force than it has been and it must in its own way mobilize the support and cooperation of the other countries of South East Asia. This will be or should be an extension of the non-alignment policy and cannot be related, even if indirectly, with what Washington expects India to do or the aid which the United States chooses to provide.

"Visions of a devious and infinitely cunning Chinese plot to dominate India or Asia, thrilling theories of an Indian 'way of life' threatened by an aggressive ideology from the north, interesting academic parallels between the Indian and the Chinese race for economic development--all this sounds plausible but is liable to run into fluff when thoroughly examined. It is not possible that the bare unvarnished fact of the matter is far more simple than Mr. Rostow and his egg head colleagues would wish it to be?

"This is that China set out to seize and successfully seized Aksai Chin in Ladakh in the conviction truly held, and sincerely that India would not react as it did and that, therefore, a compromise settlement could be easily achieved? This was the original intention and there is no reason to believe that it has been altered in any way. When, however, exaggerated theories are built on this slender foundation Indo-U.S. relations will become unnecessarily complicated, with expectations pitched too high and consequently incapable of being satisfied."

N.J.N goes on to say that New Delhi's policy is very rightly to work for an understanding with a powerful neighbor.

"If this is not possible soon, as it probably is not, the alternative is patience, vigilance, adaptability and calm determination. It is most certainly not to set an ideological example for other Asian states to follow or to lead them in any kind of crusade or to interpret Chinese aggression in the 'perspective' most palatable to the United States."

APPENDIX B

HISTORY OF THE SINO-INDIAN BORDER QUESTION

A concise statement of the background of the border question is contained in "The Sino-Indian Border Controversy:"*

"In 1841, Gulab Singh sent a force up the Indus valley into Western Tibet, but the Tibetans, with Chinese assistance, defeated the Sikh force in December 1841. This Tibetan-Chinese army followed the Sikh retreat into Ladakh, laid siege to Leh (chief town of Ladakh), and in turn was compelled to retire. This war resulted in the only known treaty of recent vintage treating of the frontier between Ladakh and Tibet, signed on 16/17 September 1842. The treaty was concluded between Tibetans representing the Dalai Lama and Sikh officers representing Lahore Durbar, and provides: '. . . We shall neither at present nor in the future have anything to do or interfere at all with the boundaries of Ladakh and its surroundings as fixed from ancient times . . .' The text mentions the Emperor of China as a party to the agreement, but there was no Chinese signatory."

The Simla Conventions, which included supposedly definitive maps of the boundary areas, were signed by the British and Tibetans in 1914. Again, the Chinese at no time admitted to being party to these commitments, any more than they admitted the sovereignty of Tibet.

"Chinese concessions on the Sino-Tibetan boundary were not sufficient to meet British and Tibetan demands, and pressure was applied in Peking by Sir J. Jordan who, on 6 June, declared to the Waichiaopu that the draft convention was the only solution to the problem and intimated that China could not expect to receive recognition of her suzerainty over Tibet if she persisted in refusing to sign. Finally, the

* George Knox Osborne, "The Sino-Indian Border Controversy," M. A. Thesis, Stanford University, Stanford, California (August 1960).

"draft, with accompanying maps, was presented to the conference in final form on 3 July 1914 and was initialled by the British and Tibetan delegates, Mr. Chen withholding his initials on instructions from Peking.* The Chinese delegate further stated that China would not recognize any bilateral agreement between Great Britain and Tibet, but the latter two declared the Simla Convention binding between themselves as initialled."

In 1934, the Nationalist Government of China was making plans to negotiate with Great Britain for "the delineation of a definite frontier between Tibet and India," but the deaths of both the Panch'en and Dalai Lamas and the searches for others delayed things until both World War II and the Chinese Communists made any such plans impossible.

"The National Government wanted to extent its control and planned to negotiate with Great Britain for the delineation of a definite frontier between Tibet and India. The Panch'en Lama had been negotiating his own return to Tibet with some British assistance, for more than a year, and a fresh opportunity seemed to present itself with the arrival of a new British Minister, Sir A. Cadogan, in Nanking, where the British were considered ' . . . not necessarily less aggressive than the Japanese in desiring to wrest territories from China . . . ' The planned negotiations did not prosper, but the Panch'en Lama was able to make plans for his trip home--abortive because he later (1937) died en-route--and General Huang did visit Lhasa and attend a memorial service for the late Dalai Lama."

In summary, China was in no position to challenge the British Empire effectively on questions related to the Tibetan borders; for more than 100 years she had been too weak to control these borders.

At the time of the Emergency, neither the British nor the Indians had made any real attempt to maintain more than token control of the majority of the areas involved in the dispute. The Indian attempt to

* Some sources indicate that Chen had originally initialled the Convention, but it is clear that he did not initial the final Convention with attached maps.

control these areas came only after the discovery that China had established effective control.

When it is recalled that, in addition to these two factors, Chinese use of the Aksai Chin had been frequent and unchallenged since 1950/51, the conclusions of the Columbo Conference that China's claims to the border area are not unreasonable becomes understandable.

APPENDIX C

THE COMMUNIST CHINESE PRESS IN THE INDIAN CONFLICT

The Communist Chinese did not use the Indian affair as an occasion to exhort the people to increase production or as a basis for political agitation in favor of the government. In this respect, the handling of the story was in contrast to the Korean war, during which the press strove to arouse favorable emotion on the part of the people.

