

The Role of American Engineers in World War II

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IT SEEMS very fitting that I should give a brief but accurate report of the role played by American engineering in general, and by our Army Engineers in particular, in this most extensive, most costly, and most destructive of all wars in world history.

Such a report can best be covered in three parts: the work of Engineers in the build-up for war, in turning the tide of war, and in the drive to victory.

THE BUILD-UP

During the early days of the war, and for some critical months thereafter, the primary objective of the Corps of Engineers was to complete the emergency construction program at the earliest possible date. That building program was the very cornerstone for creating sufficient military strength to overcome the time advantage of the Axis countries and to drive through to victory. We could not train great numbers of men and we could not produce great quantities of munitions until this vast construction program was in place. The range of engineering and construction specialties called upon to build everything from air-dromes and seacoast batteries to chemical warfare and munitions plants, from troop cities to ports of embarkation, made it necessary for us at that early period of the war to marshal much of the engineering and construction talent of America.

By the summer of 1942, we were in the midst of a program that was putting \$20,000,000 worth of new construction into place every day. We were acquiring the vast acreages of land and other real estate necessary for such a program. At no previous time in history had any one agency been called upon to supervise as large and as effective an army of building trades workers and executives as the Corps of Engineers directed at the peak of that \$11,000,000,000 program. The civilian engineering genius and construction skills of this country contributed magnificently and wholeheartedly to this unprecedented building program.

In 1943, we undertook a nation-wide job that was a natural sequel to the domestic construction achievement: the recruiting of skilled specialists for military duty from the ranks of the construction industries and engineering professions. War construction was moving in greater volume overseas. Facilities had to be prepared for the housing and movement of millions of men and their supplies and equipment in battle zones around the world. These specialists were needed to fill key jobs in the Engineer troop units then undergoing training to carry on overseas the task of build-

ing great bases from which to launch our all-out attacks against the enemy. We got those men. You helped us get them. And they are giving a good account of themselves in the fields of action wherever they are.

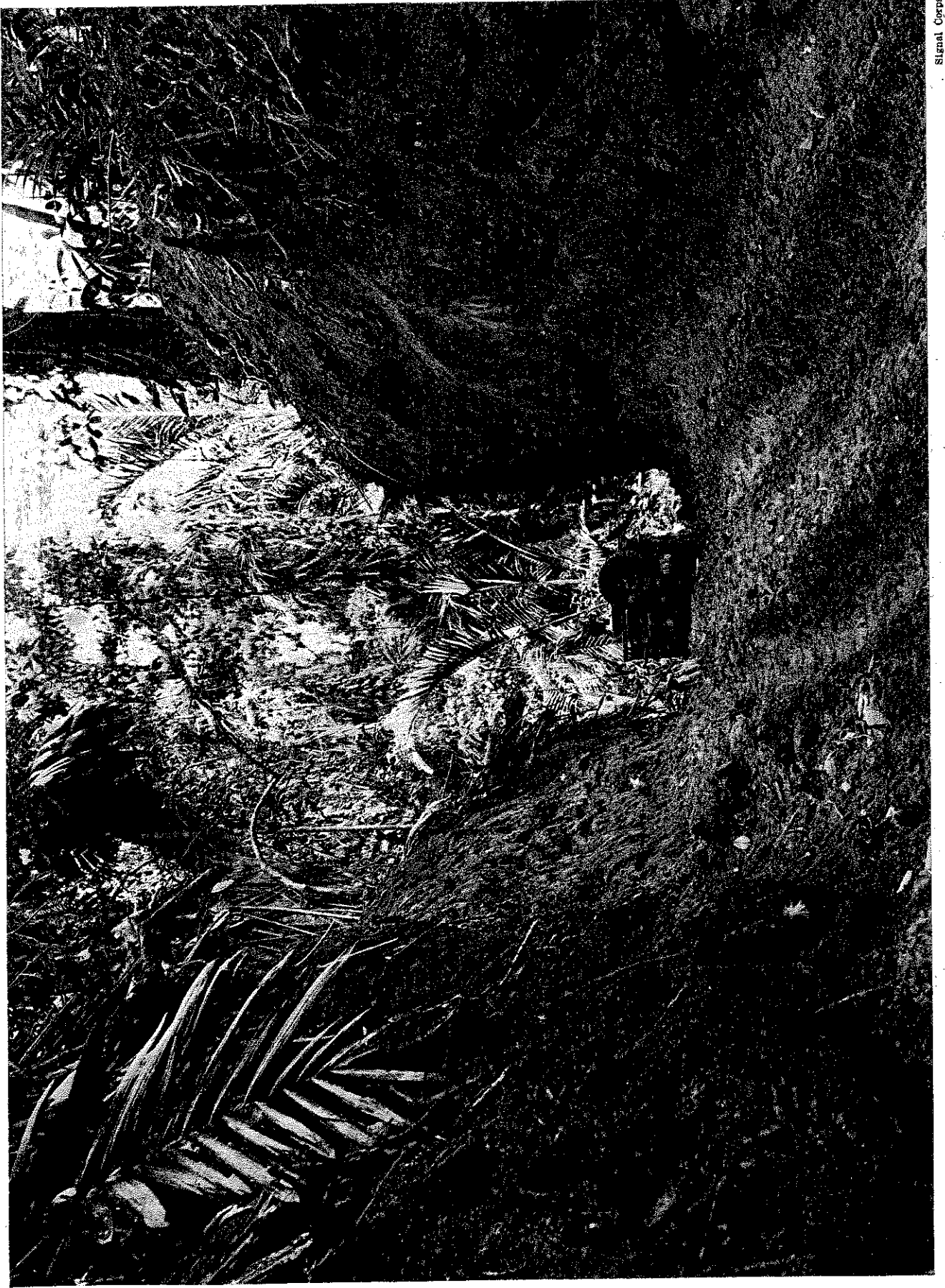
The problem of keeping our Engineer troops overseas supplied with the superior types of American engineering equipment is becoming an increasingly important and extensive responsibility. Everywhere, today, as our forces go forward from Engineer-built bases, over Engineer-built roads and bridges and railroads and docks, this equipment is recognized as a significant element in our superiority over the Axis. One Ground Forces observer from the Southwest Pacific declared, after the invasion of Leyte: "The war out there is a supply war and an Engineer's war—and we had more supplies and more Engineers than they had."

