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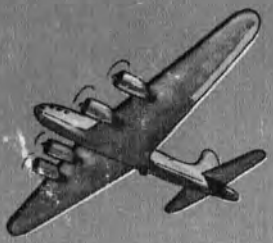

COMMAND AND GENERAL STAFF COLLEGE

FORT LEAVENWORTH, KANSAS

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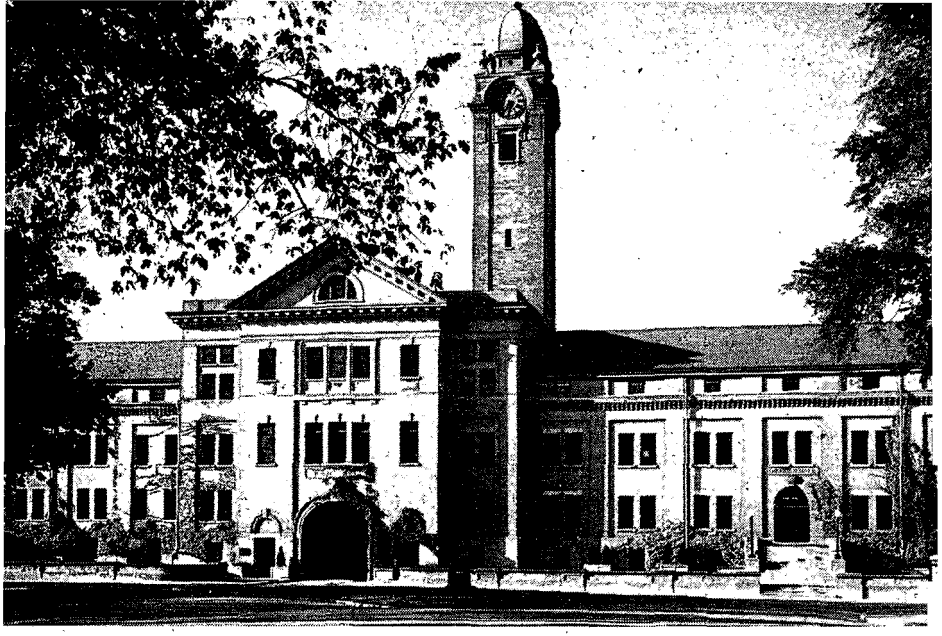

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Development of India as a Base for Operations

Digested by the MILITARY REVIEW from an article by Lieutenant General Sir Wilfrid Lindsell in the "Journal of the Royal United Service Institution" (Great Britain) May 1947.

IT is true to say that the problems involved in the development of a major base for the maintenance of military operations on a grand scale are not generally well appreciated or understood.

A base is a very large area with its harbors, railways, power, light and water undertakings, its whole transportation and manufacturing capacity developed, coordinated and directed for the service of the armed forces, but not, of course, to the exclusion of the meeting of essential civilian needs.

In this last war it would perhaps be more nearly correct to say that the true base of our armed forces was the United Kingdom and the United States; but we had eventually a very fine base in the Middle East and a much bigger one in India, though both were subsidiary to the UK and the USA bases.

The determining factor in the scope of development of the great bases overseas is to be found in the problem of supply over immensely long lines of communication, liable to interruption by enemy action and affected too by shortages of shipping and possibly by weather conditions.

The line of communications to the Middle East while the Mediterranean route was denied to us by the enemy was around the Cape; the line of communications from the United Kingdom and the United States to India was the longest in the world. Hence the primary reason for the development of the Middle East and India bases.

The Middle East base was mainly in Egypt, but it had about 10 per cent of its development in the Sudan, and roughly 20 per cent of its capacity in Palestine and Syria and, prior to the separation of the Persia and Iraq Command from the Middle East, an important link also in Basra, Baghdad, and Mosul.

The Middle East base designed for the service of the Armies of the Nile, more especially the Eighth Army in the Western Desert, was not only the fountain of military resources essential for the invasion of Sicily and later Italy, but its central location in the Middle East made it an *entrepôt* of great value for operations in the Far East; and the development of India as a base cannot rightly be considered divorced from that of the Middle East base, as these two in varying ways at different stages of the War were complementary.

