has hitherto been reached. In addition, plans for still more effective control of the mosquito pest, both from the health and pest angles, within naval bases, forts, arsenals and defense industries, as well as their environs, should be prepared and made ready for use whenever additional monies become available for carrying them out. In areas within this state where camps, forts, and defense industries are located in territory not served by active mosquito commissions plans should be set up as rapidly as possible for taking care of the health and pest situation within and throughout the environs of such camps, forts, and defense industries.

Some Federal monies have already been set aside for work of this kind throughout the United States and it is not unlikely that more will be provided if needed.

Mosquito control workers should, therefore, be on their toes ready and willing to go into the performance of duty of this character.

DEVELOPMENTS IN MOSQUITO CONTROL

Hudson County Dredging Operations

by L. DeWitt McCarter

The Hudson County Mosquito Extermination Commission, in the spring of 1940 placed into operation in Saw Mill Creek a hydraulic dredge. The dredge is a six (6) inch suction and six (6) inch discharge machine completely equipped with deck house, gasoline powered ladder, cutter, swinging rig, and spuds, and discharges thru an eight (8) inch pontoon and shore pipe line. The hull is welded steel construction, thirty-one (31) feet long, fourteen (14) feet wide and three (3) feet deep, made up in two (2) longitudinal sections and bolted together. The cutter ladder is designed for

an economic depth of ten (10) feet at an angle of forty-five (45) degrees.

The main pump is a Morris six (6) inch Type H and the main engine is a Buda Type J-H-6. The pump has been tested for a capacity of one thousand, two hundred and fifty (1,250) gallons per minute of mixture of silt, sand, gravel, and fresh water, with solids ten (10) percent by volume, this capacity being delivered against a total head of one hundred and twenty-five (125) feet.

The dredge is equipped with five hundred and ten (510) feet of eight (8) inch steel pontoon pipe and one thousand three hundred and twenty (1,320) feet of eight (8) inch steel shore pipe including sleeves and couplings. The equipment is unique in its entirety and the entirety and the entire design makes for ready dismantling and portability. Dredging was preferred over a drag-line because of the width of the creek and soft banks of the channels to be cleaned. Because of the need for crossing railroads, highways and other obstructions, the dredge had to be dismantled and transportable. Many dredge machines were considered, and it was finally decided that a machine owned by the City of Newark and which had been used in the reservoir at Charlottesburg, New Jersey, was most practical for our purpose. This is the machine which has just been described and was acquired by Hudson County from the City of Newark at a very attractive figure.

The program undertaken and commenced in the early spring of 1940 was the restoring of Saw Mill Creek from the Public Service Private Road to the Hackensack River. Originally this water course was navigable and was approximately 80 feet in width and of sufficient depth to safely accommodate barges and small craft. Thru disuse and neglect as well as changing physical conditions the creek became obstructed and over-

grown. In many parts it was completely overgrown and it was not possible to discern any water course whatsoever. On the commencement of the work of restoration it was necessary t excavate a pit in the creek bed of sufficient size and depth to launch and set up the dredg This was done by drag-line and subsequently t dredge was launched and assembled. When the actual operation commenced great difficulty was encountered in handling root clumps and masses of water-logged cat-tail roots. It was found necessary in order to prevent frequent clogging of the pump that a rather unusual operation of the dredge be followed. The dredge operator raised the ladder so that it was directly beneath the surface of the water and then swept from side to side thus forcing the root clumps to either bank where shore men equipped with potato hooks were able to drag the clumps up on the bank and clear of the cut ter head. Thereafter, the dredge operator woul gradually lower the ladder and with the cutter head in operation cut and suck the silt to the desired depth. Thereafter the dredge followed and as it progressed restored the creek to an average width of fifty (50) feet and an averag depth of six (6) feet between the points indicated. It has been found that in operation thi dredge equipment functions with greater speed than another type of equipment which might be used, it is also found that our operating expenses were considerably less than would have been incurred in the use of drag-line or simila machinery. The cost to this Commission of the complete operation was further reduced due to the fact that we were able to operate our dredge by W. P. A. man power. The complete job is most satisfactory in appearance and in function The drainage effected by the improvement is far superior than that which heretofore occurred and permits a much speedier discharge of water accumulations in the Saw Mill Creek area.

After the completion of the foregoing job the dredge was dismantled and trucked to Penhorn Creek in Secaucus at a point adjacent to Secaucus Road and the Pennsylvania Railroad right-of-way. As in the preceding instance it was necessary to excavate a pit in which to set up the machine. The operation in Penhorn Creek which is now under way extends from the intersection of Penhorn Creek and the Pennsylvania right-of-way to State Highway, Route #3.

A somewhat different condition is encountered in this creek. In the vicinity of the piggeries it is found that a solid layer of pig manure of approximately four (4) feet in thickness above water level occurs. In other sections adjacent to the piggeries manure, refuse and a miscellany of waste material occurs to a height of approximately twenty (20) feet above water level. Penhorn Creek was originally a navigable stream and at the point now being treated was of an average width of eighty (80) feet and of sufficient depth to float medium size craft.

Our dredge is now proceeding through this section and restoring the creek to an average width of fifty (50) feet and an average depth of six (6) feet. However, it must be observed that when ground has thawed it may be necessary to cut the creek to a greater width in order that the slide of soft material and manure which is present will not block the channel recreated. At the present time approximately 800 lineal feet has been cut and the operation will be continued until the section is completed. Thereafter it will again be necessary to dismantle and move the equipment to another section of Penhorn Creek where a like operation will be conducted. When completed Penhorn Creek will have been restoredfor its entire length affording increased efficiency in the drainage of the Secaucus meadows.