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About the Dikes in North Vietnam

"Premeditated character of the bombing"

By YVES LACOSTE

PARIS—To the long controversy between critics of U.S. bombing of North Vietnamese dikes and the American Administration, it is now possible to add new elements to the available evidence. They are the result of a geographical analysis of the points in the dike network that have been hit by bombs.

From April 16 to July 31 (and the bombing continued into August), more than 150 attacks were made on the whole of North Vietnam's canal system, causing heavy damage in 96 places. The International Commission on War Crimes made a special study, among others, of the effects of the bombing in the Red River delta. The bulk of the population is in fact here; and it is also this region which suffered the greatest number of hits (58 out of 96).

The U.S. Administration first denied that the dikes had ever been bombed. It later admitted that some canal installations may have been hit—

flow and which frequently cause changes of course before their waters are brought under control by dikes. To the east, in the lower delta, the rivers, which have deposited most of their alluvial contents further upstream, flow along rather lower natural levees, separated from one another by vast stretches of very low-lying flat land.

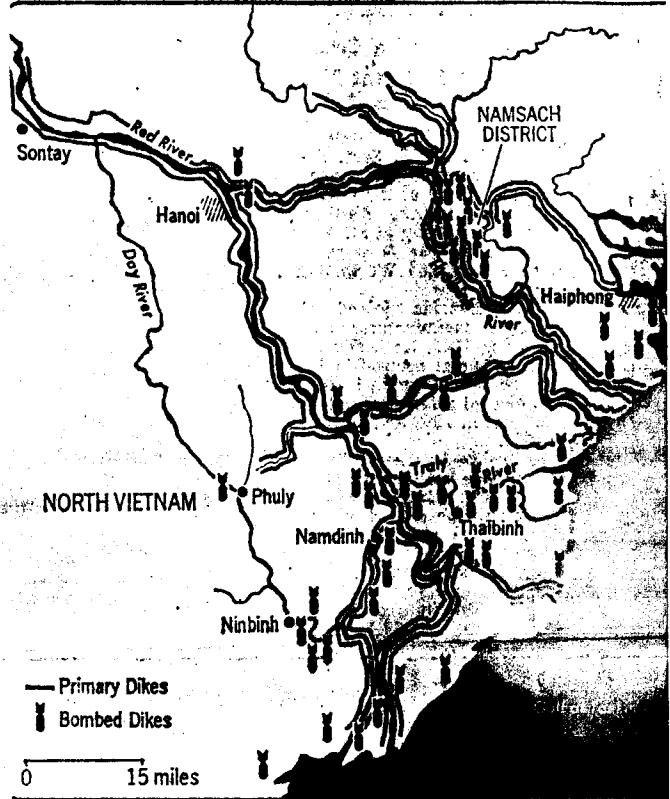
It is in the eastern part of the delta where the Red River and its various branches flow into the sea that the areas most likely to be flooded can be found. In the upper delta most of the villages are perched on top of the alluvial ridges, which rise prominently over the flat lands. In the lower delta, on the other hand, the villages are generally below river level.

It is just this destruction which the bombing is largely trying to achieve. If the bombs were being aimed not at the dikes but at "military objectives" then they would be more evenly spread across the delta. The concentration of bombing attacks on the dikes in the eastern part of the delta, which also happens to be the most thickly populated and heavily farmed area in the country, can therefore be regarded as deliberately planned, for the attacks are directed against a region where they can have the gravest consequences.

At another level of geographical analysis, a close examination of the various sectors in the eastern delta area reveals the premeditated character of the bombing.

One of the most striking examples can be seen in the southern part of Thaingh province between the Red River itself and the south and one of its branches, the Traly, to the north. These two waterways, which both flow along alluvial ridges, form the outer edges of a kind of gutter, which drains towards the east, the sea. Reclamation of the area, where some 600,000 persons live, was made possible by building dikes along the rivers, and dams to keep the sea out. And even then, rainwater collecting in this vast "gutter" must be pumped out at low tide—which is the function that the big Lan locks perform.

The bombing was directed against the vital points of this system, and primarily against the Lan locks. Between May 24 and July 29, the locks were bombed nine times. Even after they were wrecked, three more bombing attacks were launched against this installation, which is far from any military objective, no doubt with the intention of hindering repairs. So the water, unable to flow into the sea, is beginning to accumulate in the rice-



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cause they were in the immediate neighborhood" of military objectives. Washington, however, strongly rejected allegations that the dikes were deliberately bombed.

One thing emerges from a scrutiny of the map [right] showing where dikes have been hit. Apart from two strikes near Hanoi, and two others, including the Phuly locks on the Day River, all the points which have been bombed (54 out of 58) are in the eastern part of the delta, ranging from the Namsach district in the north to the provinces of the Thaingh and Ninbinh in the south.