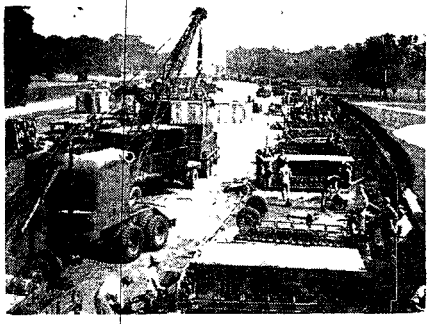
The developments of modern war taking place as wars now do at high speed over immense distances, demand that the highly mobile forces engaged shall be accompanied initially by floating bases, and shall be followed up step by step by advanced bases of varying capacity on shore. These in their turn may develop into something larger and more permanent, or they may be left behind and abandoned, to be recovered at some future stage. But these mobile, floating, or temporary land bases can only be of relatively limited capacity. The main bases of the United Kingdom, of the Middle East, and of India, are a permanent necessity however the war develops, and they take years to build, to equip and to stock.

Stages of Development

The development of India as a base must be looked at in stages. In the first stage we must have in mind India's traditional military problem of the defense of her northwest frontier. This problem was very real in the early stages of the war; and during 1939, 1940 and 1941 there was a definite threat to Afghanistan. To meet this potential threat, India's

pre-war base development was all planned facing west and northwest. This base development was planned, but very little developed for the maintenance of a force of 225,000 which was the pre-war strength of the Army in India.

When the war started, the Indian Army was largely unmechanized; and though plans had been made for mechanization, neither the necessary equipment nor the vehicles were available. Also, as 90 per cent of the population of India lives on the land, there were available only very small numbers of men with a mechanical training or a mechanical turn of mind. I do not mean to imply from this that India was not industrialized—seeing that



U.S. ordnance vehicle assembly line in India, March 1944.—Army Signal Corps photo.

industry is the basis of any base development—because Tata's steel works, for example, is the biggest steel organization in the world outside the United States. India's textile industry likewise was an important factor, and it proved a very valuable asset for the maintenance of our fighting forces and those of the United States in most parts of the world.

In spite of initial difficulties, we find India sending her troops in increasing numbers to fight in Persia, in Iraq, in Abyssinia, in the earlier campaigns in Cyrenaica and Libya, in France and in Norway. By the end of 1941 India had in numbers, including administrative troops, the equivalent of fifteen divisions serving overseas—a larger force than any other part of the British Commonwealth, not excluding the United Kingdom—these troops initially being very largely maintained from India.

More important still from the point of view of her own later base development, India sent her railways, track, engines and wagons, mainly meter gauge, and her river craft from the Ganges and the Brahmaputra to operate on the lines of communication of the Middle East.

The North African Western Desert line was partly built from material from the Indian railways, and the Iraq railway system and river line of communication of the Tigris were immensely helped by India. While the war lasted India never caught up again, towards meeting her own needs, on what she sent overseas initially to help the Allied cause in Western theaters.

By the end of 1941 the strength of the Army in India had risen to 900,000 and its base development was rising with it.

Then Japan entered the war, and a new stage of India's base development started. India had to do a complete rightabout turn and reorient her whole system of base development to face east. The strength of the Army rose to 1,675,000 by the end of 1942, and to 2,000,000 in 1943. Add India's own naval and air force expansion, add nearly 300,000 American troops and Chinese, and we get the full scope of the problem: a mixed force of five nationalities, if you can count India as one only, of over 2½ million men to be maintained spread over a continent which had only six or seven ports worthy of the name, which had in all only 1,-

000 more miles of railway track than we have today in the United Kingdom, and on that track mileage (40,000 miles) we had one-third the number of locomotives and one-sixth the number of cars which at that time were in use on the railways of England.

