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AN ARMY ENGINEER'S EXPERIENCE IN THE LOUISVILLE FLOOD AREA

By MAJOR WILLIAM N. THOMAS

DURING the recent Ohio River flood, the officers and the non-commissioned officers on duty with the Engineer Unit of the Ohio State R.O.T.C. were ordered to Louisville, Kentucky, to render such aid as they could to the flood sufferers of that city.

Four trucks were loaded at the Columbus general depot with such miscellaneous engineer's equipment and supplies as it was thought might be of use, and with these necessary tentage, cots, and rations to shelter and subsist the detachment for ten days. In these trucks the detachments left Columbus January 26, about 11:30 at night and proceeded by way of Springfield and Dayton on account of flood-covered more direct highways. They crossed the river at Cincinnati at daybreak, detoured more flooded areas by way of Lexington, Kentucky, and arrived at Bowman Field, the Louisville municipal airport, at seven o'clock the following night. Here they reported to General Van Vorlis who had arrived from Fort Knox, Kentucky, with his staff to command the U. S. Army troops in Louisville. The engineers were sent at once to the edge of the flooded area at the foot of the Baxter Avenue hill to reconnoiter the crossing at that point and to contact the U. S. District Engineer Office in the down-town section. This detachment was joined the following day by Company "B" Fifth Engineers from Fort Belvoir, Virginia, with their field equipment, augmented by some pontoon equipage, a mobile water purification unit, and a mobile air compressor unit with its tools.

When the army engineer troops arrived in Louisville, an outstanding masterpiece of emergency bridge construction had been completed and the only bridge work required of the regulars from then on was to see that no

failure occurred. The original design and construction was so well done that at no time was the structure seriously endangered by the rising and falling flood waters and the continuous lines of crossing pedestrians.

Louisville consists of a large west end residential and downtown business area which, with the exception of the low-lying river front sections had never been flooded prior to this time. Bordering this area on the east is a high-ground residential area with small neighborhood business sections. The rising waters inundated the west end residential section except for a couple of small above-water areas and most of the downtown business district. A section of the main downtown district surrounding the city hall remained above water and became known as "The Island." All of the lower area was cut off from "The Highlands" on the east by the river flood waters backed up in, and pouring from, the sewers and by the waters of the overflowing Beargrass Creek. The narrowest flooded area between "The Island" and "The Highlands" was where Baxter Avenue coming downhill from the east runs into downtown Jefferson Street. This was the point where the waters had to be crossed to evacuate those who had been collected on "The Island" from their flooded homes and to return food and supplies to those remaining on the unflooded "Island."

Along the north side of Baxter Avenue and then at an angle along Jefferson Street for about 2200 feet, across water over ten feet deep where Beargrass Creek normally flows under Baxter Avenue, Captain W. S. Arrasmith, an Engineer Reserve Officer, constructed with volunteer workers a floating support catwalk bridge which safely carried thousands of people. The floating supports of this bridge were composed of wooden crate frames enclosing tightly bunged empty whiskey barrels to supply the required buoyancy. These crates were so sturdily constructed that they still supported the walk when the receding waters grounded them. The three barrel floats were spaced about sixteen feet apart and supported a duckboard walk with handrails. With the original narrow catwalk supported over the center barrel greater stability was given the bridge by the buoyancy of one barrel on each side of the walk. This original walk readily accommodated a single file of pedestrians. A later widening of the walk by someone in no way connected with the design or construction tended to upset its stability and made necessary the placing of extra five-barrel crates under certain portions where the current was swift. The bridge was securely anchored throughout its length to a steel cable and a 3-inch manila rope cable both

A FLOODED STREET
SHOWING TEMPORARY BRIDGE



stretched across the flooded section along the side of the bridge and firmly secured at each end and along their lengths wherever possible to various telephone poles and buildings.

The construction of the floats was begun at dusk at an adjacent lumber yard, by a miscellaneous group of volunteers and continued by candle light throughout a very cold windy night. Duckboards were also constructed and at daybreak the placing of the floats and the actual construction of the bridge began. The efforts at the one lumber yard were augmented by similar construction of parts by another volunteer group at a lumber yard on the opposite side of the water. By uninterrupted hard work under very adverse weather conditions the bridge was ready for traffic by the next evening. This was a splendid job and the effective service of the bridge proved what can be accomplished even under unfavorable conditions and in a short time by a fine spirited group of men when the job is well planned and organized.