These statements are based on a content analysis of the official organ, People's Daily, for the ten-day period following the outbreak of hostilities with India (21-30 October 1962) to the corresponding period (27 October-5 November 1950) following the intervention of Communist Chinese troops in Korea and Chinese accusation of U.S. air incursion on 27 October 1950. There is a clear contrast in the manner in which news on the two conflicts were officially handled:

- (1) The allocation of space is about the same for the Korean conflict (23% of the available space) as for the Sino-Indian border issue (22%).
- (2) Reports on military operations, official statements, and actions and announcements of the opponent that are advantageous to Communist China and her allies account for a larger proportion of the space given the Sino-Indian border issue (45%) than in the case of the Korean conflict (11%).
- (3) Reports on the support given by other countries to Communist China and to India account for 30% of the space assigned in the Sino-India dispute as against less than 1% in the Korean conflict.
- (4) The proportion of space taken up by reports on the emotional reaction of the population to the conflict, actions to support the war effort, letters to the

editor, and literary articles dealing with or based on the "war," occupies 60% of the total space allocated to the Korean conflict, while the corresponding proportion in the Sino-Indian issue is exactly nil.

On the assumption that news policy reflects the basic policy of the Communist regime, it is deduced that while both issues occupy similar weight in the press, during the Indian issue far more attention and importance were attached to the factual description and international justification than to stirring up emotional reaction and corresponding war effort.

APPENDIX D

THE ROLE OF THE DALAI LAMA

The role of the Dalai Lama in the Sino-Tibetan problem has been mentioned again and again as a factor in the Sino-Indian controversy. It undoubtedly was a factor as a symbol of Indian disapproval of Communist Chinese activity. It is also true that the effect on Tibetans of the continued "freedom" of the Dalai Lama must be a real thorn in the side of the Chinese authorities in Tibet.

The Dalai Lama is the very real head of the only absolute theocracy on earth. Even in absentia, his wish is absolute law to three million people both inside and outside of the political boundaries of his kingdom. Many believe him to be a reincarnation of Gautama, The Buddha. These Tibetan-speaking people can be found in Chamdo, Yunnan, Szechwan, Assam, and Burma; they are a majority of the non-Muslims of Sinkiang, Sikang, and Tsinghai; they are the Ladakhi and many of the peoples of Nepal, Bhutan, and Sikkim.

It must be painful to the Chinese Communists to be forced to recognize that a very large part of China proper and a large group of "Chinese" people have been able to maintain their "autonomous status" by their own definition of that term instead of under the Chinese definition of that term. In the Chinese political dictionary (not just in Communist Chinese terms, it should be noted) the word "autonomous" means "ruled by China through native mouthpieces" and in no sense implies the self-determination that is denoted by the term in the Western World.

Since the late thirteenth century, when the forces of Kublai Khan were defeated for the third time on the banks of the Upper Mekong River, the Tibetans of the Chamdo, Sikang, and the Northern Yunnan areas have paid token tribute to China, but have flatly refused to accept Chinese rule. The Burmese have been more docile subjects than the Eastern Tibetans.

Tibet itself has been invaded several times. Notable among these invasions were the events following 1717, when the Kang Hsi Emperor sent his invasion forces across the Aksai Chin, and for a fairly long period forced Lhasa to submit to Chinese garrisons and to direction by Chinese mandarins. But the Kham tribes have never submitted. On several occasions, the Chinese have been forced out of Lhasa, not by the people of political Tibet, but by pressure from these Eastern Tibetans and from the Nepalese.

In 1950, the Communist Chinese gave up their attempts to make a frontal assault on Tibet via Sikang and entered the plateau through the Aksai Chin, defeating the Tibetan army by taking Lhasa from their rear. The Dalai Lama's acceptance of the fait accompli created an uneasy peace. That "peace" contained violence that simmered just above the banditry level and just below the guerrilla warfare level for eight years--boiling up only occasionally (notably in 1954 and 1957) until the whole situation exploded in 1959.

The revolt was precipitated when the Dalai Lama left Tibet for India because, in his eyes, the Chinese had violated the terms of the 1950 agreement in their attempts to force the Lamas to control the Kham and Amdo dissidents.

It has been interesting to note that many westerners have begun to believe the Chinese attempts to amplify the traditional role of the Panch'en Lama. It is perhaps unfortunate for the people of Tibet that his authority can not substitute for that of the Dalai Lama. Being caught between two contradictory absolutisms (Communist and feudal law), both of which are capable of genocide, is rough on anyone. Be that as it may, in Tibetan eyes the Buddha's tutor is not the Buddha and never can become so. The Panch'en Lama is believed (by the laity) to be a reincarnation of the tutor of the thirteenth Dalai Lama. He was named head of the Panch'en Lamassery as an honor, not as a recognition of his birthright.

The Panch'en Lama has traditionally played the role of defender of the peasants from the excesses of the powerful. In that role he has

been especially honored, but in Tibetan eyes he has never had the right to rule, as either a spiritual or a temporal authority, outside of his own Lamassery's domains.

Ever since the Dalai Lama left Tibet for India in February 1959, the Sikang-Tibet highway has been under almost constant and quite effective guerrilla attack. The only convoys that get through are heavily armed and armored.

To sum up: In order to control Tibet successfully, China may feel that she has only two real alternatives, both of which have been technically and legally denied to them by India. Either China must be able to control the body and the dicta of the Dalai Lama, or China must be able to use the road across the Aksai Chin without let or hindrance.

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APPENDIX E
CLASSIFICATION OF COMMUNIST CHINESE HIGHWAYS

ITEMS	I	II	III	IV	V	VI	
						A	B
Designed Running Speed (km/hr)	120	100	80	60	40	25	25
Number of Lanes	4	2	2	2	2	2	1
Width of Lane (meters)	3.5	3.5	3.5	3.5	3.5	3.0	--
Width of Road Surface (meters)	14	7	7	7	7	6	3.0-4.5
Width of the Road (meters)	23	12	11	10	9	8	4.5-6.5
Curve (min. Radius, meters)	600	400	250	125	50	20	15
Maximum Grade							
Plain Area (%)	3	4	4	4	5	5	5
Hill Area (%)	--	--	5	6	7	8	8

Source: Kung-lu (Highway), Peking, No. 3, for March 1959.