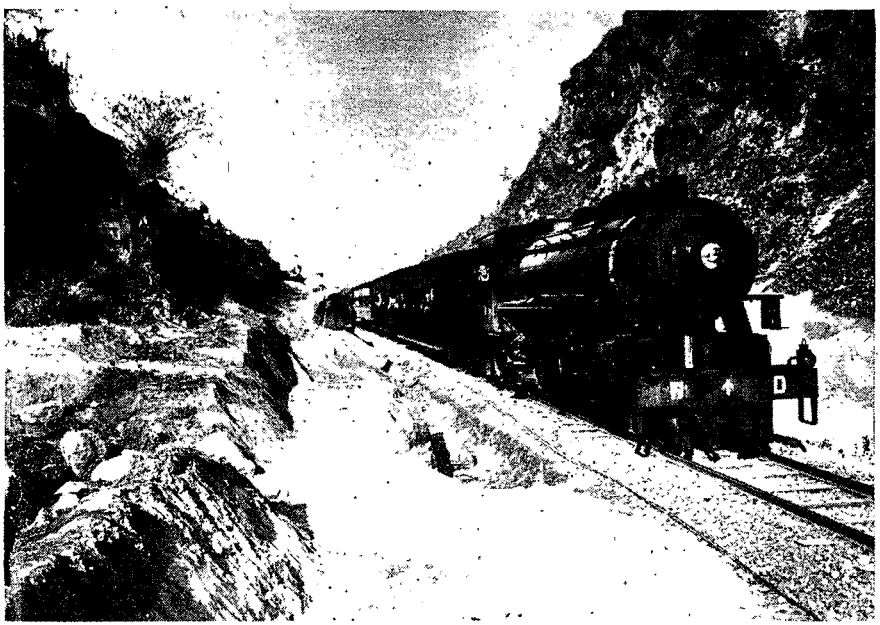
The Economic Background

In order properly to appreciate the problem of the development of India as a base it is essential to get a clear picture of India's over-all economic background.

The population of 400 million has no margin if an appreciable proportion of the output is diverted to meet military requirements. Any big reduction in consumer goods will cause terrific rises in prices, produce famine conditions in material supplies and serious unrest.

So we find the whole problem of the development of the India base dominated throughout by three economic factors; coal, food and transportation facilities.

In peace-time India was a coal exporting country. During the war we were compelled to import coal when we could get it. The railways under war-time use required 30,000 tons a day. Ships' bunkers, steel and the textile industry were heavy consumers. The extent to which we could meet the provision of the parachutes for the maintenance by air of General Slim's troops operating in Burma was governed entirely by our ability to supply enough coal to the textile mills engaged in their manufacture. To help



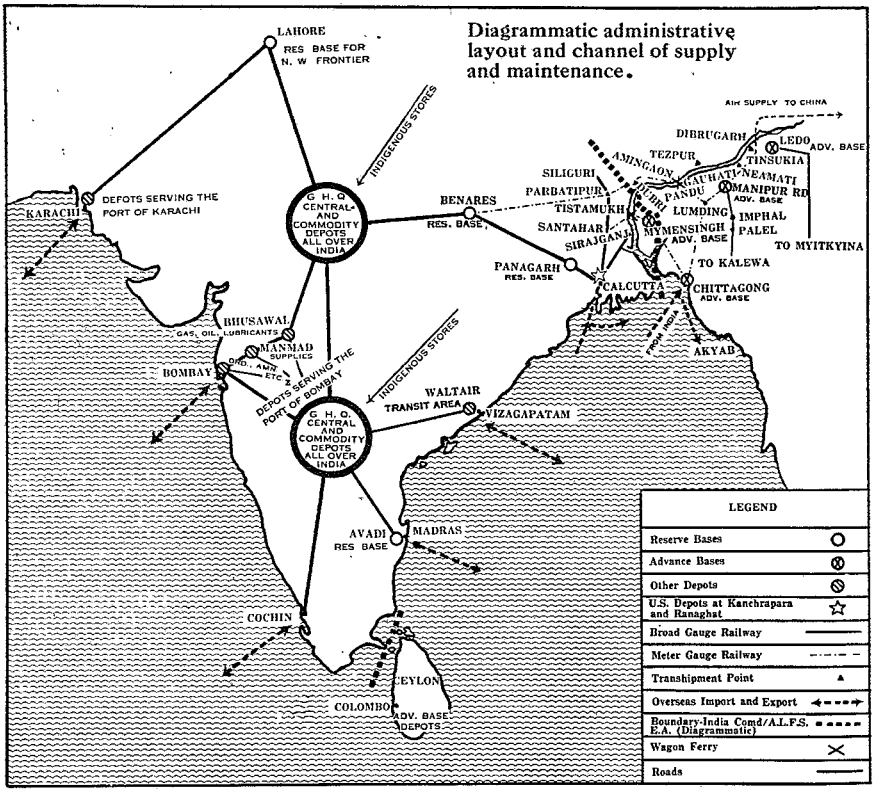
The Bengal and Assam Railway was a vital communications line in India.—Army Signal Corps photo.

