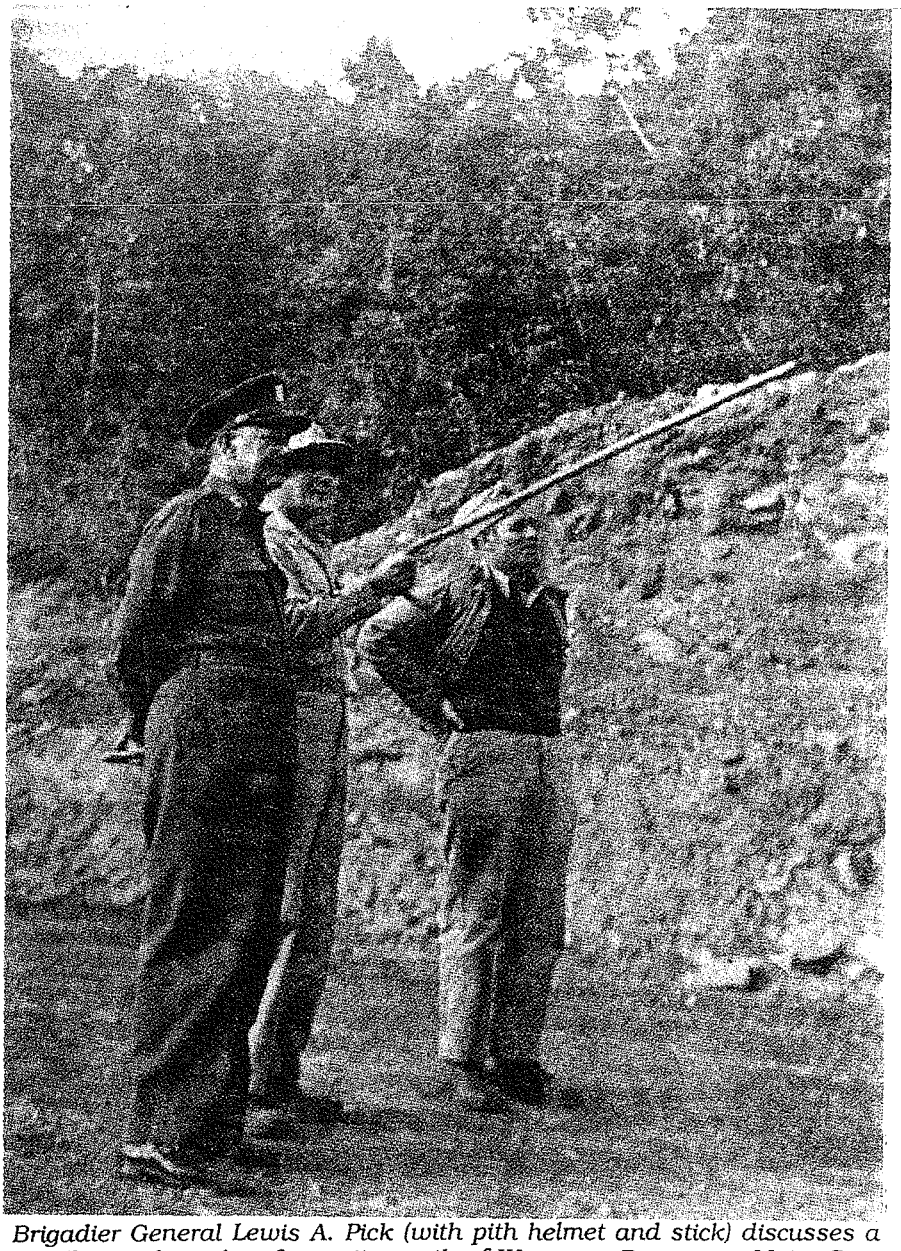
sion-weight pipe made this possible. This pipe weighed half as much as standard pipe. A mile of this pipeline together with pumping stations weighed 13 tons. It could be easily transported and installed in any kind of terrain accessible to trucks. In July 1943, construction of such a 4-inch pipeline from Dibrugarh through to Ft. Hertz and on to Kunming was reported by the Chief of Engineers as being practical. The QUADRANT Conference approved it construction to supply gasoline for Chennault. The Combined Chief of Staff also approved the laying of a second 4-inch line along the Ledo and Burma Roads to supply gasoline to trucks hauling supplies from India to China. Also, they authorized two 6-inch pipelines from Calcutta to Kunming via the Ledo and Burma Roads to supply gasoline for ground operations, and the other to run from Calcutta to Dibrugarh to feed the 4-inch lines. When finished, these 4 and 6-inch lines would form the most extensive pipeline system in the world.

The QUADRANT Conference also took up the matter of guerrilla warfare. British Brig. Orde Wingate came to Quebec to support Churchill's arguments for commando operations behind enemy lines. Wingate felt that the method of harassment that he practiced in a previous campaign would cripple Japanese defenses. He proposed to augment his Chindits, made up of Indians, whites and blacks from West Africa, so they could strike really effective blows. He needed the means to send in his forces by air. Given this mobility and dependable air supply, Wingate was certain that his Chindits could harry the enemy sufficiently to force them out of North Burma. Gen. Marshall then directed the assembling of an American task force of some 3,000 volunteers to serve with the Chindits. General Arnold promised to supply pilots to fly the planes, so he directed Col. Philip Cochran to go to India in the autumn to organize these men into the 5318th Air Unit, which would be a custom-made aggregation of bombers, fighters, transports, gliders, and helicopters. It would be up to the engineers to provide the landing fields for the air commandos behind enemy lines. Wingate would carry on guerrilla warfare in Burma while the Chinese under Stilwell launched their full-scale offensive.

At the Conference, Gen. Arnold announces a project which would have a big impact on the engineers in CBI. The Army Air Forces had almost perfected the B-29, capable of delivering 10 tons of bombs on a target 1,500 miles away, and that the first B-29s would be ready during the coming winter. If bases could be provided in the Changsha area of China, midway between Kunming and Shanghai, the Air Forces would be ready to bomb Japan by October 1944. This appealed to the imagination of President Roosevelt. The number of fields to be built was left rather indefinite and methods of providing logistical support were not clearly formulated. Planning staffs in Washington and CBI would have to work out the details in the next few months. Roosevelt thought that if this plan could be carried out as proposed, it would help Chinese morale and an early end of the war with Japan.

CBI Theater Reorganization

The decisions at Quebec were undertaken at the same time with two basic changes in the command structure in CBI. Hoping to eliminate some of the confused rela-



Brigadier General Lewis A. Pick (with pith helmet and stick) discusses a saddle cut through soft granite south of Warazup, Burma, as Major General William E. R. Covell (left), commander of India-Burma Theater Services of Supply, and Colonel William J. Green, the Road Engineer (right), listen.

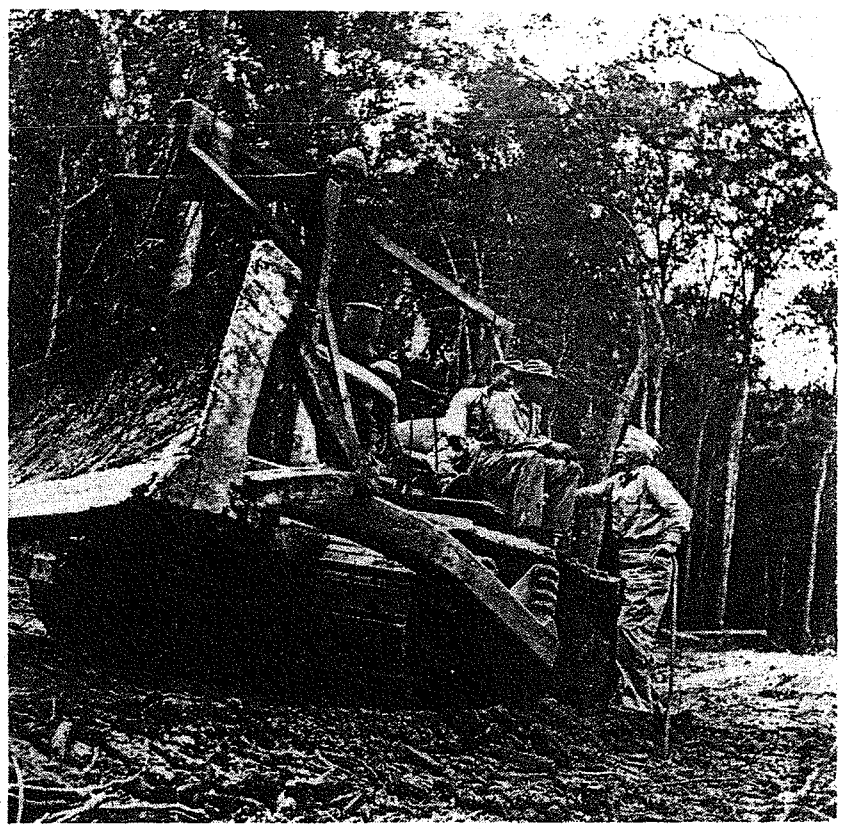
tionships of the existing "loose coalition at Allied headquarters," Roosevelt and Churchill agreed to set up the SE Asia Command (SEAC), with Vice Adm. Lord Louis Mountbatten as commander. (See photo.) He would control Anglo-American operations in Burma. Stilwell's position was not clear. He would be under Mountbatten for operations in Burma, as Mountbatten's deputy, but there was no official confirmation of this assumption. Arnold's chief of staff, Major Gen. George Stratemeyer, was to go to CBI as Stilwell's air advisor, and to command Army Air Forces, in India and Burma, and under him was the 10th Air Force to be commanded by B. Gen. Howard Davidson, after Gen. Bissell's return to the US in mid-August. His headquarters was set up near Calcutta. He soon learned that he would have little control over Chennault. Roosevelt had assured Chiang of that, so Stilwell exempted Chennault from Stratemeyer's operational control. To most observers, command relationships remained as confused as ever, and also the complexities of the engineer organization as great as ever.

The growing emphasis on air power led to the organization of engineer offices in the Air Forces in CBI for the first time. On August 15th, Col. Herman Schull, Jr., organized an Engineer Section in Chennault's 14th AF, headquarters at Kunming. Schull and one assistant were to maintain liaison with the SOS regarding the building or maintenance of five airfields in Yunnan and ten in East China, together with 12 reserve fields in widely scattered areas. A similar development took place in India. On August 20th, Stilwell activated the CBI Air Service Command with headquarters near Calcutta, to succeed the X Air Force Service Command. The new organization was charged with supporting the 10th AF and the 14th AF. Col. Lyle Seeman became the first engineer of the new organization; also he became theater air engineer under Stratemeyer. Seeman, with his small staff, maintained liaison with the SOS on airfield construction in India.

Planning for New Operations

Because of the shortage of planning staffs in CBI, Army Service Forces in Washington assumed the main burden of planning for the projects the Combined Chiefs of Staff had approved. Somervell's chief of staff, Styer, said tha. "these projects bid fair to be the greatest engineering efforts of the war." Somervell set up an Indian committee of various specialists of the technical services to anticipate what CBI needs in the way of men and materials. The principal representatives on this committee from the Chief of Engineers was Col. Louis Horowitz for theater liaison, Col. Thomas Farrell for construction, and Col. Harry Montgomery for supply. They worked at top speed to get what was necessary in the CBI. Somervell was determined to get 18 engineer construction battalions for the Ledo Road; as of September 1943 only six were in the CBI; he wanted the 18 on the road by the following January. The Corps of Engineers expanded the Petroleum Section of the Engineer Unit Training Center at Camp Claiborne, LA, nine petroleum distribution companies were to be trained and readied for shipment to India by early 1944. Gen. Godfrey, the Army Air Forces engineer urged Gen. Arnold send to the CBI a headquarters of an aviation regiment and four aviation battalions to work on the B-29 fields. Godfrey was especially interested in Wingate's plans for the air commandos. He was instrumental in getting airborne engineers assigned to the air commandos. For pipeline construction, the Army Service Forces had already assembled the materials; they had been intended for the now abandoned LOC from Rangoon to Kunming. All the pipe for the 4-inch line was enroute to CBI by late August; also nearly a fourth of the 6-inch line. Of the 55,715 tons of road construction equipment requested by Wheeler during 1942 and 1943, all was either enroute or being procured by September 1. Since additional pumping stations and pipe would be needed the Corps of Engineers undertook procurement during September and October.

It soon became evident that the B-29 program would have to be curtailed. The problem was logistics. Having the fields at Changsha ready would mean developing an LOC from Calcutta to Kunming of the magnitude and speed not contemplated by the Combined Chiefs of Staff. The supply effort required would be Herculean. As modified by Stilwell and Stratemeyer in October and November, the Matter-



Major General Lewis A. Pick, director of the Ledo-Burma Road project chats with a bulldozer crew. Workers dubbed the road "Pick's Pike."

horn project called for the construction of five air bases west of Calcutta and four staging fields near the city of Cheng-tu. Northwest of Chungking. This reduced effort would move up the bomber offensive to the spring of 1944. But mass bombings would have to be given up in favor of careful selection of strategic targets, such as Japanese steel mills and aircraft factories.

The engineers had to make still greater efforts to meet the goals set by the QUADRANT Conference. Work on old projects had to be speeded up and new ones begun. Whether much more could be done until more troops arrived was doubtful. But, by the fall of 1943, there was a noticeable quickening of engineer work in CBI.

Airfields in China and India

In East China, Byroade continued to supervise construction of the fields near Kweilin and to improve several more in that area. Again was the problem to "squeeze," uncertified contractors were permitted to start work on some fields; soon organized gangs interfered, carrying out acts of violence against such contractors and their workers, with no interference by local authorities. Additional contractors were subsequently used after they indicated they were willing to share profits with local officials. Despite such hindrances, progress was made. During autumn, Byroade presented Chennault with five improved fields near Kweilin and seven more 200 miles further east and southeast. By this time the SOS engineers were responsible for maintaining 27 fields for Chennault.

The fields in Assam, where much work had to be done to make possible more supplies for Chennault, also showed progress. The British wanted to withdraw their military engineers to support British forces in Southern Burma. Stilwell and Wheeler were able to convince the British early in October that a wholesale withdrawal would be uneconomical, so the British agreed to leave their engineers on the most important of the remaining uncompleted fields. Later that year, the ATC had available 10 fields along the upper Brahmaputra.

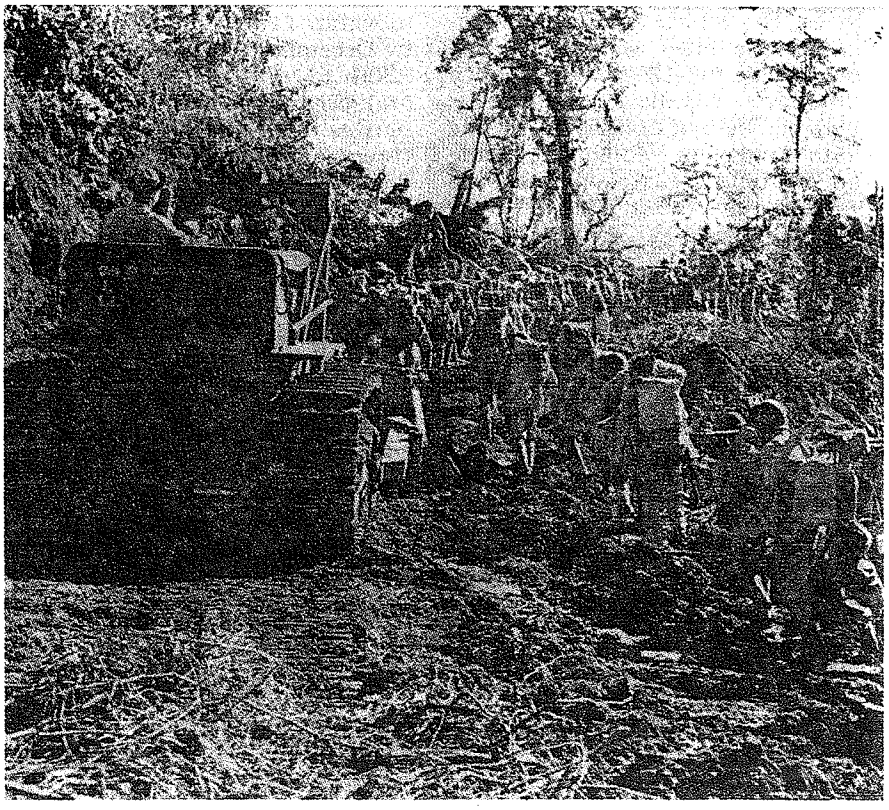
With more fields in India and China to give him support, Chennault did better. Deliveries over the Hump increased, and two additional fighter squadrons arrived. After a failure of his trial offensive in August and September, Chennault began to take offensive. In the last quarter of 1943, his flyers carried out highly successful flights against Japanese shipping on the Yangtze and off the China coast.

The Ledo Road

Meanwhile the engineers on the Ledo Road expanded operations. Supervision on the road now rested largely on Col. Robert York, road engineer, since May 21st. The 45th Engineers returned from their rest camp and the tapering off of the monsoons gave York a chance to push road construction. With the 330th Engineers breaking the trail and doing advance grading and the 45th Engineers doing the final grading and graveling, the road inched southward, despite 23 inches of rain during the rest of the month. By 15 October, the lead bulldozer advanced nearly seven miles, to beyond Mile 60. By this time there were on the road two general service regiments,. three aviation battalions, and one engineer maintenance company (about 5,250 engineers in all).

On October 17th, Col. Lewis Pick, Missouri River Division Engineer, took over Base Section 3 (see photo). Upon arrival he told his staff, "I've heard the same story all the way from the States. It's always the same – the Ledo Road can't be built. Too much mud, too much rain, too much malaria. From now on we're forgetting this defeatist spirit. The Ledo Road is going to be built – mud, rain, and malaria be damned." 'He set up his command tent near the roadhead. He restarted the around-the-clock schedule that Arrowsmith abandoned five months before the rains. Obstacles be damned, he sought to provide night lighting, by stripping the base of all lighting supplies that could be spared. He told his troops that if necessary to put flares in buckets of oil. Work would have to go on without interruption.