APPENDIX F

FOOD REQUIREMENTS FOR COMMUNIST CHINESE SOLDIER
(Minimum per man per year)

FOODSTUFF	QUANTITY (kg)
Grains (Processed--80 % fine, 20 % Coarse)	300
Subsidiary Foodstuffs	
Pork and other meat	20
Vegetables	150
Edible Oil	6
Eggs	14
Sugar	3
Pulses	15
	—
TOTAL FOOD REQUIREMENT	508 kg

= 1.39 kg per man per day

= 3 lb per man per day

Source: Wu, Yuan-li, Francis P. Hoerber, and Mabel M. Rockwell, "The Economic Potential of Communist China, Vol. 1," Technical Report 2, Contracts DA-49-092-ARO-10 and DA-04-200-506-ORD-71G SRI Project 4320, Stanford Research Institute, Menlo Park, California (June 1963).

APPENDIX G

SUPPLY REQUIREMENTS OF A DIVISION

1. A U.S. INFANTRY DIVISION (WORLD WAR II, EUROPE) *

Supply Category	Requirements in Tons per Div. per Month for	
	Offensive Operations	In Division Area at Rear
Class I (food)	1,110	1,196
Class II and IV (signal and house-keeping gear, heavy hardware, radios, generators, etc.)	1,050	1,072
Class III (POL)	1,620	1,031
Class IV (Ammunition)	9,150	4,022
TOTAL	12,930	7,321

2. TAIWANESE ESTIMATES FOR CHINESE COMMUNIST DIVISION

Supply Category	Requirements in Tons per Div. per Month for	
	Offensive Operations	In Division Area at Rear
Food	520	520
Feed	100	100
Other Non-Combat Supplies	530	410
Gasoline, Oil, and Jet Fuel	520	265
Munitions and Arms	12,300	1,225
TOTAL	13,970	2,520

* Source: U.S. Department of the Army. Staff Officers Field Manual: Organization, Technical and Logistic Data. Part I (Unclassified data) Field Manual 101-10, U.S. Government Printing Office, 1962.

APPENDIX H
GASOLINE CONSUMPTION OF TRUCKS ON MAJOR HIGHWAYS IN THE TIBETAN AREA
(per month)

Highway	Length of Highway in Miles (One way)	Total No. of Trucks Arriving at Terminals (Both ways) ¹	Total Truck Miles (Millions) ²	Miles per Gallon ³	Total Gallons of Gasoline Required (Millions)	Total Gasoline Weight ⁴ (Tons)
Tsinghai-Tibet (Hsi-ning to Lhasa)	1260	9,000-12,000	11.34-15.12	5	2.27-3.02	7,370-9,805
Sikang-Tibet (Ya-an to Lhasa)	1000	6,000-7,500	6.00-7.50	5	1.20-1.50	3,896-4,870
Sinkiang-Tibet (Urumchi to Gartok)	1400	6,000-12,000	8.40-16.80	5	1.68-3.36	5,455-10,909
Hei-ho-Gartok	800	3,000-6,000	2.40-4.80	5	0.48-0.96	1,558-3,117
TOTAL		24,000-37,500	27.14-44.22		5.43-8.84	17,630-27,702

¹From Table II, p. 60, multiplied by 2 to account for two-way traffic.

²Product of Length of Highway and Total Number of Trucks Arriving.

³From Automobiles and Highways, Vol. 1, No. 3, pp. 11-12 (Shanghai, November 1949).

⁴One gallon of gasoline weighs approximately 2.8 kg (6.16 lb).

APPENDIX I

GAZETEER*

Ah-li (see Gartok)

Aksai-Chin

The alkaline desert that lies east of the Karakoram ranges in Ladakh. It is at an altitude of 12,000 feet and gives the easiest winter access to the Tibetan plateau. (Fig. 1,4,7,8; pp. 8,9,15, 17-19,27,50-53,55.)

An-hsi

An ancient caravan stop on the silk routes. It is just south of the railroad to Ti-hua, below Hsia-tung. (Fig. 7,8; pp. 24,64.)

Assam "

The Indian State east of East Pakistan; it administers the Northeast Frontier Agency, Manipur, Tripura and Nagaland. It is the only area in India which does not have population pressure on its food supply and which has a functioning petroleum industry and supply. (Fig. 2-8; pp. 14,21,34-37,46,69.)

Baltistan

A cultural area of Pakistani Kashmir just west of Kashgar, on an old silk route. (Fig. 1,7,8; p. 27.)

Barahota, Uttar Pradesh

Site of one of the 1958 Chinese border penetrations of India; it is close to the northern Nepalese border. (P. 8.)

Barkha

A Tibetan district headquarters near Gartok on the road that parallels the border. (Fig. 1,7,8, pp. 56,63.)

Bayan Kara Range

A range of 20,000 foot mountains that parallels the edge of the Tibetan plateau on the North and East. (Fig. 4; pp. 24,26.)

Bhamo

An important Burmese city on the Irrawaddy River near the Chinese border. (Fig. 6; p. 34.)

*The spelling of these place names are somewhat arbitrary. Sources vary widely both on what name is used and how the various words should be transliterated. Where name variations are likely to be too confusing, cross references have been given to the name used herein.

Bhutan

A tiny kingdom on the southern Tibetan border whose foreign relations are controlled by India. (Fig. 2,5,7,8; pp. 2,7,14,17.)

Bomda (Bomda Gompta) (Pangta)

A major stop on the Chamdo to Hsiu-ting section of the southern Sikang-Tibet Highway. (Fig. 7,8; pp. 53,56.)

