Terrain Intelligence for the Pentomic Army

The capabilities of terrain intelligence rethought for promptness and precision in the age of missiles.

Clifton A. Blackburn, Jr.

Over the Mulde River, behind the Iron Curtain in East Germany, there is a highway bridge. This bridge has a load classification of 50 tons. The national highway it carries has a concrete surface 26 feet wide. The approaches to the bridge are unusually steep (11% grade) and the roadway across it is unusually narrow (12 feet). The bridge has 3 spans and 2 piers. The piers are made of stone and contain demolition chambers. The spans are approximately 62 feet long, and the center span clears the surface of the water by 16 feet at normal high water, which occurs in May.

About 25 miles north of this bridge the national highway passes through a forest. About 600 acres in extent, the forest is composed of old beech and oak trees. The trees are in full leaf by about the middle of May and lose their leaves about the middle of November. During the foliation period, more than 90% of the ground within the forest is completely concealed from aerial observation. The ground is covered with forest litter but there is no underbrush. The larger trees in the forest have trunks ranging from about 16 to 25 inches in diameter at shoulder height and are spaced about 12 to 15 feet apart.

How do we know all this about a relatively obscure bridge and forest

behind the Iron Curtain? A former German Army engineer interrogated at a refugee camp in 1955 reported that the bridge had demolition chambers. A photograph taken by a barge operator in 1949 was found to show these chambers, as well as the number of spans and the steep grade of the approach to the bridge. A German waterway publication provided the clearance figure, the time of high water, and the clearance between the central piers. The barge operator's photograph showed the spans to be of equal length and the piers to be made of stone. An aerial photograph taken in 1951 showed the width of the roadway and its surface material.

A large-scale German topographic map, revised in 1939, located the forest and provided an accurate idea of its size. Three refugees from separate villages on the outskirts of the forest reported on separate occasions in 1950, 1951, and 1956 that the forest was composed of beech and oak trees. They also gave estimates of the trunk diameters and foliation periods that were in general agreement. A 1955 aerial photograph showed that only small changes had occurred in the forest's acreage. This photograph, taken in June, also showed the extent of the canopy and partially confirmed the species of its trees. A ground photograph from a pre-war tourist guide corroborated and refined the refugee information as to trunk diameters, showed trunk spacing, and showed the forest floor to be clear of underbrush. The lack of underbrush was confirmed by one of the refugees who had hidden there in his escape to the West in 1956.

Now add to this bridge and this forest all the other natural and man-made features of the East German countryside rivers, roads, towns, hedgerows, soils, railroads, and landforms, to name only a few. Then multiply East Germany by all the other countries of the world to get some idea of the hundreds upon hundreds of thousands of items of data which must be identified, evaluated, and organized to make up the dossiers of long-range terrain intelligence. In these dossiers are stored the preconditions of the battles of the future. For battles are not fought in a vacuum but on a jungle-covered Guadalcanal, on a barren Heartbreak Ridge, or in flooded Pripet Marshes. They are fought along a Rhine flowing through fertile farmland, around minute Saharan oases, on a tiny Iwo Jima, or on the subcontinents of a Festung Europa. It is these rivers and ridges, forests and floods, islands and oases, swamps and sand dunes that are the subject matter of terrain intelligence.

Terrain and the Space Age

The new and cataclysmic spectre of a decisive two-day strategic air battle or two-hour missile war has not exorcised the old implacable military need for terrain intelligence; on the contrary. The air age and even the space age will not divorce future military action from the ground. Lieutenant General James M. Gavin, the man so intimately associated with the age of missiles even in the popular mind, has written unequivocally:

> The frontiers of the free world must ... be firmly defended on the ground. For this is where freedom begins. It begins where men will stand and fight. It begins today along the 38th Parallel in Korea and the 17th Parallel in Indochina and at the Brandenburger Gate in Berlin.
>
> Finally ... one thing stands out quite clearly: the control of land areas will be decisive in this period and through control of land areas we will provide the reassuring confidence in its own survival that the Western world needs. And from control of the land areas we will be in a position, if the need arises, and I believe it most certainly will, to command space.[1]

The task of the terrain intelligence producer, never an easy one, becomes yet more demanding in this age. Changes are taking place in the organization, equipment, and tactics of his old customer, the U.S. Army. Indeed, these changes are replacing his old customer with a new one, a Pentomic Army of vast mobility, ready to place powerful forces anywhere in the world in a minimum of time. The new customer is a modern and streamlined striking force with nuclear capacity to engage in a general war or win a small war quickly.