Pick believed that one of his first jobs was to relieve the forward elements on the road. The day before his arrival, Co. D, of the 330th Engineers, was withdrawn. They had spearheaded the advance since early July, and had been reduced to a handful by malaria and dysentery. On November 1st, Pick lauded the unit for displaying a

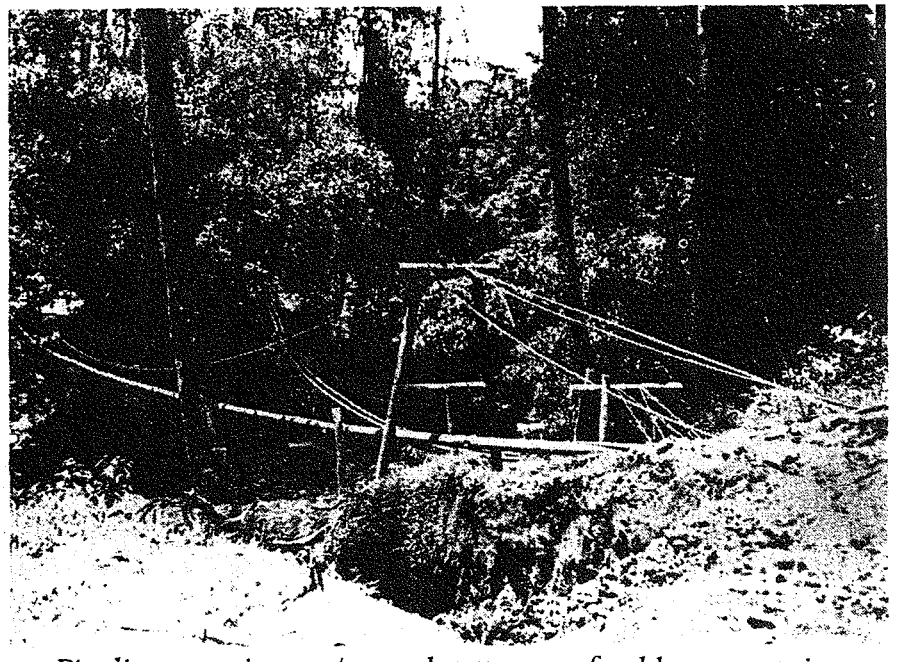


Chinese Infantry trained by General Stilwell passes the 330th Engineer General Service Regiment's "roadhead" just north of Tagap Ga in the autumn of 1943.

fortitude "comparable to that cited for combatant troops." Shortly afterward, he began pulling back the rest of the 2nd Battalion for road maintenance and improvement south of Pangsau Pass. By November 14th, he moved up the 1st Battalion of the 330th to take the lead; that brought the roadhead to Mile 63. The advance was about to begin in earnest.

Early in November, Stilwell visited road headquarters. He impressed on Pick the urgent importance of having a jeep trail open to Shingbwiyang by January 1st. Pick: "I can't build you a jeep road, but I'll build you a military road to handle truck traffic." Stilwell took him up on it. In mid-November, the 330th and the Chinese 10th Engineers at Mile 63 began the 54-mile "race to Shingbwiyang," by breaking a path through the jungle. To the rear, the 45th Engineers were joined by newly arrived units. The 849th and the 1883rd Aviation Battalions helped with the final grading and graveling from Pangsau Pass southward. The 209th Combat Engineer Battalion, operated a sawmill, did maintenance at the pass, and a little farther south built a 157-foot-long girder bridge over the Nawngyand River. The 823rd Engineers maintained the older sections of the road, while the 479th Maintenance Company repaired equipment. With the help of Company C of the 45th Engineers, which had made an overland trek to open an advanced roadhead at Mile 70 early in October, the 330th had pushed its lead bulldozer 22 miles beyond that point by the close of November.

Under Lt. Col. William Green, who became road engineer on December 3rd, progress was rapid. With clear weather, the 330th Engineers gradually improved their performance until they attained early in December an average of a mile a day. The units in the rear kept pace. Specifications called for a minimum of 27-foot shoulder to shoulder, with a 20-foot roadway, maximum grades of 10%, and a minimum curve radius of 50 feet. Accounting for this rapid progress included around-the-clock operations, new equipment and Pick's insistence on constant supervision by all commanders and on giving junior officers an "in" on the planning. The ingenuity of maintenance crews made up somewhat for the scarcity of spare parts. Nevertheless, that was not equal to the task of preventing the continual deterioration of heavy equipment, too long in constant use. At any rate, by making best of the existing equipment and by using men of the recently arrived 1905th Engineer Aviation Bn., to create new roadheads, Green pushed the road to within 11 miles of Shingbwiyang by December 23rd. Green split the 330th to put in advance railheads and organized two more grading parties. On the 27th, they were three miles north of town. Pick flashed the word to New Delhi that the 117 mile road from Ledo to Shingbwiyang was open. He then rode into town at the head of a convoy of jeeps and trucks. He had beaten his target date of January 1, 1944, by five days. Finished grading and graveling remained to be done, but the road which Stilwell wanted was open.



Pipeline crossing a stream by means of cable suspension.

Soon after his arrival in CBI, Pick started work on that part of the pipeline for which he was responsible. Wheeler told him that Stilwell was no longer interested in a line over the mountains via Ft. Hertz. Earlier the Chief of Engineers advised against using the light, invasion-weight pipe in the high elevations; so Stilwell went back to the original plan to put the pipeline along the road. Materials could be moved there faster and construction made easier. Pick had a good supply of 4-inch pipe but the troops to build the line were not to arrive until January. So, he decided to use the 330th Engineers and the recently arrived 209th Combat Bn. and the 382nd Construction Bn. On October 27th, he put the men to work on the pipeline from the refinery at Digboi, toward Ledo, 14 miles from the south. Early in November, Col. Kenneth MacIsaac, recently arrived, with a staff of four petroleum engineers took charge of the project. Almost totally inexperienced in pipelines, the troops caught on quickly. The line was soon complete to Ledo and was being extended down the road, at the rate of 1.2 miles a day. When they reached the mountains, they slowed down to about half that rate. by the last week in December, they almost caught up with the graveling details on the road at Mile 60. Thereafter, MacIsaac slowed his pace so as to not hamper road construction.

Stilwell's campaign in North Burma got off to a premature start on October 16th. The plan called for the Chinese to advance from Shingbwiyang to the Tarung River. From the Tarung, they were to drive southward on December 1st toward Myitkyina, some 140 miles away. That was the main operational base of the Japanese in North Burma, and was the route planned for the Ledo Road, a key rail terminus. It was also an important airfield. Operations, however, did not develop as planned. On October 30th, the Chinese ran into unexpectedly strong Japanese forces near Tarung. The engineers

feared a counterattack on their advanced roadhead. The 330th Engineers complained that they had only piecemeal information of the location of the front, because there was a lack of liaison with the ground forces. On the 30th of December, the Chinese scored a victory over the enemy at Yuphang Ga., that relieved the threat to the engineers.

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(Extracted from History of the Corps of Engineers, by Joe Shupe. Part IV will appear in a future edition of the SOUND-OFF.)

– LETTERS –

Bombay Explosion

To the Editor:

I always enjoy SOUND-OFF. There are always very interesting stories. I never fail to read Hugo Schramm's stories in Ships Column. I'm just an old Navy guy.

I find one error in the Summer 1999 issue under "Fire Down Below." It states the Bombay explosion was April 13, 1944. Can't be – I was there! I believe this occurred back in 1941 or '42 before I arrived there. I heard a lot about it, I heard a lot about it, about 10,000 were killed.

Sincerely,
Derek C. Freer,
APDO Postal 279,
Colima CP 28000
Colima, Mexico
(Member and Past Cmdr of
Florida Panhandle Basha)

(Derek: By coincidence we have an article and photos of said explosion in this issue. Check date on newspaper article. – Ed.)

Book

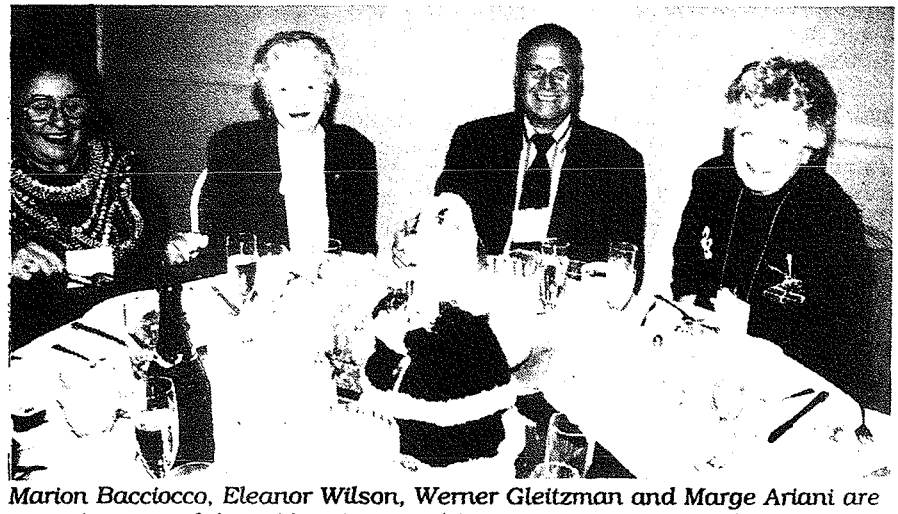
Pictorial History of the 7th Bombardment Group/Wing – 1918-1995

This 8 1/2 by 11 inch hardbound book contains approximately 1,580 pictures (including 18 maps) with captions on 316 pages). The price of each book is $50.00 plus $5.00 for shipping and handling. Submit orders (with check or money order) to: 7th Bombardment Group (H) Historical Foundation, P.O. Box 4851, Riverside, CA 92514-4851.

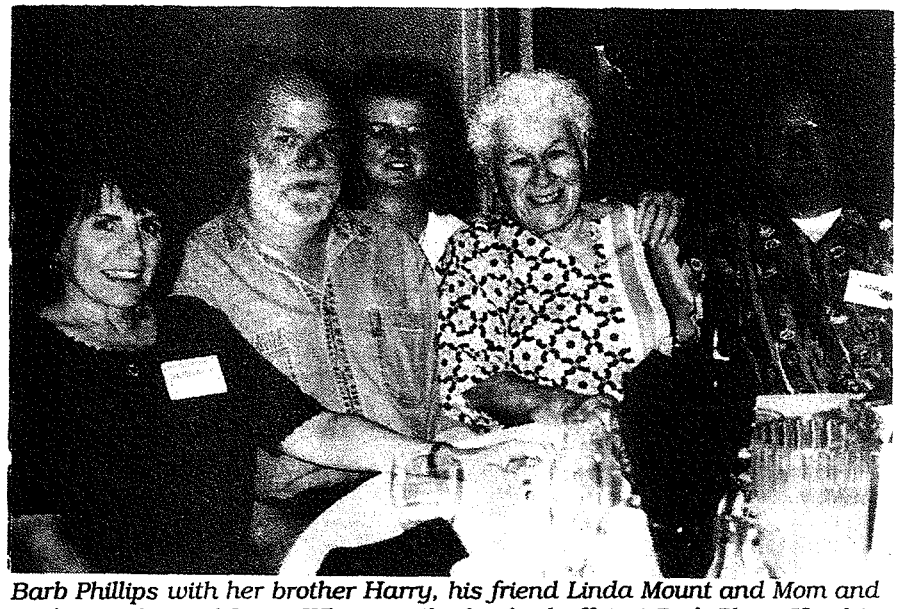
What do prisoners use to call each other: *Cell phones.*

June Ingle provided accompaniment for several rounds of Jingle Bells at the Gen. Sliney holiday party. June also directed the Hand Bell Choir at the Dec. 12th function.
Lescher Dowling Photo

Rocco and Doris Pernetti. Rocco ducked out Opening Day of Duck Season to attend CA State Reunion in Fresno. *Syd Wilson photo*



Marion Bacciocco, Eleanor Wilson, Werner Gleitzman and Marge Ariani are seated at one of the tables decorated by Marge for the annual Gen. Sliney holiday party. Eleanor will report back to husband Syd Wilson, perennial basha communications officer who missed the party due to a brief holiday stay. *Dorothy Dowling Photo*



Barb Phillips with her brother Harry, his friend Linda Mount and Mom and Dad, Dorothy and Larry White, at the basha buffet at Park Plaza Hotel in Burlingame. *Photo by Syd Wilson*

Corps of Engineers in the CBI
Late 1943 to Early 1944
Part IV
THE BURMA ROAD

By Lt. Col. Joseph B. Shupe (AUS-Ret.)

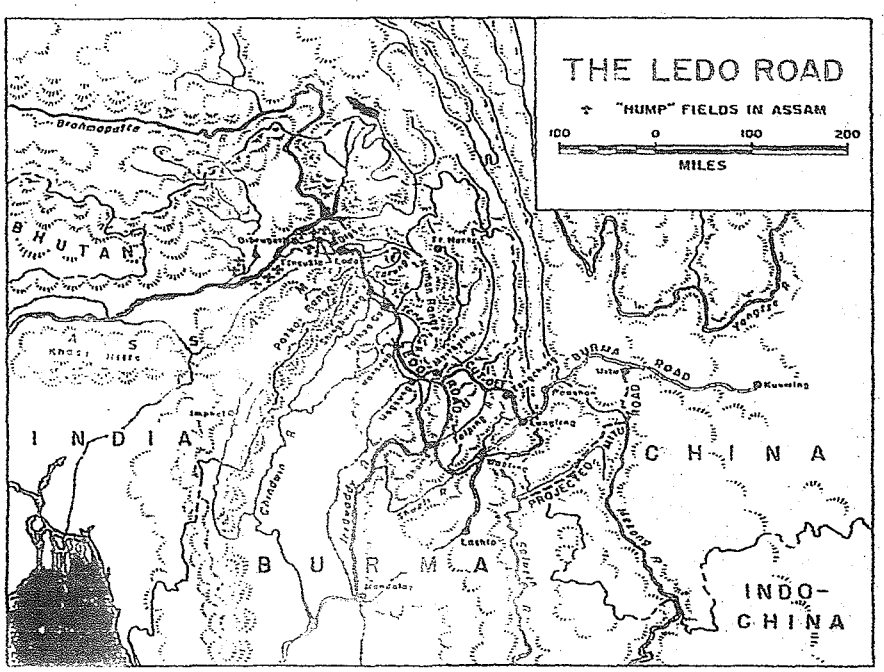
Prospects in late 1943 for opening a line of communication in Assam and Burma appeared brighter, but not so in China. The engineer in charge there (Col. Dawson) could report but slight progress; funds were exhausted. West of the Mekong River, the Chinese did some work on bridges, but fear that the Japanese would cross the Salween River, prevented them from resurfacing the road there. In December, Stilwell tried to get the necessary money but was unsuccessful.

Dawson said that the Burma Road was still essentially a one track road; nor could he report any progress on the Mitu Road. Having appropriated 168,000,000 Chinese dollars in September for construction of the first 300 kilometers, the Chinese organized a makeshift Mitu Road Authority. The Chinese ignored the better Yunnan-Burma Railroad roadbed; they instead opted for a supply trail, which followed some stream beds, which made the road unsuitable during monsoons. Then, in February 1944, the Chinese ran out of money, so our hopes for the Mitu Road was not realized.

Supplies

During the latter months of 1943, Engineer supply was a problem. In October 1943, Gen. Somervell from Washington visited and was convinced that his office would have to provide more supplies if Stilwell's supply line was to be completed before the monsoons. The most common problem was that the D-4 tractors and the 1/2-yard shovels were too small for the job. So, the general wired his office in Washington to ship to the CBI by January 1944, a large number of heavy construction items (including 100 D-7 tractors, 40 shovels, 70 scrapers, 75 graders, and 110 rock crushers). Somervell also noted that the CBI needed electrical and water distribution systems and builders hardware; he directed his subordinates to begin shipment by January 1944 of such materials.

Gen. Wheeler complained to Somervell that engineer units were not reaching the CBI in time. He particularly cited pipeline companies; so Somervell agreed to expand that number from 10 to 17; three of these companies were needed at once, but none would arrive in CBI before January 1944. Somervell radioed his headquarters in Washington to get the necessary units trained and shipped pronto.



Problems of Organization

Latter part of 1943 saw many changes in assignments of key officers. Wheeler became the chief administrative and supply officer in SEAC, under Adm. Mountbatten. Mountbatten's engineer-in-chief was British Maj. Gen. Desmond Harrison, his deputy was Col. Walter K. Wilson, Jr., recent to the CBI, along with Maj. Gen. Albert C. Wedemeyer, as Mountbatten's deputy chief of staff. To replace Wheeler, Stilwell accepted Somervell's choice of Brig. Gen. William E. R. Covell, as his engineer officer. Col. Farrell, another new arrival, became the Engineer, SOS, to replace Col. Strong. Gen. Godfrey was earmarked to be Stratemeyer's engineer, with Col. Seeman as his deputy. Between mid-November and mid-December, about 50 new engineer officers arrived.

At this time, Chennault and Stratemeyer were trying to take airfield construction away from the SOS. Chennault complained that if the present system was working well, it might be best to let it ride, but on October 9, 1943, complained that SOS engineers, in many instances, were unprepared to do the work the Air Forces wanted. Stratemeyer, hoping to control construction of B-29 fields, had placed his aviation engineers on alert for this job. Wheeler objected to formation of two competing engineer services. The SOS was already short of engineers and things would be worse if the few available had to be shared. General Covell supported Wheelers views. He felt that it would be better to expand an existing organization. After weighing the arguments, Stilwell on November 19th transferred responsibilities for building airfields in China and Burma to the Air Forces. He approved enlarging the 14th AF Engineer Section and sending an Air Force Engineer Headquarters Company to China under Chennault. But, he kept SOS in charge of airfield construction in India.