Bomdila

A town below Se La on the road to Tezpur; it was a scene of bitter fighting and Indian defeat. (Fig. 2; p. 19.)

Brahmaputra River Valley

The central area of Assam province, India. Though the river is the heart of East Pakistan also, the Valley is usually considered to be Assamese. (Fig. 2-8; pp. 15,27,79.)

Cha-lun (Thog Jalun)

A road junction at the Gartok end of the Hei-Ho-to-Gartok Highway. (Fig. 1; p. 56.)

Chamdo (Ch'ang-tu)

Capital of the Chinese province of Chamdo, part of cultural and geographic Tibet, but a major Chinese control point on the Sikang-Tibet Highway. (Fig. 7,8; pp. 26,53,61-63,69.)

Chamdo Province

The eastern section of Tibet. (Fig. 4,5,7,8; pp. 26,27)

Chaukan Pass

An 8,000 foot pass into the Northeast Frontier Agency of India from Burma. (Fig. 6; p. 34.)

Ch'eng-tu, Szechwan

A major railhead in Szechwan province near the wartime capital, Chungking. (Fig. 7,8; pp. 22,24,56,57,63.)

Cherrapunji

One of the wettest cities on the weather records (452 inches average annual rainfall). It is on the southern slopes of the Khasi Hills just North of the East Pakistan border. (P. 15.)

Chiao-er Shan (Tasueh Shan)

A segment of the southeastern Bayan Kara Ranges, it is one of the major barriers on the eastern edge of Tibet. (Fig. 4, p. 26.)

Chimeli Pass (Circa 26° 12' N, 98° 44' E)

A 13,451 foot pass on the watershed for the Salween River opposite Kangfang which Burma ceded to China during the recent border settlement. (Fig. 3, p. 34.)

Chindwin River

A major western tributary of the Irrawaddy River, near the Indian border. (Fig. 6-8; p. 34.)

Ch'ing hai (see Koko Nor Lake)

Chin-Sha Chiang

The upper western arm of the Yangtze River where it forms the border of Chamdo Province. (Fig. 7,8; p. 26.)

Chip Chap Valley

A tributary of the Indus, the Chip Chap River runs below the Karakoram Pass and was one of the first battle areas in September 1962. (Fig. 1,7,8; pp. 10,16,19,63.)

Chungking

Provisional capital of China during World War II, a major railhead and supply headquarters for Szechwan and points west. (P. 57.)

Ch'u-Shui

A town at a road and river junction on the Raga Tsangpo River, forty miles southwest of Lhasa. (Fig. 2,7,8; pp. 56,57.)

Chushul

An Indian garrison town in southeastern Ladakh. Its airfield was under attack during the "cease-fire." (Fig. 1,7,8; pp. 16,79.)

Dalai Lama Range

A band of mountain peaks on the eastern edge of the Tibetan plateau. (P. 27.)

Damzan, Uttar Pradesh

The site of a 1955 Chinese incursion into Tibet near the northern Nepalese border. (P. 9.)

Darjeeling

A major city in India, near the border between Sikkim and Assam; famous for the tea it produces. (Fig. 2,7,8; p. 15.)

Dibrugarh

A major transshipment point on the eastern Brahmaputra River. (Fig. 3,6; p. 22.)

Diphu Pass

A 14,000 foot pass over the easternmost border of the Northeast Frontier Agency. (Fig. 3; p. 22.)

Dong (see Walong)

Drok

Tibetan word meaning high pastures and upland grazing slopes.

Dze Chu River

Upper tributary of the Mekong River in this context. It is also a name for the upper Yalung tributary of the Yangtze River in some sources. (Fig. 4; p. 26.)

Ed Dzong

Caravan stop on the Hei-Ho-to-Gartok Highway. (Fig. 7,8.)

Enta

Town on the Dze Chu River; a caravan stop on the Sikang-Tibet Highway. (Fig. 7,8; pp. 26,27.)

Everest

The highest peak in the world; part of the China-Nepal border. (P. 13.)

Fort Hertz (Putao)

A major garrison point in the disputed Triangle Area of Upper Burma. (Fig. 3,6,7,8; p. 34.)

Galwan River

An upper tributary of the Indus River with headwaters in Tibet. The Ladakh portion of the valley was site for one of the more spectacular Sino-Indian clashes. (Fig. 1; pp. 9,19.)

Gang

Tibetan word meaning mountain ridges.

Gangtok, Sikkim

Capital of the tiny country between Nepal and Bhutan. Jumping off point for most of the western expeditions to Lhasa. (Fig. 2,7,8.)

Gar Dzong (see Gar Gunsa)

Gar Gunsa

Junction point for the Hei-Ho-to-Gartok Highway and the Aksai Chin Road. (Fig. 1,7,8; p. 56.)

Gartok (Ah-li)

Headquarters for the authority in Western Tibet. Usual check point for travelers to Tibet from Kashmir. (Fig. 1,7,8; pp. 8,55,56-63, 69.)

Gawlum

Town on the Ngawchang River near the China-Burma border; recently ceded to China by Burma. (Fig. 6; p. 34.)

Ghats, Western

The hills that rise east of Bombay, and block the summer monsoon from the Deccan Plateau. (P. 14.)

Golmo (Kaerhmu)

A major highway junction on the Tsinghai-Tibet Highway and a very ancient stop on the silk routes. (Fig. 7,8; pp. 24,53,55,57,63.)

Gyangtze

Garrison town and supply point; the major check point in Tibet for all western visitors to Lhasa whether they came through Sikkim from Darjeeling or East from Gartok. (Fig. 2,7,8; pp. 55,63.)

