modified fan housing and Honda engine were installed at the opposite side of the fan housing. An engine frame support was manufactured to support the Honda engine. This was necessary to install the engine from the opposite side of the housing as the Homelite engine rotated in the clockwise rotation and the engines presently available only rotate counterclockwise and at various RPM's. Some engines were available with automatic centrifugal reversible clutch but at a reduced RPM of 2,600 clockwise. A desired 3,600 RPM is to be maintained for adequate air velocity at the 5 in. outlet. The Honda G80-BQ, 8 Hp was selected for the following reasons: Adequate Hp. maximum output 8.0 Hp/4,000 RPM, rated output 6.0 Hp/3,600 RPM, weight 67 pounds, electrical starter with diode charge coil circuit for charging of battery system, and quietness of operation muffler system.

The power take-off shaft of Model G80-BQ is 4-15/64 inches × 1 inch in diameter. This shaft adequately meets specifications for remachining of the impeller to the shaft assembly. The impeller was modified by a local machine works to fit the 1 in. drive shaft of the Honda G80-BQ, 8 Hp engine. It was keyed and locked with Allen head lock screws.

Intake air is sucked in from the opening where the Homelite engine was previously installed. A fine mesh screen has been installed to prevent any foreign objects entering the air intake opening.

Honda Model G80-BQ, 8 Hp engine was purchased from a local Honda dealer. Cost of the modification was as follows:

Honda Engine G80-BQ, 8 Hp	$315.88
Machine impeller rework	182.32
Window lift for blower rotation	15.00
Chain #35 roller chain	15.80
Socket P/N M-5924GSL	2.30
Chain sprocket 35B18-FX1	3.95
Engine mounting pads— ea. P/N 2-2150 GSL	21.40
Toggle switch P/N CH-551844	2.15
Hour meter P/N SW 15001	17.25
	$576.05

Parts for the Honda G80-BQ engine are readily available at most small engine suppliers, lawn mower repair shops, and Honda Motor Cycle and small power plant sales and service.

The modified mist blower has been utilized this past season in control of mosquitoes in street drains, catch basins, and freeway drainage areas with long underground drainage. Adulticiding of mosquitoes has been accomplished with the addition of a Spiratube TD-S® nylon tubing to the blower nozzle affording the operator ease of directing the mist to areas requiring spraying.

THE OCCURRENCE OF TENSAW VIRUS IN CENTRAL ALABAMA (BUNYAMWERA GROUP)

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The Bunyamwera group of arboviruses was established by Casals and Whitman in 1960 and presently is represented by 18 viruses, each with a limited geographic distribution, which appear in most parts of the world (Murphy et al. 1968, Int. Cat. of Arboviruses 1975). The group is named for the Bunyamwera virus which was isolated and described by Smithburn et al. (1946) in Africa. Tensaw virus, a member of the Bunyamwera group, was first isolated in 1960 by Sudia et al. (1968) from a pool of *Anopheles crucians* Wiedemann collected along the Tensaw River between Mobile and Bay Minette (Balwin County) Alabama, (Chamberlain et al. 1969). The name Tensaw was given

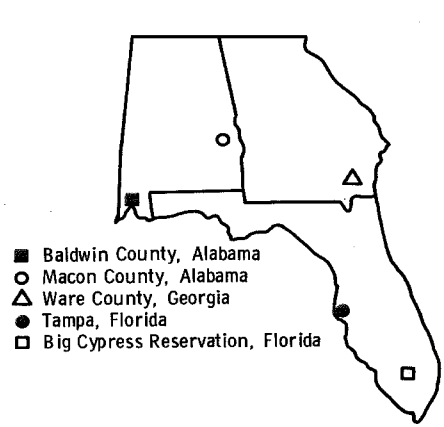

Fig. 1. Locations where Tensaw virus has been isolated from mosquitoes in the U.S.

the virus after the river where it was first isolated (Coleman 1969).

Tensaw virus has been isolated from field collected mosquitoes in South Alabama (Sudia et al. 1969), West central and South Florida, and Southeastern Georgia (Chamberlain et al. 1969; Wellings et al. 1972) as shown in Figure 1. Most isolations from arthropod hosts have been taken from *An. crucians* which appears to be the natural arthropod host of the virus (Chamberlain et al. 1969). Incidental isolations of the virus have been associated with *An. quadrimaculatus* Say, *An. punctipennis* (Say), *Aedes atlanticus* Dyar and Knab, *Ae. infirmatus* Dyar and Knab, *Ae. mitchellae* (Dyar), *Ae. taeniorhynchus* (Wiedemann), *Culex nigripalpus* Theobold, *Cx. salinarius* Coquillett, *Coquillettidia perturbans* (Walker), and *Psorophora columbiae* (Dyar and Knab), (Chamberlain et al. 1969, Wellings et al. 1972).