Farrell, the SOS Engineer, set up a field organization, similar to what the Corps of Engineers had

in the United States; that is, one made up of divisions and districts. Division 1, under Col. Philip F. Kromer, consisted of Central and East India (except Assam); within this Division, District 10, headed by Lt. Col. Kenneth E. Madsen, was in charge of work on the B-29 fields west of Calcutta. District 12, placed under Col. Wm. C. Kinsolving, a petroleum engineer, had the task of laying the two 6" pipelines from Calcutta to Assam. District 11 had all the remaining projects, mainly around Calcutta. Outside the divisional area and reporting directly to Col. Farrell was District 9, for construction in the New Delhi area. Pick was in charge of Division 2 – most of Assam and part of Burma. He had two districts – District 20 – construction and maintenance at the Hump airfields; District 22 – pipeline along the Ledo Road. Pick remained in command of Base Section 2 which included the Ledo Road.

In view of the transfer or airfield construction in China from the SOS to the Air Forces, Covell and Stratemeyer; engineer personnel there were reassigned. Those on airfield work in Advance Sections 3 and 4, were transferred to the 5308 Air Service Command, with headquarters at Kunming. Col. Byroade went from Advance Section 4 to the area command, which in early 1944 had three districts. The first had charge of work on the eight airfields near Kunming, the second was to build the B-29 fields, and the third was to build more fields for Chennault in eastern China.

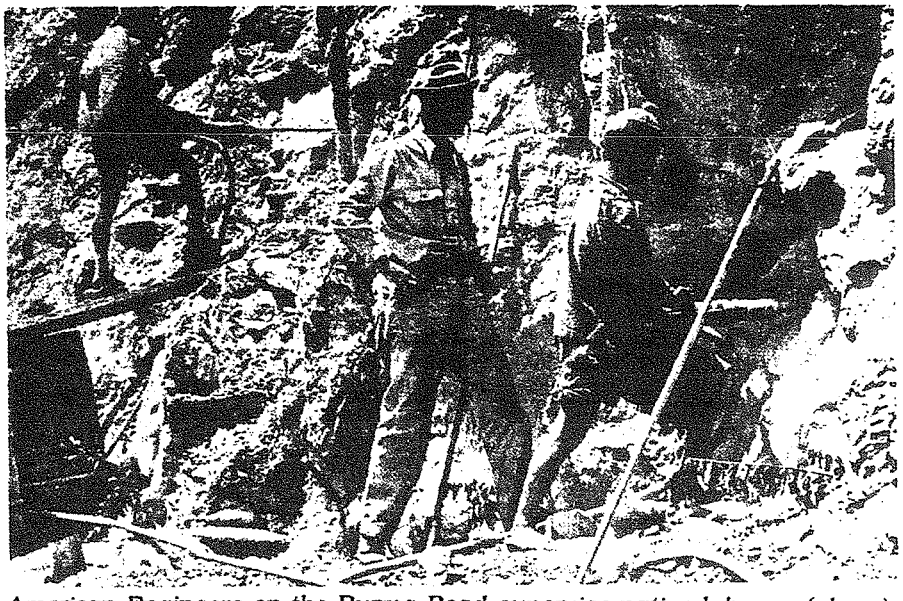
The B-29 Fields

Work on these fields began late in 1943. The amount of construction required was considerable, for the size and weight of the B-29 was unprecedented. A wing span of 141 feet vs 104 feet of the B-17; its gross weight about 70 tons, vs about 35 for the B-17. It required a runway of 8,500 feet long and 200 feet wide; vs 6,000 by 150 feet for the B-17.

In India, the engineers set out to provide the runways for the B-29s by enlarging and improving five existing fields west of Calcutta. To get it started required the help from the engineers on Mountbatten's staff. In mid-December, Stratemeyer's engineers turned over to Covell preliminary plans. Co. A, 653rd Topographic Bn., began to survey the fields. To get the runways operational at an early date, the SOS engineers persuaded the Air Force to accept, for the time being, runways 7,500 by 150 feet. Since the aviation engineers who were to build fields would not reach India until February, the British agreed to provide local contractors to begin work. In December, District 10 borrowed 170 equipment operators from various engineer units, together with 300 trucks; also the District provided each field with a project engineer to serve as liaison with the Royal Engineers supervisor. In January, Pick released the 382nd Construction Bn., temporarily, to rush work on the field at Kharagpur.

By late 1943, work on the B-29 fields in China were also underway. Byroade had begun planning during the last week in November. He reconnoitered the plains around Chengtu, 150 miles northwest of Chungking. A number of fields already existed there, where the runways could be easily lengthened. After studying his report of December 8th, Chinese and American commanders worked out an agreement for construction.

B-29s would be based at four sites – Pengshan, Kiunglai, Kwanghan, and Ksinching (see map). There were to be seven fighter fields. The Chinese Military Engineering Commission would



American Engineers on the Burma Road supervise native laborers (above) and operate heavy maintenance equipment (below).

control construction; American engineers would do the staff work. LCol. Waldo I. Kenerson, head of District 2, was responsible for drafting specifications, making inspections, and paying for hundreds of thousands of peasants who would be conscripted for the work.

Since the runways would have to be built mainly by hand, and probably could not be brought up to required standards, the full length of 8,500 feet was authorized to make them safer. Particularly irritating to our engineers was the radical departure from existing financial arrangements whereby the Chinese had paid for building the operational facilities, and we had supplied quarters, recreational facilities, and other non-operational facilities. Pres. Roosevelt had promised Chiang reimbursement for all labor and materials for the B-29 (MATTERHORN) project. The Chinese came up with an estimate of 2-3 billion Chinese dollars. "Appalling," wrote Stilwell on December 18th, suspecting that "squeeze" accounted for much of this, which amounted to $100-150,000 US.

By early 1944, the engineers were making progress for the impending Allied offensives. Of a total of U.S. Army strength in Stilwell's command of 100,000, 11,000 were engineers. Five thousand more were due to arrive within the next few months. The engineers were building or maintaining some 45 airfields in India and 25 in China. Nearly 90% of the troops were working on the Ledo Road and the pipelines in Base Section 3. There were now about 80,000 tons of supplies and equipment in the hands of the engineers troops in CBI, almost all in Base Section 3. Most of it in poor condition. Nearly half of the machinery in Pick's command was deadlined (lack of spare parts). Local sources of supply, almost depleted because of India's low level of industrialization and the difficulty of imports from the West. So, the engineers were becoming increasingly dependent on the US for men and materials.

The All Out Effort Continues

There was no slackening of the pace in the first months of 1944. With the Japanese in North Burma, work on the Ledo Road was of great importance. The engineers in West China kept after the Chinese to reconstruct the Burma Road, and to supply the Y-Force's coming advance. At the same time, engineer commanders with their growing resources, were pushing the pipelines northward from Calcutta to Assam, and from there southeast to Burma. To help prepare the great surprise which the B-29s had in store for the Japanese, the engineers had the big job of completing the bases in India and China. In addition, the demands of the struggle of North Burma were to involve the engineers in combat for the first time.

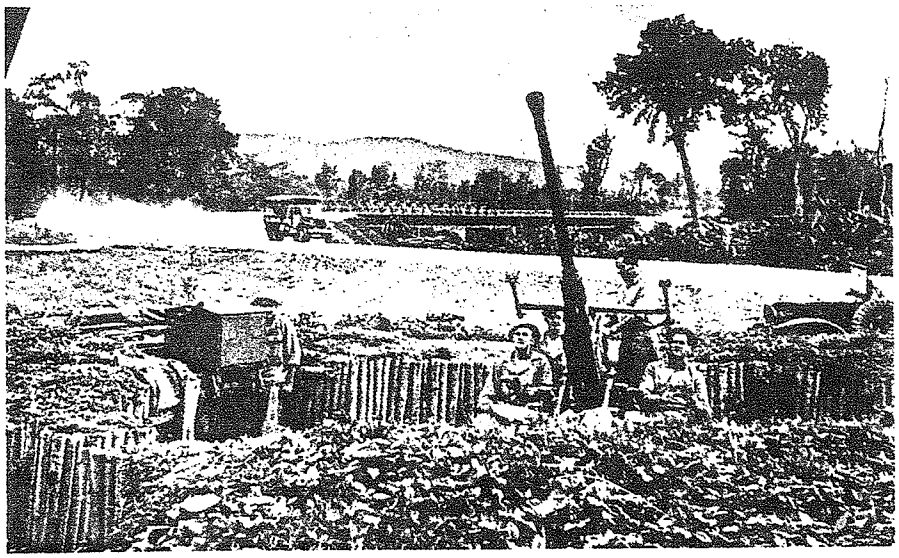
Combat Support

After the Chinese set back the Japanese at Yupband Ga (last week of December), Stilwell made plans to push them back southward. The Tarung River flowed southward into the Tanai River in the Hukawng Valley about 18 miles southwest of Shingbwiyang. An oxcart trail led from Shingbwiyang eastward across the Tarung and then south across the Tanai to Mogaung (30 miles southwest of Myitkyina) the main supply route for the Japanese. Stilwell wanted to envelope the enemy believed to be along the east bank of the Tanai east of the Tarung. This was an effort to destroy the Japanese. After that, the march on Myitkyina would be virtually unopposed.

While the Chinese were preparing, Stilwell detached two companies of the 330th Engineers to clear trails through the 10 miles of jungle between Shingbwiyang and the Tarung to help the infantrymen. This area was so near the enemy patrols from both the 330th and the Chinese units had to be kept on both flanks. On 6 January, a route to the Tarung was open to jeeps. The engineers then graded and widened a 12 mile long dry weather road leading east to Shingbwiyang to be used as a supply line for the Chinese.

On January 13th, the Chinese crossed the Tarung and met the enemy. An envelopment of the Japanese flank failed, but elsewhere the Chinese made progress. During the 1st week of February, they reached Taihpa Ga where the oxcart trail crossed the Tanai, four miles east of the Tarung. The stubborn Japanese resistance halted progress on the Ledo Road. Pick had to keep almost all of his men north of Shingbwiyang where they were grading and widening the road already put in.

Stilwell planned that as soon as Taihpa Ga was captured, he would send Col. Rothwell H. Brown's Chinese tank group down the oxcart trail toward Mogaung. He directed Pick to improve and hold open this trail. This required a diversion of Pick's engineers from the Ledo Road. This trail was below the flood levels of the Hukawng Valley, and had been rejected as a possible route for the road. Much work was needed to make it passable for military vehicles. Pick put a strong engineer force to work on improving the trail and bridging the rivers. He used the 1st Bn, 330th Engineers on this job, along with the 76th Light Ponton Co., and Co. A of the 1883rd Aviation Engineers. Early in February a detail from the 330th built a dry weather transport strip at Taihpa Ga, despite frequent Japanese



American soldiers, protecting the Ledo Road construction crew, man a 40mm Bofors antiaircraft gun.

shelling. In the last half of the month, the 76th put a 470-foot pneumatic ponton bridge across the Tarung.

During March Pick, now a brigadier general, had to lend a number of engineers to the infantry to support a forward movement. Earlier in February, at Taihpa Ga, the 71st and 77th Light Ponton Companies built a 470-foot ponton bridge across the Tanai so the Chinese forces could move down the trail.

Ten bulldozers from the 330th Gen. Service Regiment volunteered to support this operation, on 13th March, at a point 13 miles southeast of Taihpa Ga. The engineers mission was to cut a trail through the jungle to the southeast and help get the tanks across numerous streams so they could make a surprise attack on the enemy at Walawbum, 22 miles southeast of Taihpa Ga. Three of the engineers were wounded the first night. Three were later awarded the Silver Star and the entire group was commended, as Stilwell put it, "for resolute conduct under very difficult terrain conditions and while frequently in contact with enemy opposition."

As infantry and tanks closed in on Walawbum from the northwest, a new threat to the Japanese appeared from the east. American infantrymen originally scheduled to serve under Wingate were, upon arrival in CBI, diverted to Stilwell to be used as a hit-and-run force. Merrill, now a brigadier general, was in command, of a force dubbed by correspondents as "Merrill's Marauders." On their first mission, the Marauders suddenly appeared at Walawbum on March 3rd and threatened the Japanese there with entrapment. The enemy then retreated to the south.

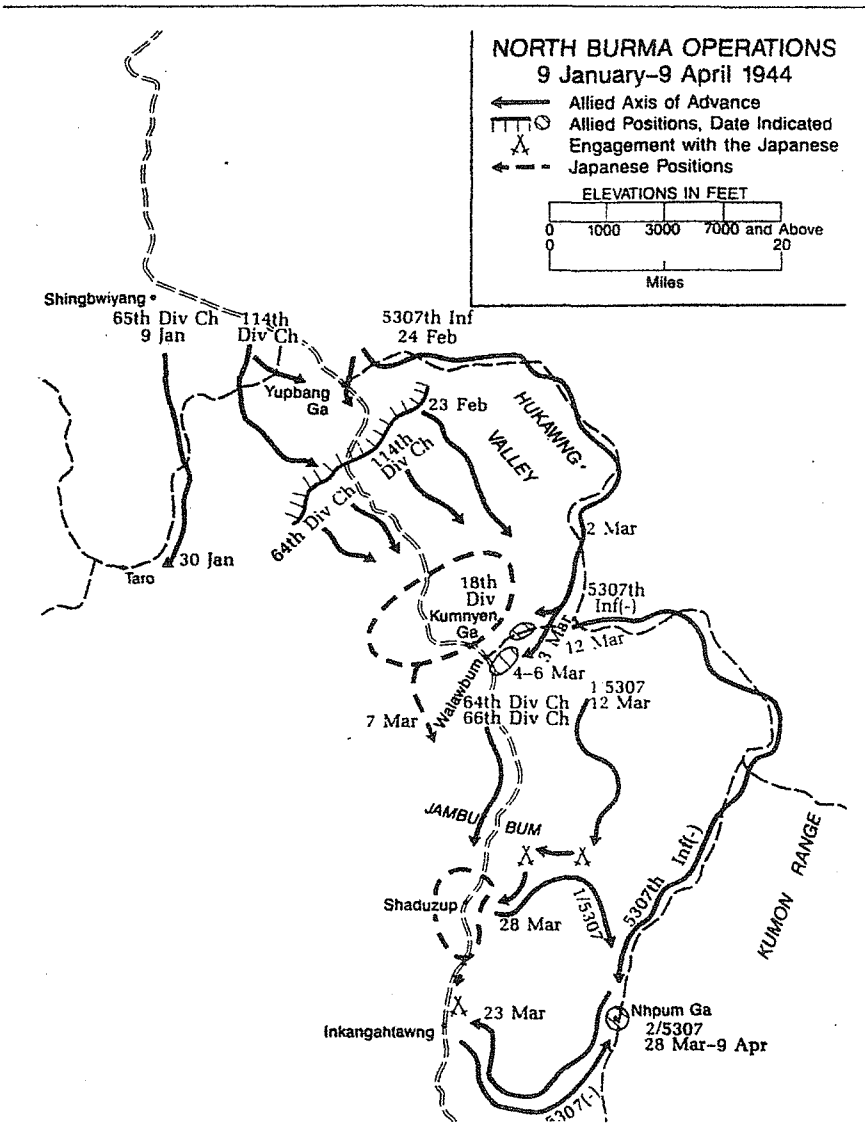
Early in March, Wingate began his airborne offensive. He had assembled Col. Cochran's Air Commandos, four brigades of Chindits, and the 900th Engineer Aviation Co., at two airfields, 300 miles northeast of Calcutta. The engineers were to prepare strips in the jungle for the Chindits to land on. Engineers in other theaters had already carried out airborne missions; this one would be the first mission in which they would travel to their destinations in gliders.

A reconnaissance of airmen over Burmese forests had come upon two fairly level clearings near the western bank of the Irrawaddy, 80 miles south of Myitkyina. Engineers flown in with the first infantrymen were to prepare the clearings for the large number of planes to come in later. Aerial photos taken before take-off showed logs on one of the clearings, so all the gliders would have to be flown to the other clearing despite the congestion likely to ensue.

Evening of March 5th, men, planes and gliders were ready to take-off to destination 250 miles deep in enemy-held territory. Accompanying the infantry were Capt. Patrick J. Casey, commander of the 900th engineers, with 13 of his men. They had four bulldozers, two scrapers, a grader, a jeep, and hand tools. The bulldozers were loaded with blades attached, onto the gliders. The air fleet took off, the planes towing the gliders in tandem. Crossing the 7,000-foot high mountains of the Indo-Burmese border, the fleet soon approached the clearing.

The heavily-loaded gliders came down at high speed. Some of the first one's ran into unforeseen difficulties. The field was crisscrossed with ruts, which, overgrown with grass, had been invisible from aerial photos. The ruts tore off the landing gear of some of the craft and caused a number of crashes; several pile-ups resulted, and some rammed into nearby trees. The glider with Captain Casey and one of his men came in too high; the pilot lost control; it plunged into a tree and all occupants were killed. About five percent of the landing force was lost. A bulldozer and a scraper were wrecked.

The first infantrymen to land dispersed to guard against possible enemy infiltration. The engineers



began to prepare the landing strip. Some of the infantry, using hand tools, filled in ruts and cut grass. The next night about 70 C-47s safely brought in troops and supplies on a runway already provided with lights, radios, and radar. That same night another group of the 900th was flown to a glade 50 miles further south, without mishap. Using their bulldozers, the engineers cleared the area sufficiently to enable transports to land without serious damage. Chindits, flown to those two fields, then set out to dynamite the Burma Railway.

Harassed from the front and rear, the enemy in the Hukawng Valley withdrew southward hoping to make a stand on a ridge at the southern end of the valley. On March 19th, the Chinese upset these plans by seizing the ridge. They then pushed on, while the Marauders repeatedly hit at the enemy's rear and flanks. In late March, with his forces only 75 miles from Myitkyina, Stilwell planned a bold strike to seize the city with its important airstrip before the monsoons. The Chinese were to continue their advance to fool the enemy that Magaung, not Myitkyina, was their goal. While the Japanese moved troops from Myitkyina to defend Mogaung, two Chinese regiments and the Marauders would slip over the Kumon Range and descend on Myitkyina from the northwest.