Hei-Ho (Nagchhu Dzong)

Major highway junction and supply base on the far side of Lhasa of the pass over the Nyen Chang Shan on the Tsinghai-Tibet Highway. (Fig. 7,8; pp. 24,27,55,56,58,61-63.)

Ho

A Chinese word for river.

Ho-tien, Sinkiang (Khotan)

An important oasis on the routes that followed the southern edge of the Takla Makan desert as it skirts the Tibetan plateau; mentioned by Marco Polo. (Fig. 1,7,8; p. 8.)

Hpimaw (Pienma)

Town near the left bank of the Ngawchang river. It commands a pass on an ancient road to Myitkyina via the Nmai River and in 1905 was an important British control point; it was ceded to China by Burma. (Fig. 6; p. 34.)

Hsia-tung

An alternate railhead for the Tsinghai-Tibet Highway via a road that goes north from An-Hsi. (Fig. 7,8; pp. 24,55.)

Hsi-ning

Railhead for the Tsinghai-Tibet Highway; in the Tsinghai oilfields, it is also a regular airlines stop and has for centuries been a traditional gateway to China-Proprietary. (Fig. 7,8; pp. 24,53,55,63.)

Hsi-ning Ho

Tributary of the Upper Hwang Ho, the Yellow River, it forms the pass at the beginning of the Tsinghai-Tibet Highway. (Fig. 4,7,8; p. 24.)

Hsiu-teng

Take-off point for the road through Lima to Walong. (Fig. 3.)

Imphal

Capital of the Assamese province of Manipur. (P. 34.)

Indus River

One of the major rivers of the Indian subcontinent, it has headwaters beyond the high hills in Tibet. Its upper Kashmiri valleys and the valleys of its upper tributaries are a large part of the arable land in the Ladakh area. (Fig. 1,4,5,7,8; p. 19.)

Irrawaddy River

The major Burmese River. Its watershed defines the McMahon Line as it applies to Burma and its delta is the rice bowl of Rangoon and Burma. (Fig. 4,6,7,8; pp. 27,34.)

Kabul

Capital of Afghanistan. (P. 61.)

Kachenjunga

The 28,000 foot peak that overlooks Darjeeling on the border between Sikkim and Nepal. (P. 61.)

Kaerhmu (see Golmo)

Kagchinar La (see K'och'ennaerh)

Kailas Range

The range that forms the Sino-Tibetan border between the Aksai Chin and Bhutan. (Fig. 4.)

Kangfang

One of the three towns in the valley of the Ngawchang River, recently ceded to China by Burma thereby negating the watershed as the border. (Fig. 6; p. 34.)

K'ang-ting

Town below the Kung-Ko-Shan west of Yunnan; first stop on the Sikang-Tibet Highway. (Fig. 7,8; pp. 46,63.)

Kantse (Kantzu)

A town and supply point on the Salween-Chiang River and Sikang-Tibet Highway. (Fig. 7,8; pp. 46,63.)

Kara Kash River

The north-flowing river that flows through the Karakoram Range from the Aksai Chin and forms the pass over which the Chinese Communists' road was built. (Fig. 1; p. 21.)

Karakoram Ranges

The high range of mountains that includes K-2, the second-highest peak in the world. The range separates the Aksai Chin from Leh and forms the northeastern Sino-Pakistani-Kashmir border. (Fig. 4; pp. 16,37.)

Karamai

Pipeline terminus for oilfields in the northwest corner of Sinkiang Province, at the foot of the Altai Mountains near the USSR border. (P. 64.)

Kashgar (see K'o-shih)

Kashmir

The usual appellation for the State of Jammu and Kashmir as well as the name of a valley in the Himalayan Mountains (the "Vale of Kashmir"). (Fig. 1,4,5,7,8; pp. 8-11,13,16,19,36,37,38.)

Katmandu

The capital of Nepal. (Fig. 7,8; pp. 15,16,56.)

Kenko Shan

A subsidiary range of the lower Bayan Kara Mountains on the eastern edge of the Tibetan plateau. (Fig. 4; p. 26.)

Kham (Cham, Kam, Lolo)

A group of tribes of extremely war-like and independent Tibetan-speaking peoples who live in the mountains of what are now Chamdo, Yunnan, and Upper Burma. (Pp. 8,26.)

Khargalik (see Yeh-Ch'eng)

Khasi Hills

The hills that edge the northern Bengal plain, just south of Darjeeling. (Fig. 4; pp. 14,15.)

Khotan (see Ho-tien)

Killian Kush

The mountains that are the broken edge of the Tibetan plateau, on the western boundary between Tibet and Sinkiang. (Fig. 4; p. 27.)

K'och'ennaern Shank'ou (Kagchinar La)

A 16,000 foot pass on the border between Tibet and Sinkiang on the Tsinghai-Tibet Highway. (P. 24.)

Koko Nor (Ching Hai)

A huge lake near the center of the Tsinghai Basin. (Fig. 4; p. 24.)

K'o-shih (Kashgar)

One of the most famous of the ancient gateways to China, in the Tarim or Kizil Valley between the Pamirs and the Takla Makan desert. (Fig. 1,7,8; pp. 27,57.)

Kuang-han airfield

Huge jet field at Cheng-tu from which much of the war transport has been staged into Vietnam, Laos, Burma, Malaya, and Tibet. (Fig. 8; p. 57.)

Kublai Khan

Emperor of China when it controlled its largest area. Born 1216, died 1294. Grandson of Genghis Khan. (P. 26.)

Kung-Ko-Shan (Kungka Shan)

A 25,000 foot mountain that rises 20,000 feet above the Sikang-Tibet highway near K'angting. (P. 26.)

Kungka Shan (see Kung-Ko-Shan)

Kyi-chu River

The river that runs through Lhasa; a tributary of the Raga Tsang-po, the Tibetan half of the Brahmaputra River. (Fig. 2, p. 57.)