American industrial labor and management are seeing that we get the supplies and equipment. We are responsible for such equipment as tractors and bulldozers, cranes and shovels, rock crushers and saw-mills, pipe-lines and water purification units, and thousands of other items. The American construction equipment industry is meeting its challenge in a way that is characteristic of the American will to win. And supplies of this kind will be required until we have won final victory over Japan as well as over Germany.

While we have achieved these goals in our step-by-step program of helping build a substantial basis for complete Allied victory, we have realized that the major requirement is the determined drive to bring the war to a speedy and decisive end, a complete and crushing end. What we did during those earlier months of the war may be called the "build-up." Tough schedules had to be met during that period. And they were met! But the tempo and pace of the build-up must be increased to an intensity and fury that our enemies can not possibly match. This phase of the war we may characterize as the "speed-up"—and that, too, has to be carried out on schedule. In the last 21 months, for instance, we increased the number of Engineer troops overseas by over 350 per cent. We have consistently increased the flow of equipment, parts, and supplies to those troops.

To date more than half a million Engineers have been trained, including over 20,000 officer candidates and many thousands of technicians in more than two hundred and fifty specialties from instrument repair-

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Deep Cut Through New Georgia Hill for Road Built by Engineer Troops



Construction Work on the Floating Bailey Bridge at Dinant

men to sawmill operators, from divers to well drillers. This training program required careful planning and the establishment of large training centers as well as civilian schools. Many manufacturers and civilian agencies assisted us in this task.

TURNING THE TIDE

As the horizons of engineering responsibility in the war were extended, we found the Corps of Engineers building the Alaska Highway, the Pan-American Highway, the supply line across Iran, the Ledo Road in Burma, and bases along 56,000 miles of supply routes all over the world.

The engineering and construction that developed our bases and ports and airfields in the Aleutians were largely responsible for blocking Japan's thrust over that route. The airfield we built on Umnak Island unquestionably helped to prevent the loss of our major Alaska base, Dutch Harbor. When the Jap fleet came in under the cover of clouds and fog, expecting resistance only in the shape of anti-aircraft fire and a few flying boats, they were greeted instead by a fleet of bomber and fighter planes. The field that made this defense possible had been completed just a few days before, and the Japs did not know it was there. Thus, caught by surprise and to avoid bombing and strafing, the Jap warships and carriers ducked back into their protective covering of clouds, and few were those Jap planes that found their carriers again. The surprise forced the enemy to withdraw to the westward and abandon their intentions to take Dutch Harbor.