Meantime, the Japanese began an offensive against the British 14th Army near Imphal. The British expecting the attack, had their plans ready for meeting it. At first, they intended to retire and draw the enemy into the Manipur Plain. When the Japanese reached Imphal, British infantry with help from airborne reinforcements would turn on them. But, the enemy struck with greater speed and strength than expected, and the British position soon became precarious. This prompted Mountbatten to fly additional airborne troops into Burma.

To place his last two Chindit brigades behind the lines and to supply his isolated units already in Burma, Wingate called upon the airborne engineers to prepare a landing strip in a clearing about 80 miles southwest of Mogaung. At dusk, March 21st, a third detachment of the airborne engineers was flown to Burma. Construction of this landing field was a race against time. Wingate thought the enemy would attack within 24 hours, so the engineers would have to prepare the strip so that the Chindits could land before the enemy arrived. The race was won by two hours; this was the length of time it took the first Chindits to make contact with the approaching Japanese. Personally directing this new assault, Wingate was killed in a plane crash on March 24th. His successor, Maj. Gen. W.D.A. Lentaigne, was left with the problem of coping with the desperate situation of these Chindits holding the railroad block at Mawlu against frantic Japanese attempts to break their grip.

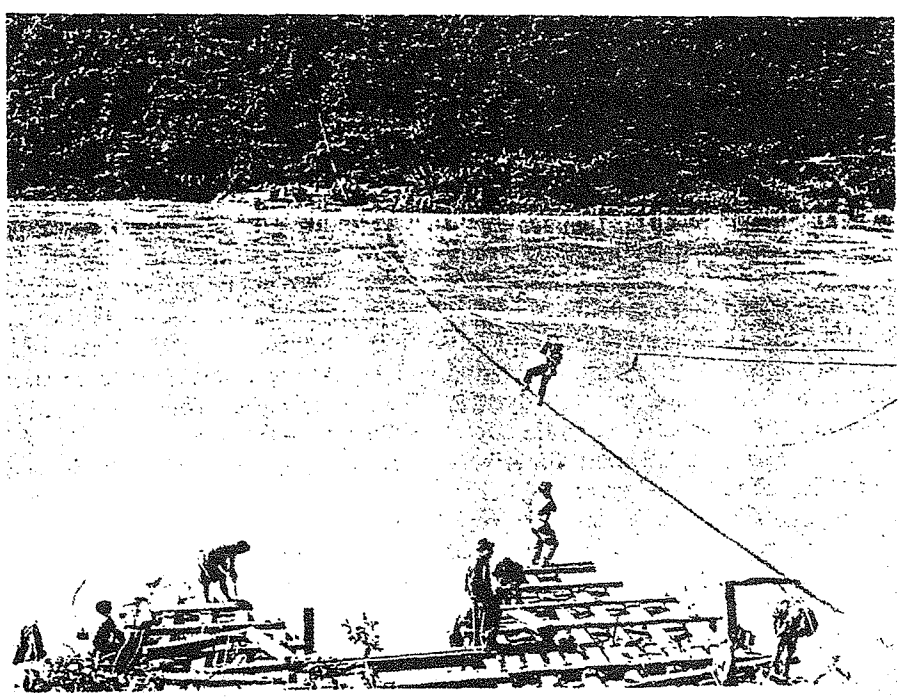
On the plains of Manipur, things continued to go badly for the British. By March 30th, the Japanese vanguard had reached the highway leading north from Imphal to Dimapur, about 170 miles southwest of Ledo. The British 14th Army of 70,000, found itself cut off from contact with friendly forces. In an emergency meeting on April 3rd at Jorhat with Mountbatten, Stilwell was relieved to discover that the British were confident of success because of the logistical overextension of the enemy. In fact, for the first time, Stilwell's British colleagues seemed really enthusiastic about his offensive against Myitkyina.

Because of the desperate plight of the Chindits at Mawlu, Lentaigne sent the commandos and the engineers on a rescue mission. On April 4th, the commandos landed five glider loads of engineers with equipment in a clearing near the roadblock. The men prepared a landing strip at the foot of a hill where the Chindit stronghold was located. More troops and supplies flown in enabled the Chindits to keep the Burma Railway blocked until the monsoons one month later.

Progress on the Ledo Road

During the first months of 1944, work on the Ledo Road lagged. Because of the unfavorable tactical situation east of the Tarung, nothing was done on the railhead east of Shingbwiyang until January 26th. Between then and early February, the engineers cleared 12 miles beyond the city. Work stopped, because of closeness of the enemy and diversion of troops to the combat trail. So, the 45th and 330th Gen. Service Regiments and four aviation battalions graded and graveled the road north of Shingbwiyang.

Early in March sustained work resumed. The 1st Battalion, 45th Engineers, took the lead. Hardly had it finished its clearing and grading to the Tarung, when Stilwell moved them south of the Tanai to help maintain the combat



A workman strings a ferry cable across the Salween while men in the foreground build the ferry.

trail. Then, on the Ledo Road, the 1883rd Aviation Bn., began pushing through the forests and marshes beyond the Tarung, doing both grading and graveling. In April, to speed up the work, Gen. Pick sent the 1905th Aviation Bn., and Co. A of the 330th Engineers ahead of the 1883rd to put in a finished and separate four-mile-stretch of road. At the same time, details of engineers built a number of landing strips along the road so that supplies could be flown in and help in the defense of the road.

It was recognized that one of the biggest jobs of the Ledo Road would be bridging the turbulent rivers of North Burma. Supplies had begun to arrive for this during early 1943. Engineers decided that the M-20 bridge would be best. It would carry loads up to 15 tons. With shorter spans, the capacity could be increased to 54 tons. Early in March, Gen. Pick gave the job of bridging to 209th Combat Bn., one company of which helped by the 76th Light Ponton Co., built an M-20 bridge, 960 feet long over the Tarung in 27 days completing it early in April. The other companies of the 209th bridged the lesser streams beyond the Tarung.

In mid-March, Co. A of the 209th started to build an M-20 over the Tawang. This bridge, together with its wooden trestles over the swampy approaches was 1,200 feet long. The major accomplishment of Co. F, of the 330th Engineers during the dry season was the erection of a third M-20, 607 feet long, over the Tanai; this job was completed early in May.

As a result of the QUADRANT Conference, bridging for the Ledo Road became a major subject for the planners in Washington in the fall of 1943. Various studies were made to find the most suitable types of bridges for the major river crossings. At this time a new type of structure, the Bailey bridge was replacing the M-20.

The Bailey, named after a British inventor, Sir Donald C. Bailey, had at its basic unit a flat panel 10 feet long and five feet high, weighing about 600 pounds, to carry loads from 10 to 100 tons. Another type of bridge considered was the I-beam bridge. Headquarters in Washington sent a team of bridging specialists to CBI in January 1944 for consultations with CBI engineers.

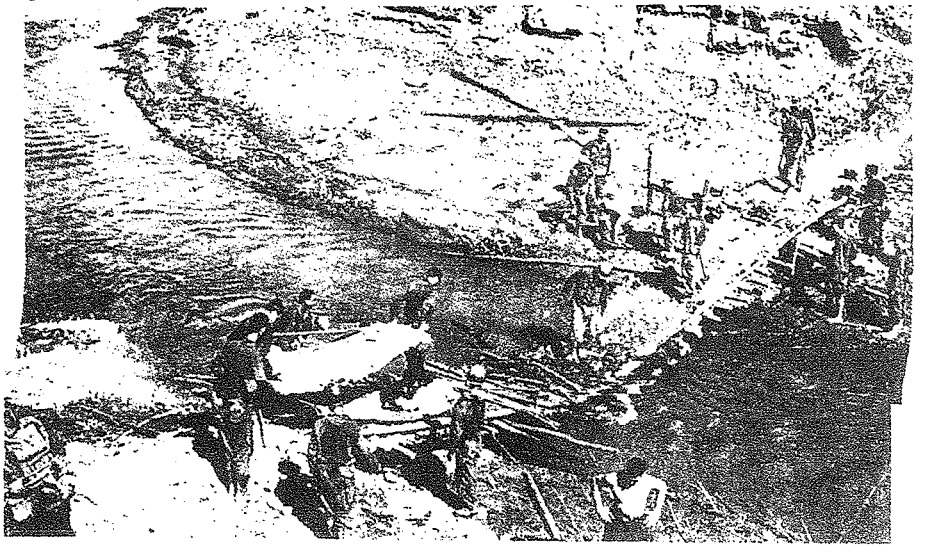
Our engineers chose the M-20 as best for the Ledo Road. This created a stir in Washington since the M-20s had been replaced by Bailey's as standard equipment. But our engineers would not budge in their decision, because the Bailey bridges were too long for shipment over the Indian railways. Washington gave in and reinstituted procurement of M-20 bridges in April 1944.

The longer the finished portion of the Ledo Road became, the greater was the effort needed to keep it open to traffic. Pick turned over to various engineer battalions the responsibility of maintaining each new section of the road as soon as the forward troops finished compacting the final layer of gravel or crushed rock. On April 29th, he set up a road maintenance division under LCol. Donald L. Jarrett, to direct the work of the engineers who were to keep completed sections in repair.

By mid-May, Jarrett had three aviation battalions working full time on maintaining the road between Ledo and Shingbwiyang. They built and repaired bridges, resurfaced poor sections, eliminated some of the worst curves, reduced grades, and installed better drainage. Since Jarrett's organization was directly under Pick, Col. Green, as road engineer, was able to concentrate his attention almost entirely on road construction.

Progress on the Pipelines

During the first months of 1944, Col. MacIsaac began to make more rapid progress on the pipelines. In late January, specially trained troops arrived in CBI and took over construction of the four-inch line along the road. The 699th and



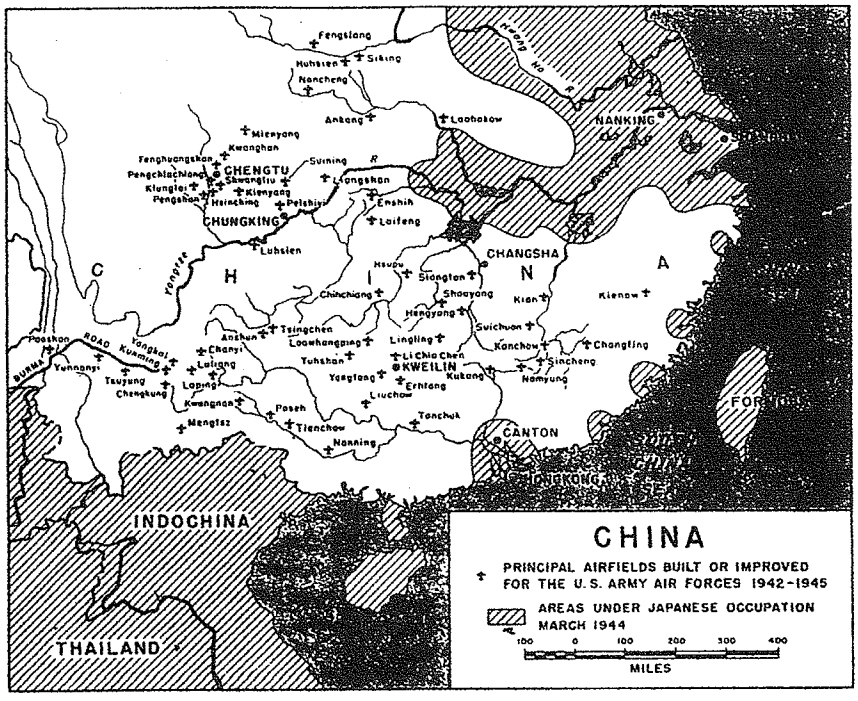
American and Chinese troops moving forward over difficult terrain into Northern Burma, 1944. Pack animals used in transporting supplies (top); men stop to make repairs on a bridge which was damaged by the pack train (bottom). During the early part of 1943, Allied forces in Northern Burma conducted experimental offensive operations to harass and cut enemy lines of communications, and defensive operations to cover the construction of the Ledo Road. By the end of 1943, the Japanese had increased their strength in Burma to six divisions, preparing to resume offensive operations against India.

706th Petroleum Distribution companies, joined by the 775th in February, strove to complete the line from Ledo to Shingbwiyang as soon as possible without interfering with the graveling crews.

Having arrived without their equipment, the troops had to borrow hand tools, welding machines, bulldozers, and trucks from units at Ledo and on the road. They soon found out what troops on the road had long known – that constant hauling and rough roads gave trucks a merciless beating and required ceaseless maintenance. The 699th engineers had barely gotten pumping operations underway early in March when a 1,000 barrel tank of gasoline at Logai (50 miles from Ledo), burst into flames and had to be junked. Nevertheless, by mid-March, the line was through to Shingbwiyang. Thereafter, the 706th and 775th moved forward as fast as the tactical situation allowed.

Col. Kinsolving, head of District 12, hoped to begin construction in January on the first standard-weight six-inch line, which would extend from Calcutta to Assam Oil Co's storage tanks at Tinsukia, 30 miles west of Ledo. The diversion of troops to build a six-inch line to the B-29 fields, and the delay in arrival of pipe from Britain depots in the Middle East forced Kinsolving to mark time until mid-February. Then, with the 709th, 776th, and 777th, he began to build the line from the tanker terminal at Budge-Budge, south of Calcutta, up along the Bengal-Assam Railway toward Tinsukia – 750 miles.

A Burmese Kachin tribeswoman hacks at a hillside with a hoe to make a shoulder for the Ledo Road.



Progress on the B-29 Fields

Meanwhile, the engineers were rushing work on the B-29 fields. In West Bengal, Col. Madsen, head of District 10, had the 879th Airborne Aviation Bn., the 382nd Construction Bn., and the 853rd, 1875th and 1877th Aviation Bns. These units began work on the five B-29 fields in March with borrowed equipment, until the arrival of theirs. In mid-April, with the arrival of the 1888th Aviation Bn., Madsen had 5,000 engineers on the job. By the end of the month, Kinsolving announced substantial completion of a six-inch pipeline from the tanker terminal at Budge-Budge to the fuel distribution systems at the airfields.

With the arrival of the aviation battalion's machinery in April more

rapid progress was possible on the runways. A major task was to make the best use of local labor, which was not too efficient. It was soon learned that native customs would have to be observed, to complete the job. At Chakulia, the 1877th engineers unaware that natives regarded the quarrying of rock as man's work and the screening of it as woman's, bulldozed stockpiles for both sexes to screen. Everyone walked off the job.

Religious considerations obliged engineers in District 10 to stock seven types of rations. Work moved ahead, but slowly. In China, progress was encouraging. Each field was to consist of a runway, taxiways, fuel distribution system, and housing for service crews. Since it was impractical to transport cement or asphalt from India, runways would have to be built of rock, gravel and sand. Col. Kenerson, as District 2 engineer at Chengtu, had to take over numerous responsibilities which the Chinese were charged with but could not perform adequately.

He had to supervise much of the work connected with the hiring and the use of 365,000 coolies conscripted by the Governor of Szechwan. Despite centuries of building hard-surfaced roads by hand, the Chinese were largely unprepared to construct the 8,500-foot runways capable of sustaining the 70-ton bomber. Kenerson had to teach them about the elements of soil mechanics; then he had to supervise them to see that they applied what was taught. As a rule, they worked well, but some serious riots resulted because some disgruntled workers wanted to go home.

In late February, work slowed down because the Chinese were unable to find enough trucks for hauling material, and because of the government's system of distributing funds. B.Gen. Thomas Farrell helped out by sending several rock crushers by air and sent some engineers to install gasoline distribution systems at the fields. By the time construction started in January, Chinese estimates of the cost of building the fields had risen to a fantastic five billion Chinese dollars. "Squeeze" in the Chengtu area would inflate even that figure. By late spring that figure reached seven billion. The U.S. share of that was $350,000,000 for the fields at Chengtu.

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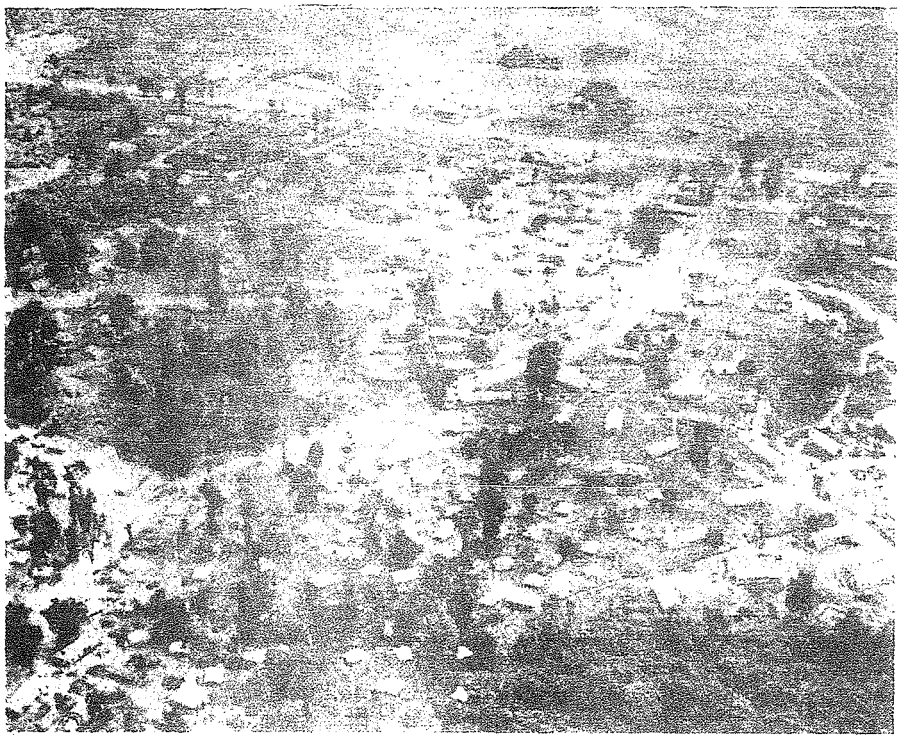
Extracted from History of the Corps of Engineers, War Against Japan, by Joe Shupe. Part V will appear in a future edition of SOUND-OFF.