An example of fine service was that of a volunteer whose energy and quick understanding soon secured for him charge of ten or a dozen men engaged on part of the construction. He handled his crew in fine style and they followed his directions as well and willingly as he followed the instructions given him. The bridge completed, he remained through its early life to help make sure that it would fill the bill and then as the need for the volunteers ceased he disappeared with the others. A week or so later this same man was encountered in the reviving downtown business section and the acquaintanceship was renewed. The conversation revealed that this particular volunteer carpenter foreman hero of the bridge is in his normal occupation a lady's hairdresser.

Along the side of and parallel to the footbridge and above the flooded streets was operated a peculiar day and night ferry service until the receding waters again permitted through automobile and truck traffic. A miscellaneous collection of small boats propelled by outboard motors and operated by volunteers evacuated to "The Highlands" sick and crippled refugees—carried on litters or in arms, many small babies of the comparatively normal death rate cases, and tons of food and supplies taken from the uninundated downtown warehouses.

The army engineers placed three pontoon boats in operation at this crossing. Because of the danger of operating at night by flashlights only these large and heavy boats with outboard motors among so many small boats over deep water, they were towed by crews walking the footbridge and guided by steersmen in the boats. This did not seriously interfere with the bridge traffic or the safety.

The main responsibility of the engineer troops was to transport the U. S. mail. The flood caused a heavy congestion of mail in Louisville and a special representative of the post office department was sent there to handle this situation. As a solution, the transportation of the mail was placed solely in the hands of the U. S. troops, with the engineers responsible for the water crossing.



CAMP UNDER CONSTRUCTION

The mail was placed in guarded army trucks which carried it to and from Buechel station outside of Louisville. A large amount of mail was moved without tie-ups or confusion; two shipments amounted to 70 truck loads each. When not engaged in transporting mail the pontoon ferry which operated 24 hours a day carried many tons of miscellaneous supplies but no personnel. Where necessary to carry persons across the small boats were used.

Two pontoon boats were turned over temporarily to the U. S. Coast Guard and used as scows towed behind Coast Guard cutters for long distances, ferrying in more out-of-the-way places where no regular crossing service existed.

The Engineer Mobile Water Purification Unit was set up and operated by the engineer troops. The public health service report on the water supply was very satisfactory.

Contact established the night of arrival with the U. S. District Engineer was closely maintained throughout the stay in Louisville, each engineer agency cooperating closely with the other.

The newspapers have vividly described the general conditions of no light or heat and very few phones, etc. Real sleep and hot baths were only dreams the first couple of weeks.

Constant reconnaissances were made to determine conditions and possible use of various traffic routes and the best means of movements.

One all night reconnaissance of the engineer officers and several non-commissioned officers was for the purpose of determining how about twenty heavy pumping engineers sent from eastern city fire departments could be moved from "The Highlands" to "The Island" where the threat of fire was serious. For a time it looked as though they would have to be transported across the water by pontoon rafts but fortunately the wide reconnaissance disclosed that they could be loaded in "The Highlands" on railroad flat cars and by a combination of shifting from one railroad to another could be shuttled across a trestle above water and unloaded on the downtown "Island."

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AN ARMY ENGINEER'S EXPERIENCE IN THE LOUISVILLE FLOODED AREA

(Continued from page 7)

On another occasion a careful reconnaissance and study resulted in placing the train containing the U. S. Army Hospital Unit sent from the medical school at Carlisle, Pa., on a nearby siding and moving it promptly into a large modern school where it was operating an emergency hospital before night on the day it arrived instead of being located in an unfavorable tent camp location requiring a long haul from the originally intended unloading point.

Constant liaison was maintained with the Railroad Transportation Committee and with Major Adams, commanding the Pennsylvania State Constabulary on duty at Louisville and in charge of traffic in the outlying areas. These were assisted by the results of the engineer reconnaissances.

After many consultations of various agencies and much changing of minds it was decided to build a tent camp for 1200 colored family refugees. The site selected for the camp was George Rogers Clark Park just outside the city limits. This location required the construction of 1000 feet of road across soft muddy fields and an equal length of 3-inch water pipe both required to reach the site.

This work was placed in the hands of the army engineers. The original organization consisted of construction in charge of Lieutenant Kurstedt and procurement of supplies in charge of Lieutenant Seeman. When these officers were ordered back to the Ohio State University they were replaced by Lieutenants Nichols and Meyer from the engineer school at Fort Belvoir, Va.