La

The Tibetan word that means pass.

Lache Shank'ou

A pass on the Sikang-Tibet Highway above one of the Upper Yangtze gorges. (P. 26.)

Ladakh

The area that contains the major causus belli; the northeastern section of the state of Jammu and Kashmir. It contains much of the Upper Indus Valley and the relatively low (17-19,000 ft) and sloping Ladakh Hills, the last of the sedimentary ranges before reaching the crystalline ranges of the Karakoram. (Fig. 1,4,5; pp. 8-11,16-19,32,50-53,26.)

Lamata 'o Shank'ou

A 15,000 foot pass near Enta between the Dze Chu gorge and the Naga Chu valley (both of them containing tributaries of the Mekong) on the new road between Chamdo and Hei-Ho. (P. 26.)

Lan-chou

A railhead and the site of the major oil refinery in the Tsinghai Basin. (Fig. 7,8; pp. 24,63,64,57.)

Lants'ang Ho (see Mekong River)

Ledo Road (Stillwell Road)

The painfully built road used by Gen'l. Stillwell in the removal of his army from Burma during World War II. Still in use, it is the major access route between the Brahmaputra Valley and North-eastern Burma. (Fig. 6; pp. 17,22,34.)

Leh

The capital of the Ladakh Province of the State of Jammu and Kashmir, and the major Indian staging area for the fighting beyond the ranges. (Fig. 1,7,8; p. 19.)

Lhasa

The ancient capital of Tibet and seat of the Dalai Lama, the Forbidden City for most of the past millenium. It lies in a large, bowl-shaped valley, the floor of which is above 12,000 feet. (Fig. 2,4,7,8; pp. 7,27,50-58,60-63,69.)

Lhatse (Latzu) (Lhatse Dzong)

A town on the Gartok-Lhasa highway where said highway crosses the Raga Tsangpo. A major ammunition dump. (Fig. 7,8; pp. 56,63.)

Lima (Rima)

A town on the Zayul River where it crosses the Indian statement of the Chinese border above Walong; in the NEFA. (Fig. 3, p. 22.)

Longju

An Indian Border Post in the NEFA, on the McMahon Line, taken by the Chinese in 1958. (Fig. 2; p. 17.)

Macao

The Portuguese city west of Hong Kong and one of China's few illicit gateways still open to the world; rumored to be the principal opium outlet. (Fig. 5.)

Mang-Yen, Tsinghai Province

An oil pipeline terminal in the Tsinghai Basin oilfields south of Lan-Chou. (P. 64.)

Manipur

The Assamese Province of Manipur, near the Burmese-Indian border, of which Imphal is the capital. (Fig. 6; pp. 15,37.)

McMahon Line

The line on the maps appended to the Notes on the Simla Convention Agreement of 1914. It was never accepted as legal by the Chinese, but has served as the border since 1914. McMahon was delegate to the convention. (Fig. 1-8; pp. 17,50.)

Mekong River (Lants'ang)

One of the great rivers of the world; its lower reaches define the southern border of Laos and supplies the water for the rice bowls of the Saigon area. (Fig. 4,5,6,7,8; pp. 26,27.)

Min Ho

One of the headwater tributaries of the Yangtze River, near Ya-an. (P. 26.)

Myitkyina

A major port on the Upper Irrawaddy River. (Fig. 6; p. 34.)

Nagaland

The Indian Province adjacent to the Burmese border between the NEFA and Assam. It has been agitating for independence from India since Partition. The Naga tribes have never subjugated to any real degree by anyone, least of all the Indians. (Fig. 3,6; pp. 34,36,37.)

Nagchhu Dzong (see Hei-Ho)

NEFA

The Northeast Indian Frontier Agency, the province of Assam that contains the Indian Himalayas east of Bhutan. Most of the area is involved in the dispute between China and India. (Fig. 2,3,4, 5,6,7,8; pp. 8-11,15,19-21,34.)

Ngawchang River Valley

Ceded in part to the Chinese by Burma it holds the route of many Chinese raids through the Irrawaddy area above Myitkyina. (Fig. 6; p. 34.)

Nin-Ching Range

A subsidiary range of the Tanglha Ri Mountains that are the north-eastern edge of the Tibetan Plateau. (Fig. 4; p. 26.)

Nyelam (Nyelam Dzong)

The Tibetan border check point on the trail between Katmandu and Shigatze. (Fig. 7,8; p. 56.)

Nyen-Chang Range

The northern and western edge of the bowl in which Uhasa lies. (Fig. 4; pp. 24,27.)

Pamir Range

The high mountains forming the barriers between Kashmir, Afghanistan, and the USSR. (Fig. 4; p. 27.)

Pangong Lake

A lake near the Chinese border, between the Ladakh range and the Chang Chemo mountains. An Indian border garrison maintained an airfield there and was defeated early in the conflict. (Fig. 1; p. 79.)

Pangta (see Bomda)

A major stop on the Chamdo to Hsiu-Teng section of the southern Sikang-Tibet Highway. (P. 27.)

Pao-Chi

A railroad junction north of Ch'eng-tu and major supply dump. (Fig. 7,8; p. 63.)

Pienma (see Hpimaw)

Po

A Tibetan word for river.

Punjab

Province of India south of Kashmir and east of West Pakistan, containing the railheads that service the Ladakh and Kashmir areas. (Fig. 7,8.)

Purang (Taklakhat)

Town at the foot of the Tibetan side of Liputek La, the pass at which the Nepalese, Indian, and Tibetan borders meet. (Fig. 2,7,8; pp. 8,56.)

Putao (see Fort Hertz)

Raga Tsangpo (Brahmaputra)

The Tibetan name for the Brahmaputra River above its gorges, where it flows southeast. (Fig. 2,3,4,5,6,7,8; p. 59.)