LEDO – A sleepy little coal-mining village became the bustling headquarters of history's greatest military road job.

Monsoon: reinforcements moving up the Ledo Road, 1944. (U.S. Army photograph).

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Corps of Engineers in the CBI 1944 – Part V

AIRFIELDS FOR CHENNAULT

By Lt. Col. Joseph B. Shupe (AUS-Ret.)

Work was continuing on the fields in E. China for the 14th Air Force. Since the fall of 1943, Chennault tried to enlarge his engineer staff. Shortly after, the 5308th Air Service Area Command activated its Engineer Division under Col. Byroade at Kunming on February 1, 1944. Chennault wanted to merge Byroade's office with the Engineer Section of the 14th AF. On March 16th, that was done.

On March 18th, Stilwell gave Chennault control of all construction for the air forces in China; this was delegated to Byroade. District 3 in E. China inherited all the problems that the SOS previously had with Chinese officials and contractors.

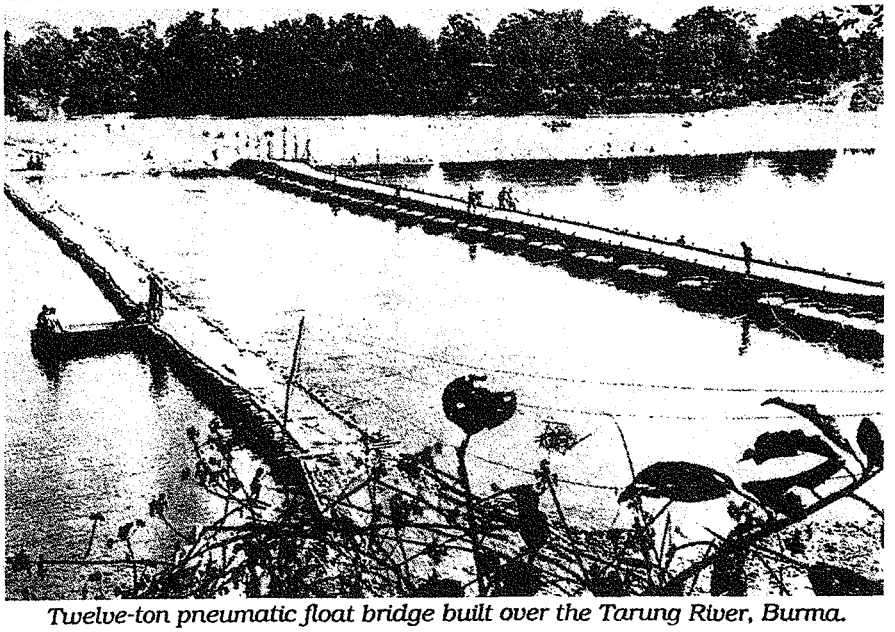
The Lt. Governor of S. Kiangsi solved the problem by merging all the contractors in that area under his control and jacked up prices 100 to 200%. Merchants supplying materials said that local officials expected kickbacks on each sale. In many instances projects were held up because of the paramount importance of "face."

The engineers learned that the Chinese could easily lose "face" if they took orders from foreigners. In China, ways had to be found to remove even the most minor incompetent officials without affronting their dignity. But, nevertheless, progress was being made.

By April 1, 1944, Engineer District 3 was maintaining eight major fields in E. China, and construction was well underway on eight more.

Even at this late date, work on the Hump airfields was continuing to handle bigger loads for Chennault. In charge of District 20, LCol. Karl M. Pattee, had a staff of 20 officers and the 848th Aviation Bn. Most construction and maintenance continued to be done by the Royal Engineers. But, Pattee was able to exercise more than normal control over the work being done. As before, work conformed to British specifications at all eight airfields used by the ATC in Assam. By the spring of 1944, the airlift was beginning to realize its potentialities.

While the 14th Air Force was unable during the first quarter of 1944 to carry out all of Chennault's claims, its successes were such that the Japanese were compelled to act in the spring. Shipping on the Yangtze River had become so unsafe, that they had to reopen the Peiping-Hankow railway as an alternate supply route. Also, because of Chennault's attack on the sea-lanes linking Japan to her southern conquests, the high command ordered its mainland armies to overrun Chennault's eastern airfields and open railroad communications from the Yangtze Valley to Canton and French Indochina. The first phase was to be the conquest of a large pocket north of Hankow. Then in May, they moved south from Hankow to drive the 14th AF off its advanced bases around Kweilin.



Twelve-ton pneumatic float bridge built over the Tarung River, Burma.

THE THEATER ENGINEER

Col. Newcomer, Stilwell's engineer whose responsibilities were theaterwide, never looked upon his office as playing a critical role. His staff, at peak strength, included LCol. Robert Seedlock and three enlisted men. Stilwell rarely consulted him. His main job was to consult with the Chinese on airfield construction for Chennault and MATTERHORN (B-29s), and supplying Chinese troops to be sent to Burma. He also set up a small rear echelon office in New Delhi for administrative work for engineer units in India.

Early in May, General O'Connor arrived in India to replace Newcomer; and he set up his office in New Delhi, and maintained a forward echelon in Chungking under Col. Seedlock. The theater engineer assumed no more importance than it did under Newcomer.

OVERALL PROGRESS IN BURMA DURING THE EARLY MONSOON

Work on the Ledo Road continued well into May. The 45th Engineers, taking over the lead on the road on the 15th at Mile 168, began clearing and grading. It soon became clear that the 1944 monsoon would be equal to 1943. The rain never stopped; progress through the mud slowed to a crawl. Due to loss of his engineer troops to the fighting front, Pick decided he could do little road construction. Having advanced about 70 miles during the past four months, the road was open to trucks as far as the Tanai, 145 miles from Ledo.

On May 25th, Pick told Gen. Covell, "I do not wish to give you the impression that we are folding up, but, I thought you would like to know what the conditions are. Our equipment is just about shot. Our troop strength has been reduced to such an extent that we cannot be expected to go any further (than) Warazup during this

season. But, unless I can get troops and equipment, I don't think we can advance any farther and maintain the soft, spongy, newly completed road."

It was hardly expected that the Ledo Road would be extended much further during the monsoon.

The campaign in N. Burma was so far behind schedule that it was a question whether the road could have been pushed through to Myitkyina before the monsoons. Also, the Chinese had delayed launching the Y-Force across the Salween. Then the British reverses on the Mainipur Plain had forced Stilwell to give up hope of extending the road into Myitkyina during May. But, since late March he had been making plans for taking Myitkyina by an air attack before the monsoons. This would be helpful for the airlift to China. This would also permit the ATC to use a lower and more southerly route over the Hump. Also, the extension of the 2-4 inch pipelines to Myitkyina which could probably be achieved before the Ledo Road was completed that far. This would enable transports to refuel there; thus conserving cargo space for supplies to China.

On May 17th, the Marauders and the Chinese surprised the Japanese garrison at Myitkyina; but unfortunately the defenses there were stronger than expected. The Marauders and Chinese were pushed back from the outskirts of the town. They needed more men and supplies, and these could come only by air. The airfield would have to be hurriedly repaired. On the evening of the first day of battle, a group from the 879th Airborne Aviation Bn., arrived in gliders, and began filling craters in the 4,800-foot runway. Two days later, a detachment of the 504th Light Ponton Co., flown in from Ledo, prepared to ferry troops across the Irrawaddy and reconnoiter southwest of Myitkyina. When the battle turned in favor of the enemy, Stilwell decided to put engineer troops in the line with the Marauders holding on at the northern edge of the town.

On May 29th, the 209th Combat Bn., commanded by LCol. Leslie E. Sandvall, was pulled off the Ledo Road and hastily flown to the front; four days later the 236th Combat Bn., under LCol. Harold E. Greenlee, was sent in from Burma. The fight for Myitkyina promised to be a long one. Meanwhile, the monsoon made it necessary to put an end to guerrilla warfare. When the rains came, Mountbatten began withdrawing the Chindits. Early in May, engineer detachments were flown to two villages some 30 miles south of Myitkyina to prepare the fields from which the air commandos were to fly the Chindits back to eastern India.

During June and July, the fighting at Myitkyina showed no signs of abating. The engineers continued to support the siege. By early June, all of the 879th Airborne Aviation Bn., was at work on the airfield. The detachment of the 504th Ponton Co., having established a boat landing on the Irrawaddy River three miles below Myitkyina, was busy ferrying Chinese troops across the river and carrying Gurkha riflemen far downstream for reconnaissance missions. In the lines being drawn ever tighter around the town were the two combat battalions. After combining the engineers into a provisional regiment early in June, B. Gen. Haydon L. Boatner, Stilwell's field chief of staff, brigaded them with the Marauders on the northern approaches to Myitkyina. Their baptism of ire proved costly because of their unfamiliarity with the ways of the enemy and the peculiar demands of the battlefield. Like the incoming replacements for the Marauders, they were at first lax in security measures and too prone to panic when surprised.

Members of an Engineer reconnaissance party rest in Kaoliang Pass, on the China-Burma border, during a search for a "direct route" from Myitkyina to Tengchung in the summer of 1944.

Bare-chested British troops, tugging on tow ropes, struggle to drag a jeep across a shallow river during their division's advance on Indaw in North Burma.

Within a short time, experience and behind the lines training enabled the engineers to fight like veterans. Casualties were heavy – the 209th engineers reported 71 killed and 179 wounded; the 236th engineers 56 men were killed and 142 wounded. All of the 209th and elements of the 236th Bn., received high praise for their action at Myitkyina.

One hopeful development was that the Chinese forces in Yunnan were at last on the move. On May 11th, the Y-Force attacked along the Salween, sending spearheads of three divisions across the river above and below the demolished bridge of the Burma Road. The Chinese engineers of the Y-Force were able to show how much they profited from instruction in river crossings given at the Kunming Training Center by our engineers serving with the Y-Forces. From nightfall of May 11th until the next morning, Chinese engineers ferried the infantry across the turbulent Salween in pneumatic assault boats and makeshift rafts, with the loss of but one Chinese infantryman. Once across, the Chinese infantry engaged the Japanese in a battle that raged back and forth for many weeks in the rugged mountains along the west bank. Eventually, the numerically preponderance of the Chinese began to tell.

During late May, they made a two-pronged attack. One force advanced yard by yard down the Burma Road toward Lung-ling, 35 miles west of the Salween, and another moved toward Teng-chung, 35 miles to the north. On June 8th, the Chinese laid siege to Lung-ling and on July 2nd attacked Teng-chung. Repeated attempts to take the cities were repulsed.

By late spring, the work of the engineers on MATTERHORN had begun to pay dividends. The rock and gravel fields in W. China were ready by May 15th. During the following weeks, the engineers accelerated work on the paved fields in India. Kharagpur, a field barely operational in mid-March, was nearly completed by June. The 7,500-foot long runway and 50 headstands were complete. Hangars from the Mediterranean Theater, operational buildings, and housing were almost finished. On the 5th of the month, the 382nd Construction Bn., standing beside Kharagpur's concrete runway, saw the first B-29s leave for Bangkok to bomb railway shops there.

On June 24th, the Superfortresses took off for the first time for Cheng-tu, from where they flew to the Japanese island of Kyushu to bomb the steel mills of Yawata.

The monsoon had brought an end to the forward progress of the Ledo Road. But efforts were underway to bring up men and machinery to resume work in the fall. Assuring Pick that he would make certain "no one spares the horses in supplying your needs," Gen. Covell got from the Los Angeles Port a promise that it would load 37 tons of spare parts on ships sailing in June and July. He had parts flown in from Calcutta for Pick's 73 tractors and other machines deadlined at the beginning of June. Farrell's men at Calcutta made special efforts to hasten the shipment of new machinery, helped by the rising efficiency of the Bengal-Assam Railway.

During the first three weeks of June, the Engineer Supply Officer of Base General Depot #2 at Calcutta sent 39 tractors, 27 graders, nine shovels, nine scrapers, and many other pieces of much needed equipment to Ledo. Pick wrote Farrell on June 24th that he was as "pleased as a two-year-old at his first Christmas tree. I believe with this equipment we are going to be better off than I ever dreamed we would be. Most of us here have long worn out our patience, and I might say our lifetime good looks, trying to make this old equipment go."

Equipment was more plentiful, but attempts to get more troops attained little success. On June 1st there were still only 7,200 on the road. The most critical need was for more shop and parts supply companies. The basic difficulty had always been CBI's low priority. In the U.S. there was a serious shortage of trained mechanics and parts supply specialists. The War Department could not even keep

Crossing the Salween River, July 1944. The temporary suspension bridge was built to replace the permanent bridge here which was blown up in 1942 by the Chinese as a defense measure against the Japanese advance. While Allied forces advanced on Myitkyina, Chinese troops crossed the Salween River from the east. The two forces met at Tengchung in September 1944, establishing the first thin hold in Northern Burma.

up with demands of the higher priority theaters. The most promised to CBI was one more parts supply and one heavy shop company by late summer 1944. Such reinforcements that Pick was able to get during the summer months were three pipeline companies, one construction battalion, and a depot company organized at Ledo in May 1944 from two platoons of the former 456th Depot Co., and casual personnel.

Despite the monsoons, additional miles of pipeline was laid. On June 8th, the 706th and 775th engineers connected their lines along the Ledo Road; so that 180 miles of four-inch pipe were in place from Digboi. Since Myitkyina was under siege, Stilwell deemed it inadvisable to extend the line further.

As construction on the line came to a halt, work began on the second four-inch line along the road. MacIsaac had received three additional petroleum distribution companies, the 778th, 779th, and 780th. He put the 778th to work hauling pipe from the engineer depot at Likhapani down the Ledo Road for the future construction drive. He assigned the 779th the job of putting in an underground line from Digboi to the tank farm under construction at the railway terminal in Tinsukia, 22 miles to the west. To the 780th, he gave the job of laying the second two-inch line from Digboi into Burma. The progress was retarded by reluctant laborers, floods, washed-out bridges, and delayed pipe shipments. Meantime, in District 12, Col. Kinsolving's men were pushing ahead.

On July 1st, the coupled the first six-inch line from Calcutta to Tinsukia. The longest invasion-weight pipeline in history was ready to carry 250,000 barrels of gasoline from Calcutta to Assam.

MAPS

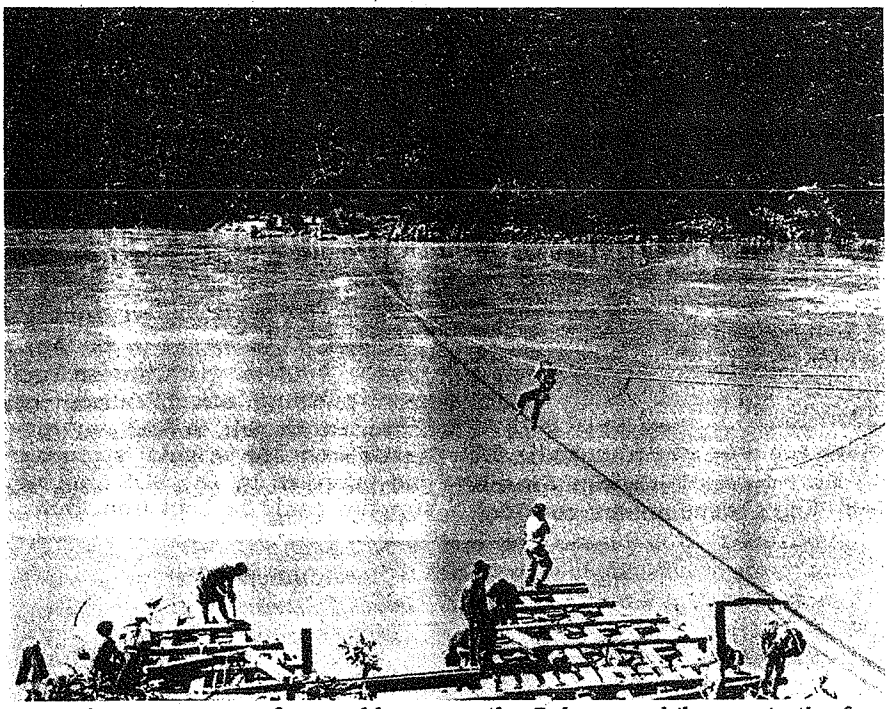
The campaign in Burma and work on the Ledo Road had been handicapped by the lack of adequate maps. We had to depend on the British and Chinese for them, and many were out of date and inaccurate. The British Geological Survey, responsible for mapping India and Burma, did not have the resources to revise and distribute maps, and the Chinese were too disorganized to do mapping.

In the autumn of 1942, Gen. Reybold had sent three officers and three enlisted men to New Delhi, as a liaison group. Headed by Maj. Frank N. Gunderson, they were to get from the British he needed maps.