The American Administration admits this, but points out that bombing intended to cause major flooding would be concentrated upstream on the western part of the delta, which has in fact been spared. A study of the country's physical layout, however, leads to somewhat different conclusions.

Schematically, the Red River delta can be divided into two parts: to the west, in the upper delta, the rivers which tumble directly out of the badly eroded hills have built up several alluvial ridges, along which the rivers

fields, where a good part of the crop can be written off as a loss.

What must be emphasized here is that in President Johnson's time, the bombing of the dikes usually stopped before the rainy season. Under Mr. Nixon there is no sign of a halt. River and sea dikes continue to be bombed, and the latter are continually shelled by units of the Seventh Fleet. Locks are the primary objectives, for by destroying them, villages and fields can be flooded or the sea let in to render the soil unfit for cultivation for years to come.

Yves Lacoste, professor of geography at the University of Paris, visited North Vietnam as a member of the International Commission on U.S. War Crimes in Vietnam. This is adapted from *Le Monde*.

About the Dikes in North Vietnam [second article]

"The issue will be employed by Hanoi"

By NGUYEN TIEN HUNG

WASHINGTON—Not only is November the month for the U.S. election, but more important to North Vietnam, it is the time for harvesting the most important crop of the year. The dike issue will therefore be employed by Hanoi for dual purposes: to influence public opinion abroad and to justify poor agricultural performance at home.

The people of Vietnam are grouped around the deltas of two great rivers, the Red River in the North and the Mekong River in the South. While the latter is like the Nile in Egypt, flowing through the South as an irrigator of adjoining lands, the former, in Pierre Gourou's words, "crosses the (Tonkinese) delta as a fearful stranger." It is so strange and fearful that for centuries it has never ceased to be a source of greatest anxiety to the peasants and their rulers for while the Red River supplies water for paddy sowing, transplanting and growth, it can also destroy crops by flooding.

The violence and swiftness of the Red River flow is well known. Heavy

rains are often accompanied by great winds which turn into typhoons with winds reaching speeds as high as 101 miles per hour. When they come, the Red River may suddenly break loose, threatening man and his entire rice crop since most of the delta is no more than ten feet above sea level, and some of it is three feet above or less.

Under the Communist regime, state expenditures on hydraulic works accounted for over 70 per cent of total annual spending on agriculture. In spite of these efforts the prospect of completely defending the dikes appears to be as remote now as ever before.

The history of the Red River dikes is one of dike breakings. Between 1890 and 1926 the Tonkin delta suffered sixteen major dike breakings. Between 1927 and 1945, in spite of new, more modern works constructed under the French, the dikes broke seven times. Since the 1954 partition, North Vietnam has not had much luck in controlling seasonal floods. Perhaps with the exception of 1956, 1959, 1964, 1965 and 1967, most of the other

years have been classified as bad years, during which typhoons, floods and drought dominated. Natural calamities were climaxed by the devastating flood of last year. On Sept. 2, 1971, Premier Pham van Dong publicly declared: "Flood waters from upstream have caused the water in the entire system of the Red River and Thaibinh River to rise to an unprecedented level, while heavy downpours in the delta caused added difficulties for the defense of the dike system."

The impact of last year's flood is still being felt in North Vietnam. In spite of substantial relief aid from Communist allies, the food shortage situation remains acute. This year, the summer crop was harvested (during May and June) at the time when the whole population was mobilized to support the current military offensive.

It appears probable that North Vietnam will suffer another calamity this year. At least some major portion of the dikes, especially those which were damaged by last year's flood, will be broken when typhoons strike from now through November.

In the past, North Vietnam's population could turn to the South for food relief in times of crisis. In 1945 when floods ravaged the Tonkin delta and the flow of Southern paddy was cut off because of war, starvation claimed the lives of over one million persons. Since the 1954 partition, North Vietnam has turned for assistance to the Communist bloc to partially substitute for the traditional Southern rice. Relief for last year's flood was provided by China, Russia, North Korea and East Germany.

North Vietnam must understand, however, that the vulnerability of its economy to the Red River and the dike system will render the prospect for permanently solving the food problem extremely remote. On the other hand, it cannot count on foreign assistance for lasting relief, especially in view of the Sino-Soviet dispute and its effect on the Communist bloc.

Presumably North Vietnam has looked back toward the South for a solution. It is also highly possible that the devastating flood of last September was a determining factor behind Hanoi's decision to go on toward its goal to conquer the South in the spring offensive. In any case, the food crisis of last year certainly helped strengthen the hand of the hawk faction in North Vietnam.

The Red River, the dikes and the vulnerability of North Vietnam's agricultural sector are critically important in explaining Hanoi's determination in the current conflict.

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