reduces the killing value of the same poisons by 43 per cent. For this reason 2½ pounds of arsenate of lime to 100 gallons with Bordeaux are about equivalent to 2 pounds of arsenate of lime with 100 gallons of lime sulphur solution. Two and one-half pounds of arsenate of lime may be used to 100 gallons of Bordeaux mixture for the two bud-moth sprays. The equivalent value in arsenic oxide, namely, 1 pound of arsenic oxide, when combined with a number of bases other than lime may be used with safety in Bordeaux mixture. To secure this quantity of arsenic and so obtain approximately the same killing value, one may use any one of the following poisons: 7 pounds of standard or hydrogen arsenate of lead; 8 pounds of triplumbic arsenate of lead; 2½ pounds of arsenate of zinc; 1¾ pounds of Paris green; 1½ pounds of fused arsenate of soda or 2½ pounds of crystal arsenate of soda. The last four poisons will be found more active than the first two in killing. Leaf injury by the two bud-moth sprays from the type of Bordeaux now being used in Nova Scotia on apples, consisting of from 5 to 8 pounds of copper sulphate and 20 to 30 pounds of lime to 100 gallons of water, is negligible, but some slight russetting and paling of the fruit results from using Bordeaux immediately before the blossoms.

Sodium sulphide (either soluble sulphur 2½ pounds or sulfocide 2½ quarts) and arsenate of lime 1¼ pounds with freshly slaked stone lime or hydrated lime 12 pounds to 100 gallons of water, has proved one of the most rapid killing combinations tested and has proved particularly harmless to foliage when applied as a drenching spray. The effect of the sodium in hastening the action of the arsenic in the combination allows the decreasing of the arsenic. This combination is one of the cheapest and most effective for biting insects.

Probably one of the most satisfactory sprays in the control of serious infestations is straight paste lead arsenate at from 10 to 15 pounds to 100 gallons of water to which from 5 to 10 pounds of water slaked, or hydrated lime, has been added to prevent yellowing by absorbing the free arsenic. At these strengths arsenate of lead is as good a fungicide as lime sulphur.

In his work on the Green-Apple Bug, Professor W. H. Brittain, Provincial Entomologist for Nova Scotia, found that a contact spray consisting of soluble sulphur 2 pounds, nicotine sulphate 1 pint, fish oil soap 4 pounds and water 100 gallons, applied as a drenching spray immediately before the blossoms gave almost perfect control of bud-moth as well as canker-work, fruit-worms and many other lepidopterous larvæ.

Thorough pruning, opening up the trees, clearing out useless trees in the orchard or the removal of hedges and wind-breaks, help in the control of bud-moths by allowing the wind to blow freely through the orchard and carry away to open fields or pastures many adults while they are on the wing.

The prevalence and damage done by bud-moths is an argument against close planting of orchards in Nova Scotia, particularly if the orchard is to be located in a sheltered position.

NATURAL CONTROL.

The wind as has been mentioned previously, is an important natural factor in bud-moth control and can be turned to the advantage of the orchardist in many cases.

INSECT PARASITES.

In the course of the rearing of the various bud-moths a few hymenopterous parasites were reared. From the eye-spotted bud-moth, *Microdus ocellanea* Rich. was described from material from Kentville, N.S. by C. H. Richardson,[1] Jr. Two other species, one *Anomalon* sp., and the other *Chelonus* sp. were reared from the same host. Many specimens of *Pentarthron minutum* Riley, and one specimen of a Mymarid were reared

---

[1] Ent. Vol. XLV, No. 7.