meet our coal needs, open cast mining was developed almost entirely as a military enterprise in the last two years of the war to the extent that the open cast mines were producing nearly three million tons of coal annually.

A large part of India's population lives on rice, the remainder mainly on other food grains and little else. India cannot feed herself. The rice came largely from Burma, and when this source of supply ceased, an immense problem in feeding India was immediately produced. The import of food grains into the western ports rose to 100,000 tons a month; this produced serious problems in the ports and was a big additional load on the already strained transportation facilities.

Some of India's industries were of importance far beyond the requirements of the forces based immediately in India. The jute industry, the textile industry and the mica industry are three cases in point. Jute to all intents and purposes comes only from India; it is virtually a raw material monopoly.

Half a million Indian workers are en-



gaged in India's textile industry. The textile workers of the world are only fourteen million all told, so India's contribution was considerable towards meeting Allied war-time needs as well as her own requirements. The annual cloth output of India was 6,500 million yards. Of this, a minimum of 4,800 million had to be reserved for civilian consumption, 900 million yards went towards meeting service requirements, and the balance was exported to those countries who would have had nothing if the Indian quota had been discontinued. The Indian textile industry is in a unique position as regards the supply of tentage. 700,000 workers were employed on this alone.

India is practically the sole world producer of mica, and large quantities were required for the manufacture of electrical equipment. The Army had to help in setting up the necessary training arrangements, and we helped to organize the simultaneous training of 50,000 men for this industry.

General Headquarters, India, was a coordinating and directing force in the whole business. Everything of course depended on transportation facilities to and within India. Whether it was food supplies for the population, railway engines and cars for India's railways, coal for factories or for bunkers, or essential services, the directing voice was that of the Commander in Chief in India.

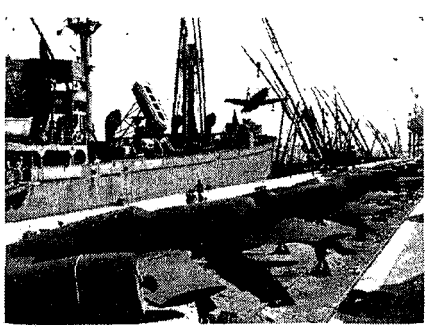
In September 1939, India had eight ordnance factories, including one clothing and one harness and saddlery factory. We expanded these to seventeen ordnance factories, nine clothing factories, two harness and saddlery factories, and two parachute factories.

India's Government factories, reinforced by civilian firms, turned out 3.7-in howitzers, light machine guns, optical instruments, rifles and all types of small arm ammunition, and also 25-pounder and 3.7-in howitzer ammunition. The quantities were not sufficient for India's needs, but they were a very valuable contribution to the over-all demand. India's railway workshops, in addition to the manufacture of rails, engines and rolling stock, produced armored fighting vehicles, hand grenades and shell bodies in large quantities, as well as helping in our vehicle assembly work.

Maintenance

Now I must try to tell more about the purely military problem of the maintenance—from the GHQ, India angle—of the Army in India and the forces of South-East Asia Command.

With the appointment of the Supreme



American fighter planes being unloaded at Karachi.—Army Signal Corps photo.

Commander, SEAC, the Commander in Chief in India ceased to be responsible for the operations of SEAC, but he remained responsible for the defense of India itself and for the provision, maintenance and training in men and material of the forces placed at the disposal of the Supreme Commander, SEAC.

