

ing therefrom the following May.

The beetles go down to a depth of two or three inches and exhibit a decided preference for decayed wood but are also to be found abundantly in dead leaves, moss, under the decaying bark of windfalls and in similar places. More than 90% of the brood abandon their tunnels in the fall to enter the ground; only occasional specimens are to be found under the bark of the brood-tree.

The exact data in regard to the exodus from the tunnels in the fall months is as yet unknown; it has been proved that the beetles will crawl down the trunk of a tree lodged at an angle of 45° from the ground. Beetles were found in the moss and ground litter at the base of this tree; the insects must have crawled down the trunk from their tunnels in the top of the tree as no tunnels of this species were evident in the basal twenty feet of the trunk. There is also substantial evidence that the insects drop straight down to the ground on emerging from the bark; there is no evidence to show that the beetles take to the wing on emerging.

Since the emergence takes place comparatively late in the fall, the weather conditions at that time are not conducive to flight and it is interesting to note that fully matured beetles removed from the bark and placed in the sun in August and September made no attempt to fly but invariably sought shelter, though the weather conditions at the time were ideal for flight; this aversion to flight in late summer has been observed when the shade temperature has been over 80° F.

Emergence from the ground takes place towards the end of May, weather conditions being favorable; the beetles are then to be seen in swarms entering wind-fall spruce and the tops of trees killed by *Dendroctonus* the previous season.

A somewhat similar condition has been observed in the case of an allied species, *Ips pini* Say, though a larger percentage of beetles remain under the bark during the winter months. It was estimated that 60% of the brood of this species abandoned their tunnels in the autumn months to hibernate in the ground beneath the pine logs in which they had been reared. In Northern Ontario the emergence and flight of these two species of *Ips* occurs almost simultaneously.

OBITUARY

Wm. Lochhead, emeritus professor of entomology and zoology in Macdonald College, died at his home in Ste. Anne de Bellevue, Que., on March 26, 1927, in his 63rd year. In September, 1925, Professor Lochhead had retired from his former position of Professor of Entomology and Zoology owing to a serious heart affection which eventually caused his death.

For more than thirty years Professor Lochhead was one of our foremost leaders and teachers in Biology. He was educated at Listowel High School, McGill University (B. A., 1885), and Cornell University, Ithaca, N.Y., (B.Sc., 1895). During the years from 1886 to 1898 he was science master successively at the High Schools of Perth, Galt, Napanee and London, and in 1898 he joined the staff of the Ontario Agricultural College as Professor of Biology. He remained in this position until 1905 when he joined Dr. J. W. Robertson as Professor of Biology on the staff of Macdonald College, then being founded. The department of biology was divided in 1920 and Professor Lochhead became Professor of Entomology and Zoology. He held this position until September, 1925, when he retired from active work.

Professor Lochhead conducted important investigations on the biology and control of a series of destructive insects, including the Pea Weevil, the Hessian Fly, the San Jose Scale, and other scale insects of Ontario. He was the author of many articles and pamphlets dealing with the habits and control of insect pests and with the control of weeds and fungous diseases of plants. He was the author of a text book on Economic Entomology, which is now used as a class book in many Canadian and American College laboratories, and of a treatise on heredity and genetics.

The Quebec Society for the Protection of Plants was organized by Professor Lochhead in 1908, and he continued in the office of President until failing health compelled him to retire from active work. He was editor for many years, of the monthly Journal of Agriculture and Horticulture published by the Quebec Department of Agriculture. His efforts in connection with this Society and Journal have been of very great service to agriculture in Quebec province.

Professor Lochhead was an honored member of many scientific societies including the American Association of Economic Entomologists, the American Entomological Society, the American Nature Study Society, of which he was vice-president in 1910, the Ontario Entomological Society, president in 1902-4, and the Ottawa Field Naturalists' Club; he was a Fellow of the American Association for the Advancement of Science, and of the Canadian Society of Technical Agriculturists.

His contributions to our scientific knowledge, his long and splendid service as a teacher, his kindness of heart and nobility of character have given him a very high place in the esteem and affection of his fellow workers in Biology in this country. As of his distinguished confrere and intimate friend, the late Dr. Jas. Fletcher, so it may be said of Professor Wm. Lochhead, "He was one of the fathers of entomological work in this country and a 'friend' of all who knew him."

Recently an excellent portrait of Professor Lochhead, painted by G. Horne Russell, P.R.C.A., was placed in Macdonald College library by his old students and colleagues.

Mailed Saturday, May 28th, 1927.