In May of 1978, an arbovirus surveillance project was initiated in Macon County, Alabama by personnel from the School of Veterinary Medicine at Tuskegee Institute. Live adult mosquitoes were collected with CO_2 baited, battery operated, miniature CDC light traps twice a week from select collection stations around the county. During the period May 23, 1978–July 12, 1978, a total of 1,776 mosquitoes were collected (Table 1), identified and processed into 60 pools using standard techniques for virus study. Pooled mosquitoes were shipped on dry ice to the Vector-Borne Diseases Division of the Center for Disease Control at Fort Collins, Colorado for virus study. Two pools, TI-257 collected on June 20, 1978 consisting of 50 females of *An. crucians* Wiedemann and TI-295 collected on June 26, 1978 consisting of 38 females of the same species were positive for Tensaw virus. These pools were collected from the edge of a 6-acre swamp on Calebee Creek where Interstate 85 intersects the creek in Macon County. Based on published records (Int. Cat. of Arboviruses 1975), these isolations marked a northward extension of the geographical range from which the virus has been isolated from a natural arthropod host (Figure 1).

Tensaw virus presently has little public health importance; however, it should be noted that the natural vertebrate host has not been established although field observations and limited field antibody studies have suggested that cattle, dogs, raccoons, small rodents and rabbits might be involved (Chamberlain et al. 1969). Sudia et al. (1969) proved experimentally that *An. quadrimaculatus* Say was capable of transmitting the virus to dogs, raccoons, cats, rhesus monkeys, albino rabbits, cotton rats, and hamsters. Since the principal arthropod host (*An. crucians*) is a man-biting mosquito, it seems only reasonable to assume that man may come in contact with the virus in nature. This hypothesis has been corroborated by Work (1964) and Sudia et al (1968) who found antibodies in the serum of selected human populations in South Florida and Alabama respectively. It appears that additional studies involving natural vertebrate as well as arthropod hosts of the virus are needed.

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Table 1. Mosquitoes collected in Macon County, Alabama May 23, 1978–July 28, 1978

Species	No. Mosquitoes	No. Pools	Tensaw Virus No. Positive
Ae. spp.	32	2	
Ae. sticticus	141	6	
Ae. vexans	284	11	
An. spp.	7	1	
An. crucians	408	11	2
An. punctipennis	20	2	
Co. perturbans	387	10	
Cx. erraticus	389	10	
Cx. nigripalpus	1	1	
Cx. salinarius	97	5	
Ur. spp.	1	1	
Totals	1,776	60	2

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STUDIES OF OVERWINTERING LARVAE OF *COQUILLETTIDIA PERTURBANS* MOSQUITOES IN MINNESOTA

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In an effort to determine if *Coquillettidia perturbans* larvae are able to survive in solidly frozen material, the following studies were conducted during the winter in a suburban area south of Minneapolis.

STUDY A. In late January, we cut 2 plugs of frozen material from a 45-acre cattail marsh. We had found *Co. perturbans* larvae in this site the preceding September.

The plugs were cut with an ordinary ice chisel. In each instance we marked a circular area approximately 1 ft.^{2} and chiseled a 6 to 8 in. wide trench around the plug. The trench enabled us to scoop the ice chips away from the plug until we had chopped deeply enough to pull it free. We cut the ice and frozen root structure through the bottom of the frost line and removed the plug from the hole. Then we shaved off all the roots projecting outside the plug. (Since September, this site had dried to a depth of only 20 in. and it was now frozen to the bottom). We also scraped 6 in. of unfrozen (slightly moist) peat from beneath plug No. 1.

Both plugs contained 1/2 to 1 in. of clear ice at their surface. Beneath this, each plug consisted of a mass of cattail roots, peat and muck. Additionally, plug No. 2 contained sedge grass.

On our return to the county headquarters, we added enough tap water to the unfrozen material from beneath plug No. 1 to completely cover it. We submerged both plugs in tubs of tap water to prevent the roots and larvae from drying as the ice melted.

The following day we screened the unfrozen material from beneath plug No. 1. While carefully washing it through a 10-mesh sieve into one of 20-mesh, we searched for larvae but found none. The following 2 days were spent screening the thawed plugs. Plug No. 1 yielded 66 larvae—all dead, and plug No. 2 contained 3 dead larvae. Because of their advanced state of decomposition, I suspect that the larvae had died before the site had frozen.

STUDY B. Four days later we cut a plug from a 75-acre floating bog where we had also found *Co. perturbans* larvae in September.

In this instance, we changed the sample cutting technique. We used a 13-½ in. diameter cylinder, equal to a 1 ft.^{2} of surface area. This tube was 3 ft. long and rolled from 26-gauge