The first major problem then became the development of the Assam Line of Communication by road, river, railway and pipe line. This line of communica-

tion was required first to maintain the Fourteenth Army on the Assam-Burma frontier and in Burma itself, second, to supply the American airfields in Northeast Assam the tonnage for their maintenance and for forward delivery by air over the "Hump" into China, and third, to make possible the building of the Ledo road and pipe line from India to China.

This Ledo road, the greatest military administrative effort ever undertaken in history to achieve so little, may perhaps have been a factor towards keeping China in the war when that distracted country may have been weakening in her determination to continue the struggle. If so, it was probably worthwhile. We shall never know the answer. The achievement was almost entirely American, and a very fine effort it was; but to the extent that capacity on the Assam Line of Communication was diverted to its construction and maintenance, just to that extent did the Fourteenth Army go short of its needs and had its difficulties increased in the maintenance of what was probably the most arduous campaign ever fought by British arms.

Our own two roads driven southwards into Burma to Tamu and Tiddim and beyond, notably the former, fully justified their existence and the labor expended on them, the Tamu road playing a major part throughout the final successful advances into Burma. The Tiddim road—once described as 400 miles of boulders held together by dust—was left behind by the development of operations. In 1943 the capacity of the Assam line of communication was 3,000 tons per day. The task set us by the Chief of Staff was to increase that daily tonnage capacity to 7,400 tons by January 1946. We did increase it to 9,000 tons a day by January 1945. We beat the daily lift ordered by 1,600 tons a day, and the target date by a year. Fifty per cent of the capacity was, however, absorbed by the United States Forces for building the Ledo road and for supply to China.

The Americans helped us enormously in the development and working of the Assam (railway) line of communication. This was a fine bit of cooperation between the American railway troops and the Indian railways, but I must emphasize that it was very much a combined effort and a very successful example of Allied cooperation. The Americans, too, built the mighty pipe line which, starting from Calcutta, eventually delivered oil to Kunming, China, for the maintenance of American Air Forces operating in that theater.

Maintenance Ports

The entry of Japan into the war called for a reorientation of India's main administrative lay-out. Looking ahead, it was Calcutta, Madras and Vizagapatam which would be required as the chief base maintenance ports in place of Karachi, Bombay and Cochin. So behind each of the three—Calcutta, Vizagapatam and Madras—grew up the great depot installations of Panagarh and Avadi, and the transit depot of Waltair, our hospital towns of Jellahali, near Bangalore, and a great organization of workshops, store depots, vehicle assembly installations, oil depots, airfields innumerable, base personnel camps and training establishments, tin and oil drums factories and filling plants, Naval and Air Force establishments as well as Army establishments. Though port capacity alone demanded the use of the western ports equally with the eastern, and we did in fact embark the force destined for the conquest of Malaya mainly through Bombay, we contemplated maintenance and evacuation primarily through Calcutta, Vizagapatam and Madras.

The eastern ports of India were a difficult problem. Calcutta was always con-

gested and limited by the difficult navigational conditions of the Hooghli to ships of relatively small draught, and very easily blocked by accident or by enemy action. Vizagapatam is a small port, and it has a narrow and awkward entrance. Madras is a good port up to its limits, but incapable of expansion and a danger spot in a cyclone.

Bombay is the best port, but on the wrong side of India for our main purpose. Thanks, however, to the military reconstruction carried out after the great fire and explosion of April 1944, it became a much better port than before.

Karachi was unfortunately badly served by railway, which wandered round northwest India for hundreds of miles in order to handle the grain trade of that area. Karachi was, therefore, ill served by railway for our military purposes.

The problems of India's ports were limiting factors at all times in our base lay-out and in the development of our maintenance plan. Similarly the limitations in the railway capacity serving these ports, and the immensely long hauls from base depots and factories in the interior of India, determined in large measure the size and scope of the base installations that we had to build and stock at Panagarh and Avadi. Those two base depots and a smaller port depot serving Vizagapatam were the key to our maintenance system as planned for SEAC's ultimately expected operations in the Malayan area. These depots were supplemented by others in the interior of India and backed by a hospital organization covering all India.