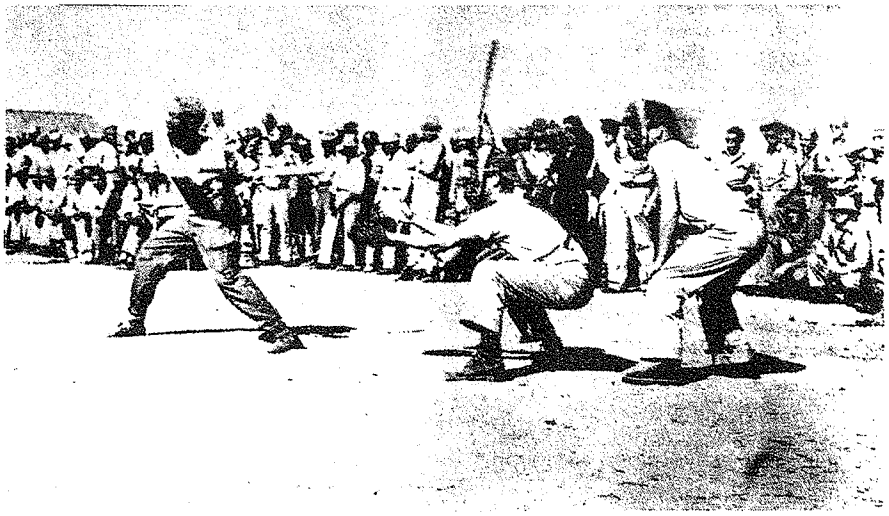
Early in 1943, Gunderson's group made liaison with the Chinese to Chungking in an effort to obtain data that might enable the Army Map Service in Washington to get the necessary maps. Because of Chinese suspicions that the data might fall into the hands of "third persons," particularly Britain, Gunderson's men could at first get little information in Chungking.

The situation in India improved somewhat during the summer of 1943, with the arrival of the 653d Topographic Bn., for mapping work for our forces and of the 958th Aviation Topographic Co., to provide aeronautical charts for the 10th Air Force.

In 1944, Gunderson reported greater success. In the summer of 1944, the Chinese agreed to let the Air Forces carry out a program of aerial photography for production of up-to-date maps of China and adjacent countries. The Chinese provided material on geodetic and astronomic stations, river surveys, and towns – it being understood that "third powers" would not get



A workman strings a ferry cable across the Salween while men in the foreground build the ferry.



Baseball game. First Transport Squadron and 858th Engineers, Assam, India.

the data. The 653d engineers undertook to coordinate the information with that obtainable from aerial photographs supplied by the 14th Air Force, and the XX Bomber Command.

Late in the summer, the Combined Chiefs of Staff gave the U.S. Army responsibility for supplying maps to Anglo-American forces in Asia. Gen. O'Connor set up a map depot at Chabua to supply our forces with maps produced by the 653d and 958th engineers or sent by the Army Map Service. Gunderson's office in New Delhi was to take care of British needs on American stocks, dealing directly with the depot at Chabua or with Army Map Service. Unfortunately, the aerial photography program in China was of little help to the engineers to increase the flow of up-to-date maps to the field. Much of the photography failed to meet specifications.

Too much cloud coverage and, during good weather, priorities of combat sorties cut down the number of photographic missions. A further handicap was the strict rationing of gasoline. Consequently, little could be done to supply maps of China and Burma.

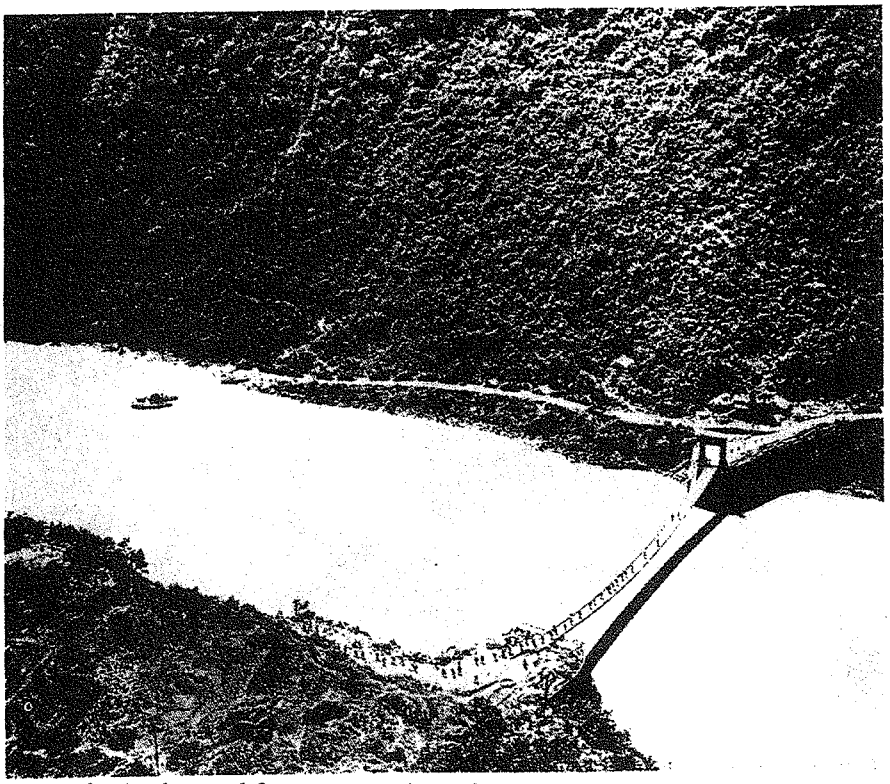
OVERALL-PROGRESS DURING THE LATE MONSOON

The Chinese drive into Burma gave Allied commanders considerable cause for optimism. The performance of the Chinese engineers also contributed to the brighter outlook.

On June 18th, local Chinese commanders permitted the reconstruction of the partially demolished 25-kilometer stretch of the Burma Road just east of the Salween. This job was turned over to Col. Dawson and his engineers as their first major project in support of the drive west of the Salween.

After four days of around-the-clock operations under occasional enemy shell fire, Dawson's men opened the stretch to one-way traffic on June 24th. Their next job was to rebuild the bridge across the Salween, since rafts and pneumatic boats had great difficulty in coping with the swift and treacherous river.

The previous span had been a suspension bridge with stone towers and a steel-trussed deck. The Chinese had left the south tower with its two anchorages intact but had completely destroyed the north tower. Dawson's engineers set out to design an improvised steel suspension bridge similar to the suspension bridges the Chinese had been building out of vines for centuries. Unable to find any materials from the original structure and informed by the SOS that no supplies could be sent from India, Dawson's men searched Yunnan for likely substitutes. They found some 1-1/2 inch wire rope, a few iron plates and rope clips, and fairly ample supplies of wood. With these materials, Dawson's Chinese engineers first set out to build a suspension footbridge. They erected a wooden tower on the north bank to replace the destroyed stone tower. They, then, stretched two cables across the river, anchored them to the towers, and along the cables hung V-shaped stirrups, about five feet apart. They, then, placed two-inch boards along the bottom of the stirrups.



The footbridge and ferry across the Salween, during Chinese advance.

The footbridge was soon improved with the installation of four cables from anchorage to anchorage and three-inch planks along the bottom of the stirrups. The bridge could safely take loaded jeeps. The entire job took more than a month.

As the Chinese continued to drive the Japanese back west of the Salween, our engineers supported practically every phase of the advance. Through the efforts of the Y-Force engineers, explosives and hand tools went forward to the Chinese at the front, and each Chinese field army had a few of our engineers as advisors to help locate mines and find the best routes for airstrips.

An outstanding example of our engineer cooperation came with the formation of the Burma Road Engineer Detachment in June under Dawson, now a Lt. Colonel. At first they had 27 officers and 46 men picked by Dawson from the engineers of the Y-Force operations staff, was, in effect a construction group headquarters, modified to meet the peculiar needs of the locality. Attached for operations were various types of units, including engineer, ordnance, signal, medical, and anti-aircraft artillery.

Beyond the Salween, the engineers had much work to do. Rising to a height of 3,000 feet above the west bank of the river was Sung Shan Mountain. Japanese artillery emplaced on it commanded 36 miles of the Burma Road's winding approach west of the river. In their drive on Lung-ling, the Chinese had bypassed this strongpoint. During late June and early July, Chinese artillery exchanged shots regularly with the enemy. During late July and early August, the Chinese made repeated assaults

up the mountain but could not dislodge the 1,200 Japanese.

Favorable developments along the Salween in July, especially the siege of the city of Teng-chung, had repercussions in headquarters at Ledo. The fall of Teng-chung, 100 miles east of Myitkyina would clear an old caravan trail which linked Myitkyina with the Burma Road at Lung-ling. A number of engineers in the theater believed the Ledo Road should be built along this trail. In the summer of 1944, a heated controversy developed over the relative merits of this route as against the one Pick wanted, which ran 80 miles farther south through the town of Bhamo.

The origins of the dispute went back to March 1944, when Stilwell thought he would have to limit his advance in N. Burma to a line including the Teng-chung trail but not the Bhamo area.

In late March, CBI commanders had begun to press Chiang to make a positive contribution to lifting the blockade of China by constructing a military highway from Lung-ling through Teng-chung toward Myitkyina as soon as the Y-Force drove the Japanese from that part of Burma.

In April, Col. Dawson made an analysis of the project and reported that building the road would be feasible from an engineering standpoint. In July, Gen. O'Connor approved construction of a road along the trail on the grounds that the region would be cleared of the enemy sooner and a road would be 200 miles shorter than the one by way of Bhamo.

The Chinese agreed in June to adopt our proposals and to survey the route preparatory to calling out laborers and starting construction. Stilwell felt construction along the new route was urgent. "Essential that route and work be started from the China side without delay," he radioed to O'Connor. "Coordinate with Pick on this work."

Pick was strongly opposed to the whole concept of building the road along the trail, which wound through the mountains and over the steep ridges of the Himalayan spurs in N. Burma. He regarded it as a visionary undertaking, incapable of fulfillment with available resources. Upon receiving an unfavorable analysis of the project from his own engineering branch in June, Pick had ordered out a reconnaissance party in the last week of that month to gather more information on the problems involved.

Pick radioed Farrell on July 18th that it might be desirable to have a combat road through the Teng-chung area and even to consider routing a pipeline that way, but he wanted nothing to do with building a truck road along the trail until more was known about the terrain. The question as left undecided during the summer.

While the Chinese were advancing from the Salween, the tide was turning in favor of the British in E. India. By June 22nd, the British had broken through to relieve Imphal. The Japanese forces were now withering at the end of a communications line consisting of little more than a network of jungle trails sodden from more than a month of monsoon rains. Malaria and starvation were hastening the decimation of the invading army. The enemy commanders resolved early in July to pull back the survivors of the ill-fated offensive. The Japanese withdrew to their Chindwin River lines, leaving a third of their 155,000 troops dead on the Manipur Plain or along the mountain footpaths. The threat to the Ledo Road and to the Allied forces in N. Burma thus ended for good.

And things continued to go badly for the Japanese in W. Yun-nan. The Chinese blasted the Japanese from one stronghold after another west of the Salween. Only Sung Shan Mountain remained. The Y-Force commanders, resorting to classic siege tactics, decided to mine the seemingly impregnable stronghold.

With their American counterparts advising, the Chinese engineers on April 11th began to dig two tunnels under the main centers of resistance; nine days later they set off three tons of TNT, whereupon some of the Chinese engineers rushed into the breach with flame throwers as a spearhead for the infantry. Nothing remained but to hunt down the survivors; by the first week in September, the last ones were mopped up. Farther west, Y-Force engineers gave active support to the Chinese troops besieging Teng-chung.

The first serious attempt to reduce this bastion took place early in August. Chinese engineers, under our supervision, mined the southeastern section of the city wall. The breach, together with the damage subsequently inflicted by Chennault's bombers, was not sufficient to insure Teng-chung's immediate fall. But, Chinese troops secured a foothold at the site of the mining, and the capture of the *city* was only a matter of time.

On August 3rd, the Japanese lost Myitkyina and their forces retreated southward. The fall of the city doomed the enemy hold on N. Burma. A turning point had been reached in the long American struggle to help China. The rest of Stilwell's Chinese troops now came out of the Mogaung Valley to assemble at Myitkyina in preparation for the next phase of the offensive - down the road toward Bhamo.

Gen. Pick began moving in engineer and other service troops to convert Myitkyina into key Allied base for the final drive to open N. Burma; at the same time he took back from Stilwell his decimated engineer combat battalions, which had suffered nearly 500 casualties, and flew them to Ledo for recuperation.

With the collapse of enemy resistance, Col. Manuel J. Asensio, 10th Air Force engineer, prepared to carry out Stratemeyer's plan for a ring of airfields around Myitkyina, capable of making this area a vital hub for transport and air combat operations. The existing airfields at Myitkyina, with a plane landing or taking off every two minutes, was already the busiest in CBI. By August 1st, the engineers had the second four-inch line from Digboi to Ledo. To provide the all-important petroleum installations for the air and ground efforts to come, Col. MacIsaac launched District 22 on a strenuous effort to extend the first of the four-inch pipelines into Myitkyina on October 1st.

With the coming of dry weather in the fall, engineer work could once more be undertaken in earnest.

* * * * *

(Extracted from "History of the Corps of Engineers, The War Against Japan," by Joe Shape. Part VI, the final edition, will be published in a later edition of SOUND-OFF.)

If Your Dues Are Due
GO FOR LIFE!!

Corps of Engineers in the CBI 1944-45 – Part VI

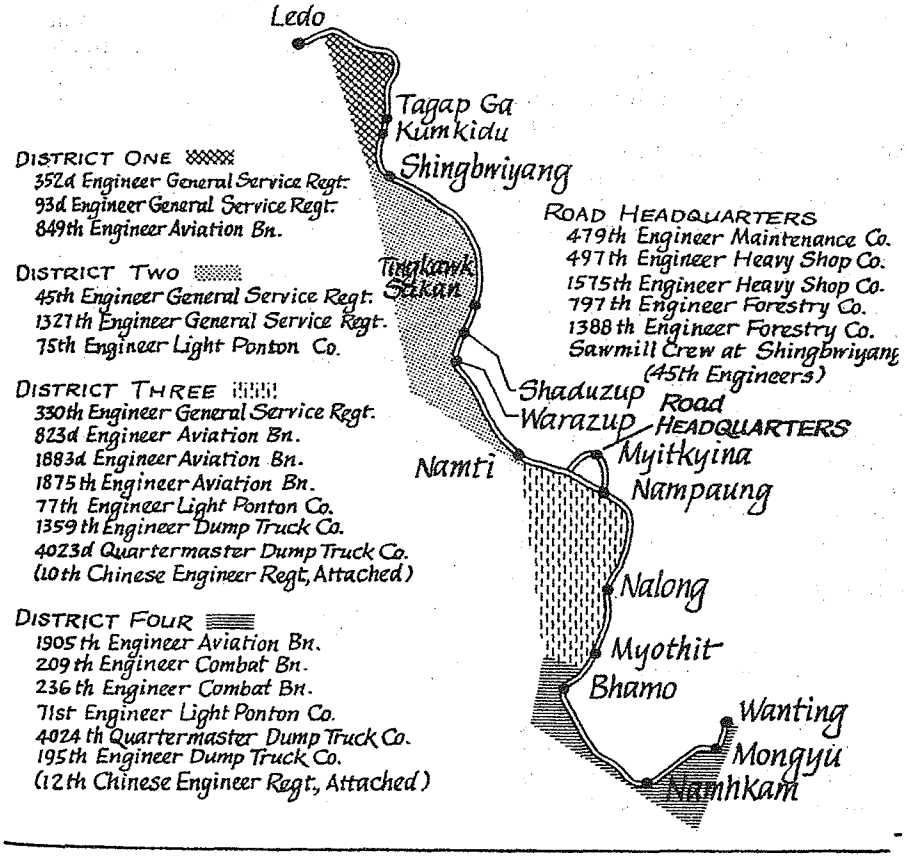
By Lt. Col. Joseph B. Shupe (AUS-Ret.)

Since the fall of 1943, British American planning circles were increasingly reluctant to support extensive military undertakings on the Asian mainland. Many factors encouraged a shift of interest toward operations in the Pacific. These included China's delay in reforming its military forces; British aversion to fighting in Burmese jungles; the victory over the Japanese in the Gilberts; the Russian promise to attack Japan after the surrender of Germany; and to avoid frittering away military resources that might be needed for the invasion of the Philippines or Formosa.

Such was the feeling when Gen. Stilwell asked the War Dept., on April 21, 1944, for additional service troops, including 14 engineer construction battalions. He regarded these units vital to move supplies by truck into China, and expanding air deliveries to 20,000 tons a month by early 1945. Arguments in the War Dept., as to whether the Ledo Road should be finished, raged back and forth.

Gen. Somervell fended off proposals from the Air Forces and the British that the road go only as far as Myitkyina. In July 1944, the Operations Division in Washington proposed the same, and that beyond Myitkyina work be limited to repairing the existing road through to Bhamo to Mong Yu, where it joined the Burma Road. Trucking into China should be restricted to carrying military equipment that could not be sent by air. They also felt that the Ledo Road could not be completed in time to support the final phases of the war against Japan; otherwise it would be a logistical drain on these operations.

Gen. Somervell was determined to preserve intact the planned overland line of communication to China. On July 14, he warned the Operations Division that if the optimistic assumptions regarding the early defeat of Japan proved unwarranted, all would be thankful that there was a Ledo Road to help the Allies support China in battle with Japan's mainland armies. We discounted arguments that continued construction of the road would cut deeply into resources needed elsewhere. Seventy percent of the material approved for the road had already been shipped. Much of the needed troops would be for patrolling and maintenance of the airfields at Myitkyina, the pipelines, and the roads to China. Despite Somervell's arguments, on August 23, 1944, the War Dept. directed Stilwell to limit construction beyond Myitkyina to a one-lane all-weather road to make possible sending supplies to China by truck and helping the construction forces pushing the pipelines through Kunming. Work continued at a fairly high rate after August, but it became obvious that a cutback was on the way.



Ledo Road Maintenance Organization, May, 1945

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Work Resumes on the Ledo Road

During August and September, there was no letup on the controversy whether the Ledo Road should be routed east from Myitkyina through the mountains on the China-Burma border to the city of Teng-Chung or continued south through Bhamo. Despite the enthusiasm of the engineers in China and of Gen. O'Connor for the undertaking, Pick insisted that the Ledo Road should go 116 miles south by way of Bhamo and then east to connect with the Burma Road at Mong Yu. Stilwell approved of both routes.