Rima (see Lima)

Rong

The Tibetan word for a valley in which cultivation is feasible.

Rudok (Rudog)

A major Tibetan road junction for the highways across the Aksai Chin, from Hei-Ho, and from Gartok. Also the staging area for the Chinese border posts in the Galwan and Indus valleys. (Fig. 1,7,8; pp. 8,55.)

Rudog (see Rudok)

Sadiya

Highway terminal for the Walong area in the Southeastern corner of the NEFA. Also a refinery town for the Assam oilfields. (Fig. 3,6; p. 22.)

Salween River

One of the important rivers of Southeastern Asia, with headwaters in the Tanglha Ranges on the Tsinghai-Tibet border. Its gorges used to be the Sino-Burma border and its delta feeds Moulmein after serving as the Thailand border. (Fig. 4,3,7,8; pp. 27,34.)

Se Pass (Se La)

The pass that symbolizes one of the major conflict areas of the NEFA and Bhutan. It is a point on the border between Bhutan and NEFA and was fortified as a major defense point on the Indian road from Tezpur. (Fig. 2; pp. 16,17,19-21,79.)

Shakhidulla (Shakhidulla Mazar)

A town on the road from Yeh-Ch'eng to the east of the Aksai Chin. (Fig. 1,7,8; pp. 27,55.)

Shan

Chinese for either a peak or a mountain range.

Shank'ou

A Chinese word for pass.

Shigatze (Zhigatze)

The traditional site of the Monastery of the Panchen Lama. A major administrative headquarters and road junction on the Gartok-Lhasa Highway, the Raga Tsangpo, and the roads to Katmandu, Gangtok, and Thimbu (the capitals of Nepal, Sikkim, and Bhutan). (Fig. 2,7,8; pp. 56,61,63.)

Shiweli Pass

A pass on the China-Burmese border crossed by the Burma Road. (Fig. 6; p. 34.)

Shiweli River Valley (Shweli)

The valley of a tributary of the Irrawaddy River that crosses the Sino-Burmese border near the Burma Road. (Fig. 4; p. 34.)

Sikang-Tibet Highway

An ancient caravan trail, now an important highway from Ch'eng'tu in Szechwan to Lhasa via Chamdo and the Raga Tsangpo Valley. (Fig. 7,8; pp. 24,25,26,53,56.)

Sikang Province

The Chinese Province that once adjoined Chamdo Province on the southeast and was incorporated into Szechwan Province from 1957 to 1962. It still serves as a geographic area. (Fig. 5,7,8; p. 56.)

Sikkim

The tiny country between Nepal and Burma, its foreign policy is traditionally controlled by India. (Fig. 2,3,4,5,7,8; pp. 7,8.)

Silghat

An Assamese railhead on the southern bank of the Brahmaputra River across from Tezpur. (Fig. 2, p. 22.)

Sinkiang Province

The northwestern area of China adjoining Afghanistan and Turkmenistan, USSR; also called the Uigher Antonomous Region. (Fig. 1,4,5,7,8; pp. 8,32,36,57.)

Sinkiang-Tibet Highway

The road from Ti-hua to Lhasa via K'o-shih and the Aksai Chin. It has been the only successful invasion route into Tibet. It follows several ancient roads. (Fig. 7,8; pp. 27,55,56.)

Siwalik Hills

The shallow band of low hills that parallel the Himalayas for their whole length, at a distance of 20 to 100 miles. (Fig. 4, pp. 14, 15,22.)

So-che (see Yarkand)

Srinagar

The capital of Kashmir, situated in the Vale of Kashmir. (Fig. 1,7,8; p. 19.)

Supakanli Shan

A 20,670 ft peak in the Bayan Kara mountains of Tsinghai, just south of Golmo (Kaerhmu). (P. 24.)

Szechwan Province

The southern rice bowl of China east of Sikang. (Fig. 4,5,7,8; pp. 8,32.)

Tai-Chao (Tse-thang)

A junction on the Sikang-Tibet highway from which a road goes south to Tsona Dzong and Se Pass (Se Ia). (Fig. 7,8; pp. 26,53,63.)

Taklakhat (see Purang)

Takla Makan Desert

The desert that is most of Sinkiang province. (Fig. 4; p. 27.)

Tang

The Tibetan word for a high barren plain.

Tang-hsiung airfield

Less than 60 miles from Lhasa. This field has had a jet transport capability since at least 1955 and is rumored to have at least one three mile long concrete runway. (Fig. 8; p. 57.)

Tang Pass

The 17,000 ft pass that crosses the Tsing-hai-Tibet border on the Tsinghai-Tibet highway. (P. 24.)

Tarim River Valley

The sequence of passes that lie between the Takla Makan desert and the Pamirs in western Sinkiang (between which oases the river often goes underground). (Fig. 4; p. 27.)

Ta-sueh Shan (see Chiao-er Shan)

Tawang (Towang)

The Indian garrison town between the McMahon Line and Se Pass. (Fig. 2; p. 21.)

Teh-ko

A town on the northern route between Ya-an and Chamdo (that is, between Kantse and the Yangtze River). (Fig. 7,8; pp. 24,53.)

Tezpur

Military headquarters for the whole Indian area east of East Pakistan-Assam, NEFA, Manipur, Tripura, Nagaland, etc. (Fig. 2,7,8; pp. 19-22.)

Thala Pass

The Pass that defines the agreed-upon border between the Chamdo and Yunnan provinces of China and Burma. (Fig. 6; p. 34.)

Thangla Ri Ranges (Tanglha Ri)

The rugged ranges that are the border between Tsinghai and Tibet. (Fig. 4; p. 24.)