The quarters for the refugee personnel consisted of pyramidal tents heated by Sibley stoves and accommodating on cots six people each. The tents were arranged in rows with intermediate streets so as to divide the camp into five units of 240 people each.

The mess facilities for each unit consisted of two large wood floored hospital tents equipped with tables and benches, a kitchen tent, a storage tent, and a large sized army field range. These facilities were placed at one end of the rows of pyramidal tents and on the opposite side of the mess from the personnel quarters was constructed a service road. Across this road were located three large wall tents per unit for supervisors quarters and for administrative and supply purposes. Behind these were five pyramidal tents to be occupied by the nurses required at the camp. Along the entrance road were five more pyramidal tents for the guard or watchman personnel.

At the other end of the rows of personnel tents were constructed three wooden buildings to provide toilet and washing facilities for the camp and each so located as to be readily accessible to about one-third of the camp. These buildings were heated by large hot air stoves and contained heater units to supply hot water to rows of faucets located over wash troughs. The water draining from the

wash troughs flowed through the latrine troughs under the seats to aid in flushing. No showers were installed. As no sewers existed, two septic tanks were constructed to handle the sewage and waste from the toilet and wash houses. The excavation for one of the septic tanks had to be partially cut from rock by explosives. The irregular ground of the camp site and its location above a deep gully took care of the drainage. Electric lights were to be installed by an electric contractor as no electricians and supplies were available at first.

The refugee personnel was being moved into the camp within two weeks of the date it was decided to build the camp.

The camp was designed, laid out, and the construction directed by the army engineers. The labor was supplied by the Works Progress Administration, the materials purchased by the Treasury Procurement Department with W.P.A. funds, and the camp built for and turned over for operation to the American Red Cross.

The kinds and sources of materials available were located principally by the engineer officers. The main difficulties experienced were those of getting the materials on the ground as needed and of keeping the necessary coordinating contact with the constantly changing emergency relief personnel and agencies; necessary contacts included a number of city agencies, the county engineer, a local real estate development company, the local water company, etc.

As the last officer from Ohio State returned to the University a new camp of equal size and facilities was being started for white family refugees. The plans were completed and the work was carried on by Lieutenants Nicols and Meyer. The experiences of the first camp construction caused a new set up for the second which should be a material improvement in so far as securing the required materials at the right time. The change centralized the procurement of materials in the hands of Lieutenant Nicols and the payment directly from the American Red Cross funds.

Much valuable experience was secured by the engineers from Ohio State and it is believed that they in turn were able to aid sufficiently to justify their presence at the time in Louisville.

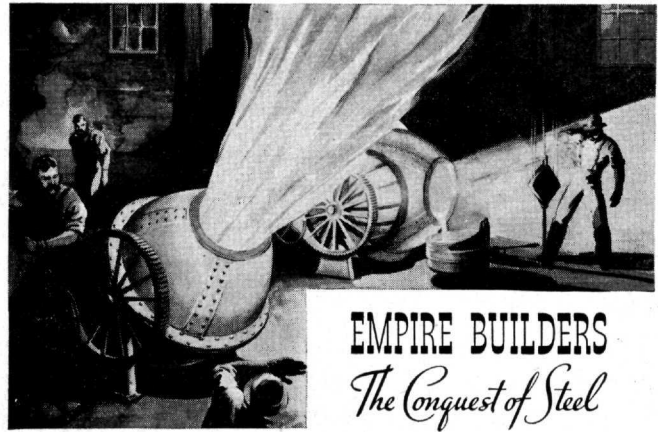
Forty-six years before the Mayflower docked at Plymouth, there were 150,000 Spaniards in America. (Now there are 120,000,000 Americans.)

Chicago has a Mississippi river of its own. The city's water mains are 3750 miles long.

A new record has been established for the "coldest" cold. Professor W. J. DeHaas of the University of Leyden, has produced a temperature of five one-thousandths of a degree above absolute zero.

Have you a high forehead? If so, don't believe that it is the reason for your high(?) intelligence quotient. A recent survey shows that the average height of the American forehead is $2\frac{5}{8}$ inches, while that of the Negro is $2\frac{3}{4}$ inches, and the Eskimo has an average forehead height of $2\frac{7}{8}$ inches.

A Russian balloon, carrying instruments, recorded a most unusual temperature condition in the stratosphere. At eight miles the temperature was -70 degrees F.; at 11.8 miles, -58 degrees F. was recorded; and at 16.7 miles, the thermometer recorded a further rise to -52 degrees!



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