The Chinese would build a road over the 135 miles from Teng-Chung to Myitkyina; at the same time Pick's engineers would build the road via Bhamo. After a reconnaissance in September, Pick's engineers gave an adverse opinion of the Teng-Chung project because of a paucity of timber and gravel, and need for excessive excavation.

As the end of the monsoons approached, Pick redoubled preparations for resuming work on the road. He had moved up heavy equipment and stockpiled it in the Hukawng Valley. In August, Col. Hirshfield began building a supply depot at Myitkyina with several thousand Burmese laborers recruited by the British. So, Pick had about 14,000 engineers ready for work on the road. He felt at last he had enough troops to do the job.

In the first week of October, work began once more. Elements

of the 1304th Construction Bn., together with the Chinese 12th Engineer Regiment, started to build a dry-weather road along the trail leading southward from Mile 178 to Myitkyina, so that trucks could go into the town as soon as possible. Also, the Chinese 10th Engineer Regiment began to clear the right-of-way of the Ledo Road itself beginning at Mile 178. Behind the Chinese were grading parties of the 330th. The 1304th was responsible for bridge building. On October 10th, it began work on a 560-foot Bailey Bridge over the Mogaung River, using British materials. In mid-October with the opening of the offensive by Chinese troops from Myitkyina into eastern Burma, the 209th and the 236th Combat Bns., began to repair the road running east of the Irrawaddy from Myitkyina to Bhamo.

The Burma Road

The Burma Road engineers commanded by Col. Robert Seedlock after Col. Dawson left for the U.S., in September, got ready to help the Highway Administration build the road from Teng-Chung to Myitkyina. On October 2nd, Seedlock set up Burma Road Engineer Division 2 with headquarters at Teng-Chung, and Division 3, with headquarters at Sadon, just inside the Burma frontier, some 40 miles east of Myitkyina. Seedlock used most of his 257 engineers as supervisors and equipment operators. He kept a small force to maintain the Burma Road east of the Salween and another to make emergency repairs on the road behind the Chinese XI Group Army. The dark spot in the picture, as autumn came on, was the unexpected stalling of Governor Lung in conscripting the 120,000 laborers who were to work under Seedlock. All that Seedlock could do during September and October was to push surveying, accumulate some equipment and organize such forces for construction as he had.

The Pipelines

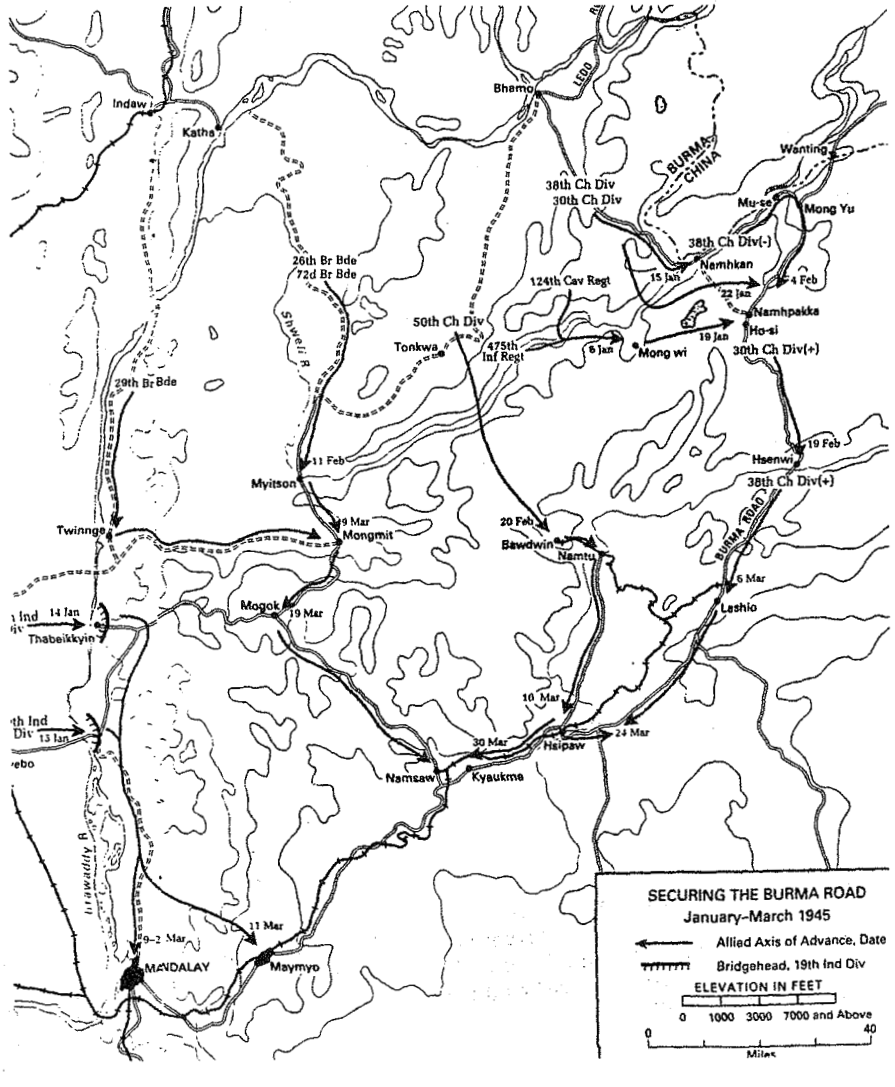
When Myitkyina fell on August 3rd, Stilwell's headquarters again turned its attention to the second four-inch pipeline, which by then had reached Pangsau Pass. His deputy, Maj. Gen. Daniel I. Sultan stressed the urgency of extending this line to Myitkyina in time to support the coming autumn offensive in eastern Burma. Sultan set MacIsaac's completion date as October 1st, and MacIsaac made use of every available resource to meet his deadline. The 10th AF flew 1,500 tons of pipe to Myitkyina, and drivers of the 778th Petroleum Distribution Co. hauled thousands of tons more from Likhapani down the Ledo Road into Burma.

Two of Kinsolving's petroleum distribution companies, the 709th and 776th, joined the six already working on the line. "We have pipeline people," Pick wrote to Covell, "road troops, ponton outfits, Pioneer Indian labor, Nepalese Porter Corps people, a battalion of Chinese, and a herd of elephants working on it." Because the pipeline left the route of the road in some localities, it was often necessary to construct cableways to ferry pipe across rivers. Sometimes the men had to carry pipe by hand through the hip-deep water of the flooded lowlands. Despite such obstacles, together with the snakes, leeches, and malaria, the engineers strove to "get it through."

On September 27th, Pick radioed Farrell that the line was completed to Myitkyina. Mountbatten wired his congratulations to Cowell and to Pick "and all his men who were responsible for putting the pipeline through from Tinsukia to Myitkyina in record time under monsoon conditions."

Cowell forwarding Mountbatten's message to Pick observed, "Our team is going strong." Col. Birney K. Moore, former chief engineer of the Susquehanna Pipeline Co., who had succeeded MacIsaac on September 22nd, took over the job of pushing the line on to China. There was no advance of the other four-inch line beyond Tingkawk Sakan. It was already operating to capacity just to support construction and trucking along the Ledo Road.

Plans made at QUADRANT had called for two six-inch pipelines from Calcutta to Assam. The first, built entirely with invasion-weight pipe, had been in operation since the last week in August. Kinsolving



planned to start work in October on the second, to be standard-weight throughout. A heavier line could be operated at greater capacity to meet the demand for aviation and truck gasoline in Upper Assam.

Since the line would pass through heavily populated areas, it would, like the first, have to be put underground. The improving tactical situation in Burma, late summer of 1944, enabled Kinsolving to shift the southern terminus of the second line from Calcutta to the Burmah Oil Company's port facilities at Chittagong, 180 miles to the east across the Ganges estuary. The Chief's office, in July 1944, expressed misgivings about this move, pointing out that construction and operation in the rugged lands north of Chittagong would require a much larger number of troops. Besides, Chittagong's shallow harbor would necessitate building a costly offshore mooring together with a submarine unloading line.

But, Farrell and Kinsolving knew that the eastern route would require 180 miles less pipe, would obviate crossing the Ganges and Brahmaputra, and would lessen the dangers implicit in concentrating so many storage facilities at Calcutta. By mid-October, Kinsolving had the 777th and 138th Petroleum Distribution Companies at work along the railway from Chittagong to Tinsukia. Three thousand Indian laborers were clearing the route and digging the ditches.

Airfields

By the fall of 1944, few airmen set a very high value on the advantages of the MATTERHORN (B-29) airfields to our war effort. Between June and October, the B-29s made four raids on steel and aircraft plants on Kyushu, three attacks on a major steel plant in Manchuria south of Mukden, one on an aircraft factory on Formosa, and another on an oil refinery on Sumatra. It was logistically impossible to increase the rate of attack beyond an average of two sorties monthly for each B-29.

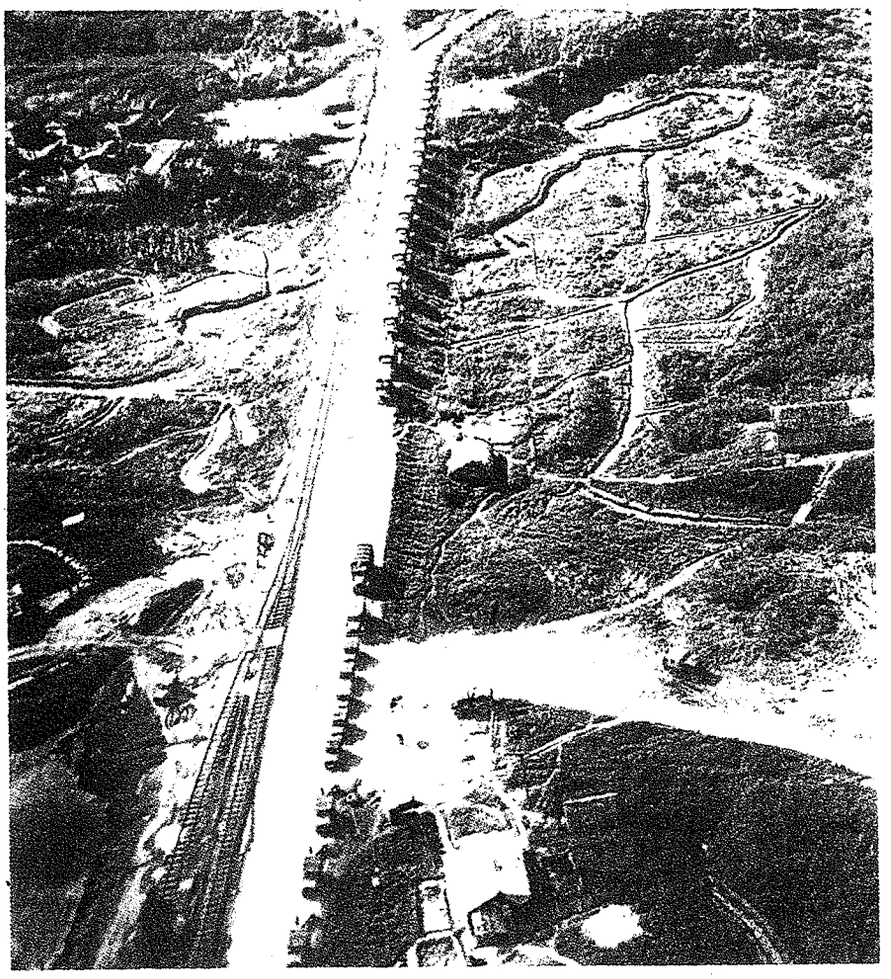
The craft could not be supplied with sufficient gasoline to make their sorties profitable. Gasoline and munitions for each strike against Japan had to be flown to Cheng-tu by transports or by B-29s working overtime.

On October 3, 1944, Secretary of War Stimson observed that the drain of transports to CBI ". . . bids fair to cost us an extra winter in the main theater of war." It was expected that the B-29 fields being built in the Mariannas, much closer to Tokyo, would soon be ready. After a few more raids on Formosa and Kyushu in the support of our drive in the Philippines and after several strategic bombing missions in SE Asia, the B-29s in CBI prepared to transfer to the Pacific. By late 1944, the main engineer job on the fields in India and China was maintenance only.

The airfields now of most concern in CBI were those around Myitkyina. While the siege was still in progress, Col. Asensio's men had begun work on the runways there. According to plans which had been worked out with Godfrey's representative in June, Asensio was to complete by October 1, 1944, a 6,000-foot, all-weather field at the original Myitkyina airstrip now called Myitkyina South. A similar field was to be built just above the town – Myitkyina North.

Ten miles south of Mogaung, Asensio was to build a fair-weather strip by November 15th to support the British offensive rolling southward toward Mandalay. At the same time, six miles SW of Myitkyina, he was to have a fair-weather runway capable of taking B-29s. Finally, to support the Chinese advance into eastern Burma, there was to be a fair-weather strip, just across the Irrawaddy, to be known as Myitkyina East, and to be finished by January 1, 1945.

During July, the 10th AF flew in the 1888th aviation engineers so that they would begin work on Myitkyina North as soon as tactically feasible. When, after capture of Myitkyina, it became clear that the Ledo Road would not reach the town before November, Asensio be-



Assembly of first truck convoy in Ledo, Assam, to travel the Ledo-Burma Road, a route stretching over approximately 1,000 miles through Myitkyina, Burma, to Kunming, China. Note railroad to left of the road. The vehicles are loaded with supplies and ammunition; some are pulling antitank guns and field artillery pieces.

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gan bringing in by air the rest of his units and their equipment. The 930th and 1877th engineers arrived during September and October. By the latter month, Asensio's projects were well underway.

The Tactical Situation

After their victories on the Manipur Plain and at Myitkyina, the Allies made fairly steady progress along their fronts. The Japanese were being constantly forced farther south in Burma. In September, Gen. Sultan, having taken the field as Stilwell's deputy, sent the British 36th Division, on a long, southward drive along the Burma Railway from Mogaung to Mandalay. At the same time the newly organized and American-trained Chinese Sixth Army moved out of the Mogaung area and pushed southward over hills and through jungles toward a crossing of the Irrawaddy west of Bhamo.

In mid-October, the Chinese 1st Army advanced from Myitkyina along the road to Bhamo. The military picture in Burma grew constantly brighter for the Allies.

But, it was darkening in eastern China. Disaster had begun in the spring of 1944, as the Japanese seized the airfields of the 14th AF. A major Japanese drive had begun on May 26th with a thrust in the direction of Changsha. On June 18th, the Chinese abandoned the city. Before the end of the month, the Japanese had reached Heng-yang, where they at last encountered a Chinese force determined to hold. After a staunch, but hopeless, defense that lasted nearly two months, the Chinese surrendered the city on August 8th.

At the beginning of September, the invaders started their advance from Heng-yang. While one column moved westward out of the valley toward the bomber field at Shao-yang, the main body advanced toward Ling-ling. Meanwhile, Japanese moving west from Canton threatened the bomber fields south of Kweilin. As Stilwell had feared, the Chinese armies in the east were incapable of stopping the enemy's drives. It became the painful duty of Chennault's engineers to destroy the airfields.

On September 4th, the resident engineer at Ling-ling applied the torch and dynamite to the field there, four days before the enemy arrived. On September 14th, the field at Shao-yang was destroyed.

As the Japanese were advancing to Kweilin, we had to decide quickly what to do about the major airfields clustered around that city. Stilwell himself went to Kweilin on September 14th to canvass possibilities for holding the area. He found that the enemy was only 70 miles away. Equally ominous, the local commander had orders from Chungking to retire within the city's walls. Stilwell was convinced that this would become another "rat trap." He gave the order to destroy the three heavy bomber fields near the city. The engineers complied during the night. They buried and detonated bombs in the taxiways and runways, while air force personnel burned the buildings. Eleven days later, the process was repeated 120 miles to the south of Tanchuk, just before the enemy arrived.

The loss of the above airfields created a need for new ones in the central and southern part of the country. Leaving some of his planes around Kanchow and Suichuan, Chennault planned early in October to redeploy the bulk of his force to fields north-south axis running through Chungking. Thus, Byroade passed the job on to Col. Austin W. Betts, the new 14th AF engineer. During October, Betts arranged with the Chinese to build a medium bomber base 180 miles NW of Kweilin and another 400 miles west of that city, together with several fighter fields in these areas.

Reorganization of CBI

The deterioration of the situation in eastern China intensified the long-standing animosity between Chiang and Stilwell. The bitterness became obvious after President Roosevelt, seeking to stave off a total collapse of the Chinese front, had proposed in July that Stilwell assume unified command of all Nationalist and Communist military forces in China.

On September 25th, Chiang formally demanded Stilwell's recall, and on October 18th the President complied. Within a week, CBI was split into two theaters. China Theater headed by Gen. Wedemeyer, who was to "advise and assist Chiang in the conduct of military operations against the Japanese" and to "carry out air operations from China." India-Burma Theater was commanded by Gen. Sultan, whose main mission was to "support the China Theater" by assuring the "establishment, maintenance, operation, and security" of overland communications with China. To the extent specified by the Combined Chiefs, Sultan was to support Mountbatten's operations in SE Asia.

Wedemeyer organized his theater with a forward echelon at Chungking, and a rear echelon at Kunming. There were three major engineer offices – one for the theater in Chungking, one for the air forces at Kunming, and a third for the Services of Supply, also at Kunming. Almost no changes were made in the engineer set-up in the India-Burma Theater.