When we stopped the spread of the Japanese in the Southwest Pacific, stopped it and turned it back, in the early days of 1942, we held superiority in only one department, our engineering ability. In saying this, I am not depreciating the gallant sacrifices and the indispensable parts of our air, ground, and sea forces. But at that time, the enemy had superiority in the number and quality of his planes and his navy was definitely superior in numbers to anything we could muster in the area. But he was distinctly inferior in his ideas and execution of engineering works. He contented himself with picayune installations that were incapable of supporting the major forces he would need. He built neither roads nor piers, while he hung his airfields as close to the beach as high tide would permit.

As a direct result, his planes were caught concentrated on one or two strips and burned out, and his supplies were not in sufficient quantity to permit him to live on his reserves when his shipping was sunk. Great credit is due the five Engineer units that built many airdromes in three months in northern Australia, and that changed New Guinea from jungle-covered mountains to a series of major towns. From Friday noon to Tuesday dawn, they changed a gum forest into a 7,000-foot runway with planes operating on it. They provided the airstrip at Milne Bay. They developed Port Moresby. They bulldozed hundreds of miles of roads in Australia, New Guinea, and other South and Southwest Pacific islands.

Other Engineers performed similar miracles in building airdromes and roads and port facilities in North Africa. After the invasion that started the turn of the tide against the Germans in the Mediterranean area, adequate air cover was impossible because of a lack of landing fields. Within a few short weeks, however, the northern coastline of Africa was ringed with landing fields; and these fields crept forward like a barrage, putting bases closer and closer to the German Afrika Korps. Construction also paced the drive of our forces across Sicily and Italy.

For two years before the invasion of Normandy, Engineers worked night and day to make that mammoth operation possible. It began with the preparation of bases in the British Isles, where more than 100,000 buildings were constructed or acquired in 1,100 towns and villages, where the Engineers built troop cities and roads and paved hundreds of miles of airfield taxiways and runways. For two years the Engineers were gathering the terrain intelligence necessary for the invasion and subsequent operations and were preparing the maps for the use of all of the invading forces. We had to know the character of the beaches where we would land and just where the tides would be at each given instant. We had to know where roads could be built away from the beaches, where supply dumps could be located, and where airfields could be built. We had to estimate the damage to ports and to railroads and to public utilities and to bridges, and had to assemble the materials and equipment for their repair. Let us not forget that similar time-consuming preparations are necessary before we can strike the final blow to Japan.

These are some of the activities of the Engineers in the Pacific and in Europe that helped to turn the tide of war. These were some of the turning points that helped to start us on our drive to victory. And now I think you will be interested in a few examples of how Army Engineers are sticking to their jobs along the roads to Berlin and Tokyo.

THE DRIVE TO VICTORY

Broadly speaking, it is the mission of the Engineers in a theater of operations to keep the Armies on the move and the supply lines open. Some fifty different kinds of Engineer troop units perform a wide range of specialties, serving in every major component of the Army Air Forces, the Army Ground Forces, and the Army Service Forces.

I have in mind one Engineer combat regiment which has every right to consider itself one of the most versatile troop units in the Army. This particular regiment has been trained and organized as an Engineer shore regiment. Its primary mission is the back-breaking, but absolutely vital, job of organizing an invasion beach as a supply headquarters for the push inland. This particular regiment has spearheaded every landing our forces have made in the North African and Mediterranean theaters. On the beaches in Sicily, this unit proved that a major campaign can be supplied without the benefit of port facilities. The Germans in Normandy should have remembered that lesson!

At Salerno, the same Engineer regiment won the

36th (C) Regt.



Engineer Troops Using Rock Crusher in Road Construction Work in North Africa

admiration and respect of all who watched it stick to that slender beachhead, continuing to move supplies ashore until our toehold could be made secure. At Anzio, the regiment again led the way; and there, for approximately fifty days without relief, it fought as infantry to hold a section of the beachhead perimeter. This regiment again set up the American beachhead

in Southern France in the invasion which has been described as a model for major amphibious landings. With the beachhead secure, the Engineers from this regiment helped to restore enough port facilities at Marseilles to keep up the flow of supplies to the armies pressing northward.



U. S. Air Forces

Heavy Earth-moving Machinery Being Used to Haul Coral in the Gilbert Islands

Two years of almost continuous active service, highlighted by their participation in five major amphibious operations, might seem enough for any one unit. But today this one is building bridges and roads up near the Vosges mountains. They have worked on every major bridge that the Seventh Army has crossed in its drive northward to the German border. They have considered themselves personally responsible, it seems, for any construction needed to keep that supply line moving forward. This Engineer regiment has already sustained more than twice its total original strength in casualties. Its record is heroic proof that Engineers fight as well as build—and they are staying with their jobs.