Base development demands engineer works services of considerable magnitude and in India it meant the construction of 275 airfields with over 300 miles of runway; 1,191 miles of oil pipe lines and oil storage for fifty million gallons; hospital accommodation amounting to 150,000 beds; forty-nine million square feet of storage accommodation; personnel accommodation for 900,000 troops and 870,000 prisoners of war; 1,600 miles of roads and docks, camps, training establishments and defenses. The cost of military engineering services in India during six years of war was 260 million pounds, sterling.

The target as set by the Chiefs of Staff varied somewhat from time to time, as conditions in other theaters changed and resources began to become available for India and the Far East. We were providing a base at its maximum for twenty-seven divisions, 118 RAF squadrons plus thirty shore-based Fleet Air Arm squadrons and for varying-sized naval forces, and in addition, for 158 USA Air Force squadrons.

Summary

What did this imply? It meant:

(a) Development of port capacity to receive, handle and re-embark the necessary tonnage of stores and personnel.

(b) Development of the inland transportation system by rail, road and inland waterway to carry a vastly increased load.

(c) Development of the signal communications throughout the continent to carry a new and vastly increased operational as well as administrative load.

(d) Providing living accommodation in a land where little existed for European or American forces.

(e) Providing hospital accommodation for the vastly increased naval, land and air forces in a land where climatic conditions may be expected to give a high sick rate.

(f) Providing facilities for the basic and technical training for upwards of two million soldiers and airmen in India and for the acclimatization and specialized training of Europe and African troops from outside India.

(g) Providing storage accommodation

of immense dimensions in a land where little existed initially, and that little largely in the wrong place.

(h) providing food and canteen and amenity stores in a land that, generally speaking, provided little of the European class of goods of this category.

(i) Providing cold storage and oil storage, pipe lines and container plants for our own forces and aircraft and for supply to China.

(j) Building the airfields for our own and American use.

(k) Providing floating docks and naval repair facilities on a grand scale.

(l) Providing essential services of water, power and light, sewage disposal and laundries. At the same time it was always necessary to maintain sufficient of the civilian needs of the land to prevent famines of food or material and to insure essential labor facilities.

The Chiefs of Staff required of the Commander in Chief in India that the Indian base should be ready to function by June 1945. It was ready.

An Army in Africa

Digested by the MILITARY REVIEW from an article by Brigadier F. A. Clarke in "The Fighting Forces" (Great Britain) December 1947.

THE formation of an African army has been a vision on the part of many British officers who have served in the Royal West African Frontier Force or King's African Rifles. But the idea never met with encouragement at the higher levels.

It is true that we used African troops in the war of 1914-18, and that divisions of African troops fought with considerable distinction in Burma and East Africa in World War II, as well as serving elsewhere. But the formations were largely on a temporary basis, expanded with considerable difficulty with small peacetime establishments to which they are now reverting.

We are at present faced with commitments under the Security Council of the United Nations, as well as others arising from the aftermath of the war. These are additional to the constant responsibility for safe-guarding our world-wide communications, which involves the povision of garrisons and a striking force, or strategic reserve. There is, however, a shortage of manpower for our general needs, and this is one of the main factors which impose a ceiling on the number of men allotted to the Armed Forces. We cannot hope to survive as a first-class power unless our economic situation is improved, and unless we can, at the same time, maintain and equip adequate forces to meet our commitments and support our policy. Policy and strategy go hand in hand, but the politician is apt to ignore the necessity for providing the means.

Our African colonies are a source of manpower, much of it good fighting material. The population of the West African group alone is approximately twenty-six and a half millions, while East Africa has about fourteen millions.

African Potentialities

Though the exports of our colonies have been considerable in the past, tropical Africa still has immense potentialities as a producer of raw materials, particularly metals and edible oils. There is every possibility that the development of our African colonies on a hitherto unprecedented scale to supply world markets, and the consequent increase in the purchasing power of the natives, would go a long way towards a solution of our