Thimbu

Capital of Bhutan. (Fig. 2,7,8.)

Thog-Jalun (see Cha-lun)

Tien-Shui

A railhead and supply point between Pao-chi and Lan-chou. (Fig. 7,8; p. 63.)

Ti-hua (Urumchi)

The end of the Chinese railroad as it approaches Turkmenistan, U.S.S.R. One of the most ancient of the important Chinese cities on the silk routes. It contains the tomb of Genghis Khan. (Fig. 7,8; pp. 27,55,57.)

Towang (see Tawang)

Tripura

A province in Assam that is almost surrounded by East Pakistan.. (Fig. 3; p. 37.)

Tsaidam Basin

The desert basin of Northwestern Tsinghai that contains several of the caravan routes that used Lan-Chou as gateway to China, and China's largest oilfield. (Fig. 4; p. 24.)

Tsinghai Province

The most westerly of the "Chinese" provinces in the cultural sense. (Fig. 4,5,7,8; pp. 8,32,56.)

Tsinghai-Tibet Highway

One of the most important routes to Lhasa from the north. (Fig. 7,8; pp. 53,56.)

Tso-mu

A garrison point on the Sikang-Tibet highway just east of Tai-Chao. (P. 63.)

Tsona Dzong

The staging point for the Chinese thrust into the Se La area of the NEFA. (Fig. 2,7,8; pp. 19,56.)

Turfan

The junction between the highway to K'o-shih (Kashgar) and the railroad to Ti-hua (Urumchi) in western Sinkiang. (P. 27.)

Tu-shan-tzu

Pipeline terminal between Ti-hua (Urumchi) and the USSR border. (P. 64.)

Tzuk'ai

Town on the upper Salween river recently ceded to China by Burma. (Fig. 6; p. 34.)

Urumchi (see Ti-Hua)

Wa State

The site of an armed clash between Burma and China in 1955. Bhamo (which see) is its capital. (P. 32.)

Walong (Dong)

A town on the Zayul river a few miles south of the McMahon Line in the easternmost corner of the NEFA. A scene of bitter fighting in 1962, and of a 1957 intrusion. (Fig. 3,6,7,8; pp. 9,16,17, 22- 4,34.)

Ya-an

Railhead for the Sikang-Tibet highway. (Fig. 7,8; pp. 24,53.)

Yalung River (Tsa-ch'u) (Dze Ch'u)

A tributary of the upper Yangtze River; it forms a pass near Kantze on the Sikang-Tibet Highway. (Fig. 7,8; p. 26.)

Yangtze River

The huge river that crosses almost all of China from the Tsinghai-Tibetan border to Shanghai on the delta. (Fig. 4,3,7,8; p. 24.)

Yarkand (So-che is a twin city)

So-che and Yarkand are two ancient oases on either side of the Yarkand River in southwestern Sinkiang at a junction of at least four major caravan routes. (Fig. 1; p. 27.)

Ya-tung

On the Sikkim-Bhutan border; the Tibetan border checkpoint on the trail between Gangtok and Gyantse and on to Shigatse and Lhasa. (Fig. 2,7,8; p. 55.)

Yeh Ch'eng (Khargalik)

The junction point for the road that crosses the Aksai Chin with the older road between Ko'shih (Kashgar) and Ho-tien (Khotan). (Fig. 1,7,8; pp. 27,55.)

Yen Chang Shan (see Nyen Chang Shan)

Yumen

Major railhead and supply headquarters on the railroad just east of Hsia-tung and north of An-nsi. (Fig. 7,8; p. 64.)

Yunnan Province

The Chinese province that has a common border with Burma. (Fig. 4,5,6,7,8; p. 34.)

Zayul River

The easternmost tributary of the Brahmaputra River that flows past Walong (and Lima, on the Chinese side of the McMahon Line). (Fig. 3, p. 22.)

Ze-dong

Garrison town on the road between Chu-Shui and Tsona Dzong, above the Se La area. (Fig. 2; p. 57.)

Zhangzhung La

The last major pass on the Tsinghai-Tibet highway before one descends to Lhasa. (P. 24.)

Zhigatze (see Shigatze)

APPENDIX J

MAP SOURCES AND NOTES

I SOURCES

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8. Personal interviews in Taiwan.

II NOTES

a. Figures 1, 2, and 3

Based primarily on Sources 1, 2, 3, and 4. The Chinese border line on these maps is drawn in accordance with the recently concluded agreements between Communist China and Afghanistan, Pakistan, Nepal, Sikkim, Bhutan, and Burma; Figs. 5, 7, and 8 show the areas of conflict, based on 1959 sources.

b. Figure 4

Based primarily on Sources 1, 2, 3, and 5.

c. Figure 5

Based primarily on Sources 3 and 7.

d. Figure 6

Based primarily on Sources 1, 2, 6, and 7. It should be noted that data on this map are limited to those closely related to textual material; comprehensiveness has not been attempted.

e. Figures 7 and 8

Based primarily on Source 7, modified by data from Sources 1, 2, 3, 6, and 8. With respect to airfields, a large part of the Tibetan plateau is flat enough, dry enough, and hard enough to reduce runway building to a matter of bulldozing and rolling. Supplies for such an airfield are another problem.

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MENLO PARK
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Regional Offices and Laboratories

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808 17th Street, N.W.
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Zurich 1, Switzerland

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911 Iino Building
2-2-chome, Uchisaiwai-cho, Chiyoda-ku
Tokyo, Japan

Representatives

Honolulu, Hawaii
1125 Ala Moana Blvd
Honolulu, Hawaii

London, England
19, Upper Brook Street
London, W. 1, England

Milan, Italy
Via Macedonio Melloni, 49
Milano, Italy

Toronto, Ontario, Canada
Room 710, 67 Yonge St.
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