Now let us consider another unit. One of the five Engineer combat battalions to win unit citations for heroism in the Normandy landings suffered heavy casualties in the fight across the beach. It had to be pulled out of the line for a day or two in order to be filled up to strength again. Except for those few days, this particular Engineer battalion has been with the leading elements of the columns fighting their way across France and into the Siegfried Line. As an Engineer combat battalion, it necessarily has two specialties, mine clearance and assault demolitions. Both specialties are dangerous but tremendously important. For more

than five months, night and day, the Engineers in this battalion have been staying with their specialties. This particular unit, incidentally, is carrying on a brilliant history that began in the War with Mexico.

Even one of our newest types of Engineer units, a Port Reconstruction and Repair Group, found out in Normandy that their job required fighting as well as

construction. Coming in across the invasion beaches, this group was given the assignment of rebuilding a railroad bridge long before they got to their objective at Cherbourg. Rebuilding that bridge was not as simple as it might seem in passing. The German artillery fire kept knocking out sections of the bridge while the Engineers were at work. But the group muscled its way into Cherbourg and helped to rebuild the port that is handling many times its pre-war tonnage.

Throughout the war zones, Engineer troops go about their assigned missions long before they think about providing quarters for themselves. As one tough sergeant said: "We build 'em; we don't use 'em!" Throughout the Pacific I have seen them living in Spartan simplicity while building airfields and warehouses and roads. On Amchitka Island, in the Aleutians, Engineers landed their heavy equipment through the surf and completed an airstrip before they even thought about shelter for themselves.

These men are motivated to make such sacrifices by more than mere individual self-respect. They are personally convinced that the best way to shorten the war is to get along with it. They are also spurred on by a feeling which is common to all good soldiers. We call it "pride of outfit." It is the kind of pride found in an amphibian Engineer unit in the Southwest Pacific that has made more than twenty successful combat landings behind Japanese positions. The members of this unit have earned a higher percentage of decorations, including Purple Hearts, than any other unit in the theater. They have built up their fleet from a shoestring. When they have not been operating boats, they have worked on everything from airdromes to general hospitals. Yet, instead of feeling neglected, the members of that unit burn with the conviction that they can take anything the war can dish out to them. That is the spirit which makes the American Army a great fighting machine. Such teamwork will win overwhelmingly.

Perhaps it is not inappropriate, therefore, for me to express publicly to engineers the deep personal gratitude I feel for the "pride of outfit" shown by all those who work together under the Engineer flag. Our civilian and military personnel throughout the country are sticking to the job in a way that is a tribute to American manhood and womanhood. The test of

war has proved the soundness of our permanent organization. Specializing through peacetime years in river and harbor and flood control work, we had an administrative organization which took in stride the challenge of planning and supervising history's greatest construction program. The same organization has been versatile enough to handle the unprecedented task of procuring, storing and issuing Engineer equipment and materials. It has handled the procurement of millions of acres of land and millions of square feet of floor space. It has handled the repairs and utilities program—the city-management function—at hundreds of posts, camps, and stations. It has provided Engineer training techniques and materials, and has supplied Engineer intelligence as well as maps for all branches of the Army. It has functioned as good engineer organizations should function.

But today as our troops are inching their bloody way through the rain and fog and snow and mud toward the heart of Germany, and over land, sea, and by air to Japan, we have grim evidence that we need not look to an immediate or early resumption of our civil works program. Prosecution of that program must await victory over the Axis. And the victorious conclusion of our present determined drive remains a grave and tremendous undertaking. Our active battle fronts now extend from the borders of Germany and from the Philippines and China right back to the farms and forests and mines that supply the raw materials for our war industries. Pressure on these fronts, both at home and overseas, must be maintained constantly; they must be steadily increased. Any act or deed that delays production or transportation or any other essential service can not help but increase the awful price of victory. Over-optimism and complacency will be paid for in terms of American lives.

But when the challenge of war is succeeded by the responsibilities of peace, the Army Engineers will be ready to resume the mission which they have performed during years of peace for more than a hundred years—the river and harbor and flood control programs for the nation. We will not have to build a new organization. We have our organization—and it will continue in peace as in war to stick to its job of helping to retain for America the engineering leadership of the world.



Air Compressors Salvaged from the Beach at Rangoon, being Reconditioned at an Engineer Depot in Assam