This enormous strategic and tactical mobility demands greater amounts of terrain intelligence and simultaneously gives the producer less time to prepare it. A striking force may leave today for the Middle East or tomorrow for central Europe or the next day for Africa or the islands of Indonesia. When this force reaches the battle area its battlefield mobility will make it a voracious consumer of terrain intelligence; and this intelligence has to be supplied before it sets out on its mission.

As things stand today, however, it could not be so supplied. If an airborne Pentomic division were alerted today to leave tomorrow on a

"no drill" strike mission, it could not take with it adequate operational terrain intelligence on its objective. An airborne division is not itself capable of collecting, evaluating, and storing terrain information or of producing adequate terrain intelligence on a world-wide basis -- or even on a selective basis -- for operational planning.

The *capability* does exist elsewhere. It exists within an already established and operating group of terrain intelligence producers in the U.S. Army Corps of Engineers. There is no reason, from the standpoint of capability, that this group could not begin today to support the Pentomic Army with operational terrain intelligence on individual, carefully selected potential trouble spots of the world. A package could be put into the hands of the planners before trouble starts and into the hands of the strike force as it leaves for the battle area -- a package of basic terrain intelligence that needs only the veneer of weather data and enemy disposition and capabilities to make it a complete operational planning document.

Why Not Now?

Before he can provide this support, the terrain intelligence producer must turn from encyclopedist to eclectic. His ideal goal is to know the whole world as intimately as his own back yard; but he cannot plot for the Pentomic Army commander all the anthills and dandelions in all the earth's back yards. He must select with foresight, with care, and above all on good advice, first, the areas where operations may occur, and second, the kinds of terrain intelligence likely to be needed.

For guidance on the *where's* he can consult the considered judgment of the whole intelligence community about potential trouble spots in the world of 1959, 1960, or 1961. Not the spots where diplomats will be arrayed in battle or those where economic conditions will gradually increase the influence of Communism, but those that might reasonably become the objectives of a Pentomic striking force landing for a shooting war -- trouble spots like the 17th parallel in Indochina in 1954, the 38th parallel in Korea in 1950, the western border of Poland in 1939. The guidance he gets may not be uniform and cannot of course be sure, but it can provide a sufficient basis for selecting the priority areas for terrain intelligence.

Deciding *what* terrain intelligence to produce on each of the priority areas is a matter of knowing the consumer's requirements. A superior product can be designed by tailoring the supplier's capabilities to the

user's needs. Let the user and the producer get together at the working level and find out what the one needs and what the other can do. But even without this intimate guidance, the producer can formulate some general ideas about what he can do to help.

For one thing, an airborne striking force must get back to the ground to accomplish its mission. With existing capabilities, the battle group commander can be furnished far in advance a clear idea of the limitations imposed by forests, slopes, and soils upon successful landing of a battle-ready force.

In operations after landing, whole Corps may have to cross a river in a single night, making multiple stream crossings on a very wide front. The commander can have in his possession, before he even leaves for the battle area, intelligence on the river's banks, velocities, widths, and other features that will affect his use or placement of amphibious personnel carriers, light tactical bridges, and air-mobile assault bridges.

The Pentomic Army commander will be firing atomic missiles, but not every part of the area will be suitable for emplacement of missile launchers. There is no reason why he should not know in advance the location, physical advantages and disadvantages, and access possibilities of all the potential missile launching sites within his battle area.

To provide the Pentomic Army with long-range intelligence such as this, a new and specially designed product will be required. It must be a lean and efficient package, yet containing all the basic terrain intelligence a commander needs for the early phases of his operation. There should be no broad and meaningless generalizations. There should be no extraneous matter and no omissions, because the user will have had a voice in its planning and it will have been designed with his specific needs in mind. The tank commander will not be burdened with information on airdrop sites, but he will know where the bogs are that can swallow up his tanks. The airborne commander will not be furnished a survey of urban reconstruction possibilities, but he will know which bridges will accommodate his Honest John missile launcher and which will not. The package must not include unneeded trappings, but it should permit few if any terrain surprises for the commander of the striking force.

For many years, long-range terrain intelligence efforts have been

expended on bulky, small-scale,[2] generalized, strategic-level studies designed with no clearly identifiable user in mind. The time is long since ripe for redirecting these efforts to produce streamlined, large or medium-scale, detailed, operational-level intelligence packages specifically designed for a Pentomic Army ready to leave tomorrow to fight anything from a minor police action to a world-wide nuclear war.

The need clearly exists. The capability to answer it exists. The "tooling up" has begun within the Corps of Engineers, and prototypes are being circulated for user reaction. It is a laborious process, but next year's model must show that the long-range terrain intelligence producer has begun to assemble a modern package.

---

1 "Why Missiles," in Army, November 1957.

2 I.e., scaled down at high ratio.

Posted: May 08, 2007 07:23 AM