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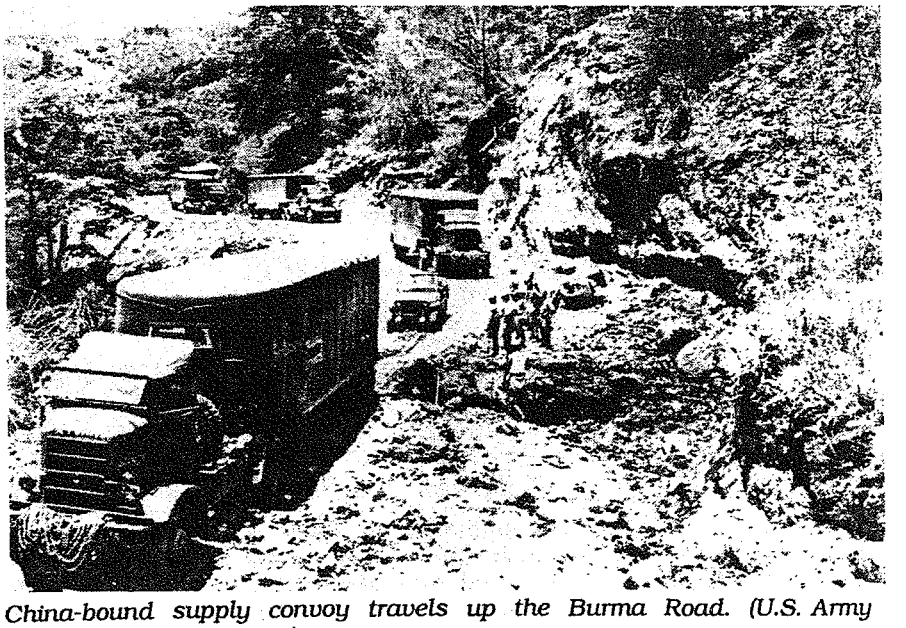

China-bound supply convoy travels up the Burma Road. (U.S. Army Military History Institute.)

Road, Pipeline and Airfield Projects in Late 1944

Gen. Pick, with a relatively large force of engineers and a substantial amount of machinery, made rapid progress on the Ledo Road during the fall of 1944. On November 10th, the 330th General Service Regiment and the 1304th Construction Bn., with the aid of the Chinese 12th Engineer Regt., completed work on the dry-weather trail from Mogaung to Myitkyina. Early in December, the leading bulldozer reached the west bank of the Irrawaddy, some 20 miles downstream from Myitkyina.

The outstanding feature of the work on the road in late 1944 and early 1945 was the building of several major bridges. From October 10th to January 14th, the 1304th engineers alone built 104 spans, totaling 5,105 feet. Among their more noteworthy accomplishments were the building of a 164-foot Bailey over the Mogaung and the construction of three H-20s, totaling 788 feet in length. On December 6th, the 75th Light Ponton Co. completed a 1,200-foot ponton bridge across the Irrawaddy at Myitkyina to facilitate supply of the Chinese troops marching southward to join the Y-Force. This bridge was apparently the third longest ponton structure built by the U.S. Army Engineers up to this time.

After the engineers had completed the four-inch pipeline to Myitkyina on September 27th, the emphasis turned to running the line through to Kunming. Parties worked toward each other from these two points. On October 26th, Col. Morse established an advanced headquarters at Yunnanyi and assigned to it the 779th, 778th, and 1381st Petroleum Distribution Companies; a fourth unit, the 1382nd, arrived in December. Pipe was flown in from Assam. LCol. Frank H. Newman, Jr., SOS engineer in China Theater, making an inspection on November 27th, was favorably impressed with the work of the "well-equipped, well-manned, and efficient" units. Meanwhile, two petroleum distribution companies, the 709th and the 775th, were laying pipe out of Myitkyina. The two groups were expected to meet in 1945. Three other companies were operating the lines from Tinsukia to Myitkyina. On November 19th, the second four-inch line was complete to Myitkyina, 11 days ahead of schedule.

Colonel Robert F. Seedlock (right), commander of the Burma Road Engineers, shakes hands with Mr. C. C. Kung, director-general of the Yunnan-Burma Highway Engineering Administration, in ceremonies commemorating the joining of their road-construction parties at the China-Burma border.

Work continued in East Bengal and Assam on the second six-inch line. Taking advantage of the proximity of the pipeline's right-of-way to the railroad from Chittagong northward, Col. Kinsolving made up work trains for his men. Each train, with cars for troops, equipment, and supplies moved forward as needed from siding to siding.

From the outset, his work was hampered because much of the salvaged British pipe had been seriously damaged in transit from the Middle East. As was the case with the first six-inch line, Kinsolving had to change specifications while construction was in progress. Despairing of getting enough new standardweight pipe from the United States in time to complete the project on April 1, 1945, he decided in late December to convert the northernmost 150 miles to invasion-weight, which would mean a reduction in the line's capacity from 13,000 to 10,000 barrels a day. For the northern reaches of the line he used some of the pipe intended for the six-inch line across Burma. At times, Kinsolving had difficulty in getting cargo space on British vessels operating between Calcutta and Chittagong, and the scarcity of workmen was a problem at first. One obstacle appeared well out of the way by December 25th; the Indian Navy had by then agreed to install the offshore mooring at Chittagong's harbor, and the Burmah Oil Company had agreed to connect this mooring to its tank farm with two underwater unloading lines.

Col. Asensio pushed work on the airfields around Myitkyina. Additional engineer troops and equipment came in by air from India during November. Between July and November, the 10th AF had flown in 149 two-and one-half ton trucks, 66 tractors, 32 scrapers, 30 motorized graders, 27 roll-

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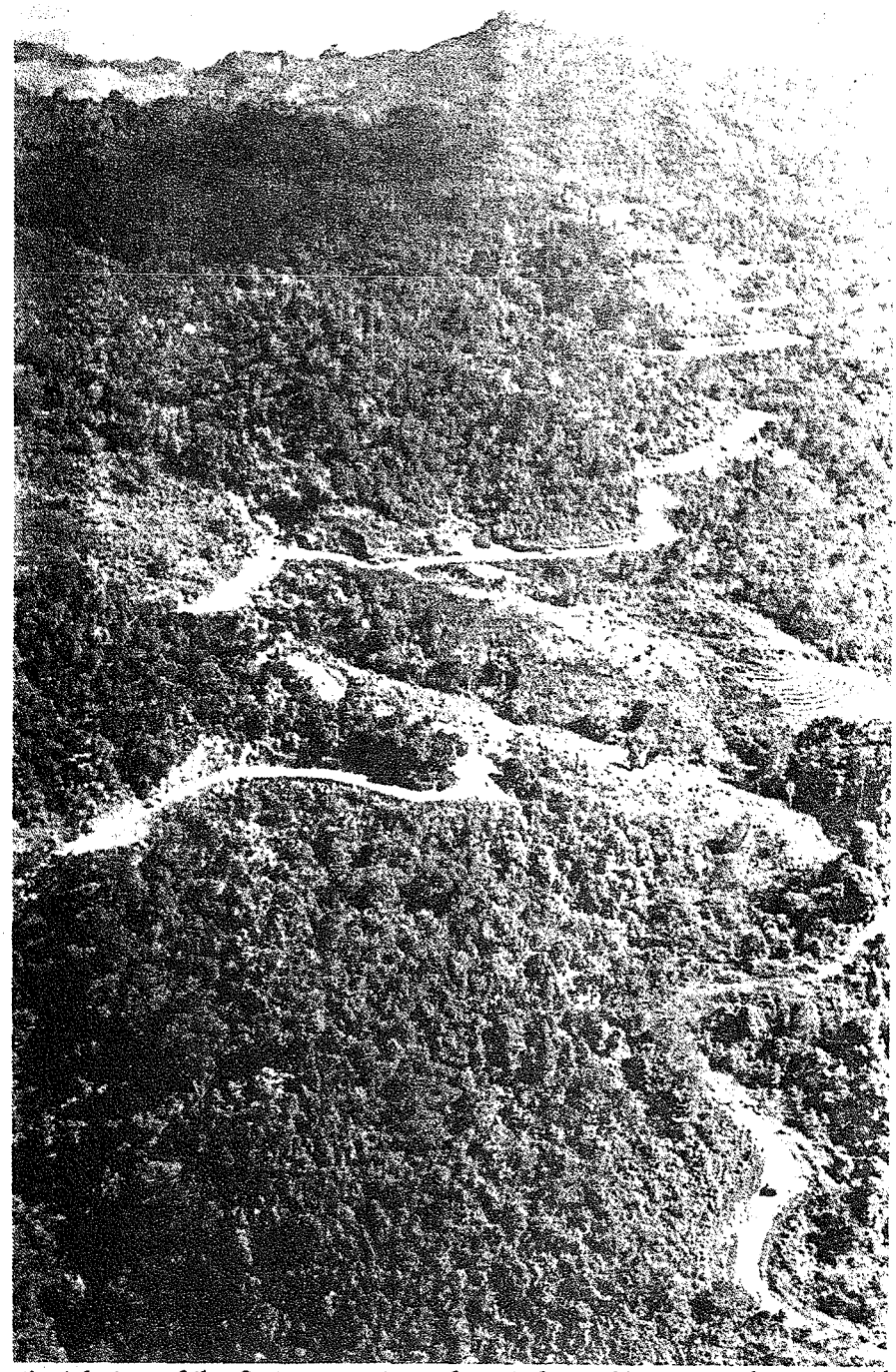
ers, nine power shovels, four cranes, and great quantities of lesser equipment. Impressed by the ingenuity of Asensio's subordinates in preparing so much heavy equipment for air transportation, Gen. Stratemeyer declared on October 5th that it was impossible to "give too much publicity" to this significant operation. The opening of the Ledo Road's cutoff near Mogaung made it possible to bring into Myitkyina the aviation engineers' 12-yard Tournapulls, D-8 tractors, and four-ton trucks during November. Asensio's work was now in high gear. He strove not only to meet the operational target dates for all fields but also to bring them to all-weather standards before the next monsoon.

With regard to the Teng-Chung Road, the Chinese displayed their usual mixture of enthusiasm and procrastination. The Central Government held back the first allotment of funds until mid-November. Mr. Kung, director of the Highway Administration, then made a concerted effort to organize his laborers and to get hand tools. Work began in earnest in the latter part of the month, but prospects for rapid construction were not encouraging. Governor Lung delayed a full month before conscripting labor in large numbers. Parties working eastward from Myitkyina were showing encouraging progress. They were well supplied with machinery. Pick's Depots had sent them 4D-7 bulldozers, four motor graders, four air compressors, and four trucks; during the latter part of November, the ATC flew in more machinery. Still by early December it was obvious that the target date for completion of a one-lane surfaced road would have to be moved back from January 15th.

Work was going ahead on the Ledo Road, although the Japanese were still astride the route in eastern Burma. Until mid-December, work east of the Irradwaddy was designed primarily to maintain a supply line for the troops besieging Bhamo. Thereafter, the 1875th Aviation Bn., moved across the river to begin in earnest the construction of a military highway. While Company C built a 14-mile, all-weather link eastward from the Irrawaddy crossing to the dry-weather track to Bhamo, the major part of the battalion undertook regrading, widening and surfacing of the track south of the projected junction with the Ledo Road. The 209th Combat Bn., worked on fixed bridges; the 71st Light Ponton Co. erected and maintained ponton bridges over the many streams. By January, the 236th Combat Bn., working closely with the advancing Chinese infantry, was improving the 72-mile blacktop road from Bhamo to its junction with the Burma Road at Mong Yu. The work consisted mainly of putting in culverts, and repairing the bridges.

Two Roads to China

Meanwhile, Seedlock's Burma Road engineers, now 500 strong and assisted by 12,000 Chinese laborers, made unexpectedly rapid progress in pushing a road along their route from both ends. Initially the job seemed an impossible one. The road reached elevations of 8,500 feet, skirted towering cliffs, and in places had to be cut through deep jungle; parts of the area were so inaccessible that food and supplies had to be brought in by mule pack or dropped from planes. Nevertheless, a 100-mile stretch of virgin trail was pushed



Aerial view of the first convoy to go from India to China over the reopened Burma Road. (DA photograph.)

through in 60 days. In the belief that the road to Teng-Chung would soon be open, China Theater on January 6th approved the departure from Myitkyina of a "convoy" consisting of two trucks and an 11-ton wrecker; in command was 1st Lt. Hugh A. Peck.

On January 20th, Seedlock's engineers met in the mountainous frontier region. A one-lane, unsurfaced track was open from Myitkyina to China. Peck's convoy continued on to Kunming arriving there January 22nd. The SE Asia Command and China Theater flashed to the world the news that the blockade of China was broken.

Gen. Pick had his own plans for a "first convoy." Early in January, he assembled at Ledo a caravan of jeeps, weapon carriers, ambulances and heavy cargo trucks – 113 vehicles in all – loaded with enough artillery and ammunition to equip two Chinese batteries and one weapons company. The drivers had been selected from all the engineer units which had worked on the road. Among the civilian passengers were 65 radio, magazine and newspaper correspondents.

At Ledo, the convoy passed in review before Gen. Sultan. On January 12th, Pick led the procession out of the city. Three days later it reached Myitkyina, where it was forced to halt because the Japanese were still in control of the area around Namhkam, 70 miles east of Bhamo. While waiting, Pick received the news that Myitkynia-Teng-Chung Road was open. He gave it a frosty reception.

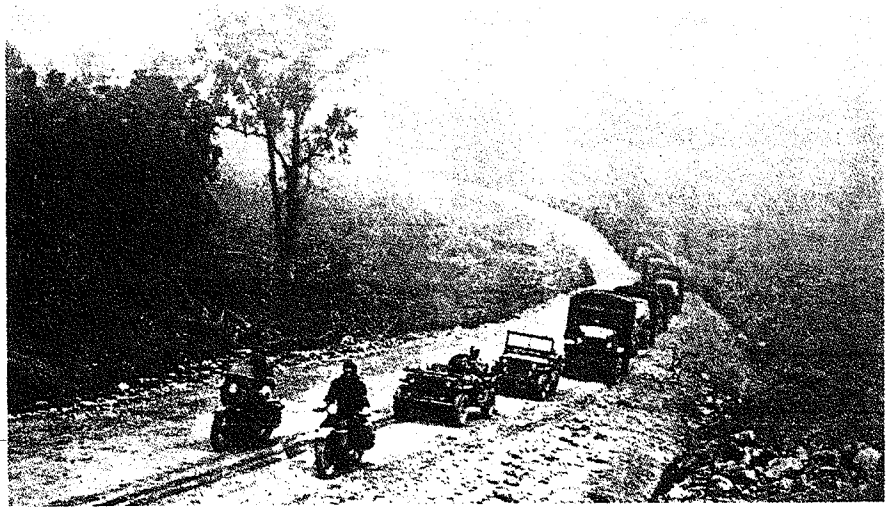
On the 23rd, the convoy resumed its forward movement. When it reached Namhkam three days later, it had to halt again because of the fighting near Mong Yu. The next day, the Chinese drove the Japanese from the city. Company B of the 236th Combat Bn., rushed to Mong Yu to connect the Ledo Road and Burma Roads; at the same time, the 71st Light Ponton Co., hastily put a 450-foot ponton bridge across the Shweli at Wanting on the Chinese border. On the 28th, Pick's convoy left Namhkan and soon covered the 40 miles to Wanting, where T. V. Soong, the Chinese Minister of Foreign Affairs, welcomed the Americans in a brief ceremony.

On February 4th, the caravan reached Kunming. A series of celebrations culminated in a banquet given by Governor Lung in Pick's honor. Pick sent a congratulatory message to his command, in which he described the Ledo Road as a "major contribution to the war effort" and expressed to his troops his "sincere appreciation" and "pride" in their achievement.

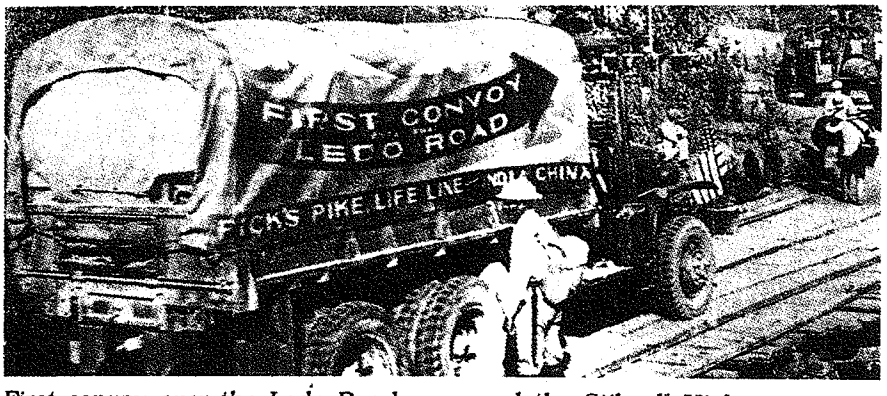
Overland communications with China had been restored, but much still remained to be done. For the engineers, months of hard work lay ahead to bring the Ledo Road to all-weather standards, improve the Burma Road, and extend the four-inch pipeline to Kunming. Now that the major engineer missions in Asia were certain of fulfillment, a policy of retrenchment, particularly in the India-Burma Theater, was well underway. Some units were transferred to China.

The organization in India-Burma was reduced, and a number of officers were returned to the United States. Gen. O'Connor and Gen. Farrell left in December; in January, Col. Alvin C. Welling was given the triple responsibilities of Theater Engineer, SOS Engineer, and Commanding Officer, Construction Service. Work continued much as before, and all construction projects related to the supply of China remained in full force. Additional troops and equipment arrived in Calcutta to insure the earliest possible completion of the line of communications across India and Burma. Nevertheless, the favorable progress of the war against Japan meant a decline in the importance of CBI.

(Excerpted from "History of the Corps of Engineers, War Against Japan" by Joe Shupe. This concludes the history of the Corps of Engineers in the CBI.)



Led by motorcycles, the first convoy to China hits a rare level stretch 204 miles along the Ledo Road.



First convoy over the Ledo Road, renamed the Stilwell Highway; cargo truck (top) is a 2-1/2 ton 6x6. In December 1942, engineers started to construct the Ledo Road starting from Ledo, Assam, across northern Burma to an intersection with the Burma Road near the China border. They moved ahead as fast as the combat troops, often working under enemy fire. On 28 January 1945, the first convoy crossed the Burma-China frontier.

Hydroxydeoxycorticosterones is the longest anagram in the English language.