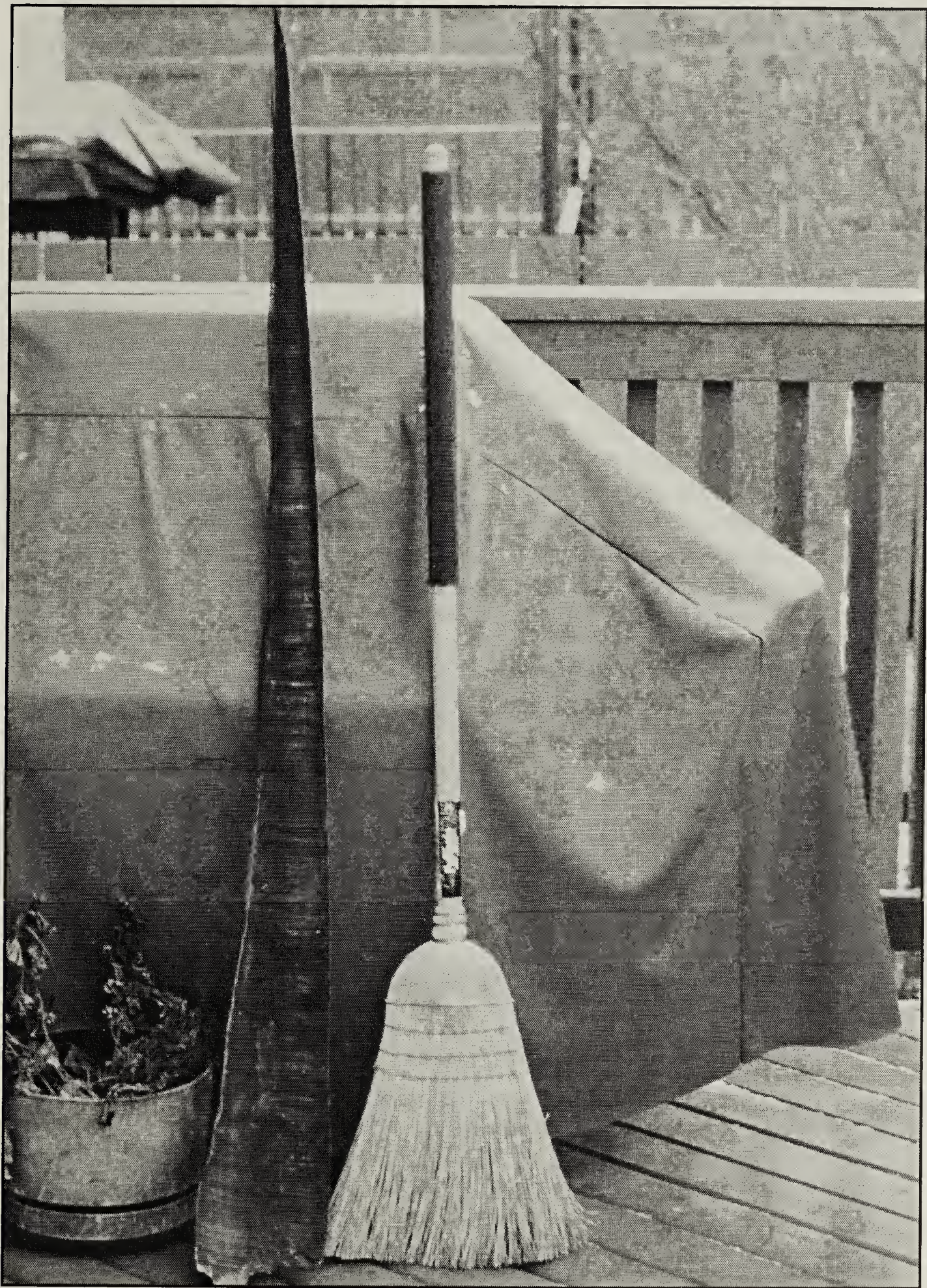

MYSTERY PHOTO

SEPTEMBER 2006 MYSTERY PHOTO



What do the two long, upright objects have in common?

ANSWER TO THE JUNE 2006 MYSTERY PHOTO



The unusual objects featured in the June 2006 mystery photo are indeed associated with crayfish, as suggested in the photo caption. These discoid gastroliths are calcareous nodules found inside the stomachs of crustaceans such as lobsters and crayfish. It is generally considered that the function of these “stomach stones” is to provide a readily available source of minerals (primarily calcium) to facilitate rapid hardening of the new exoskeleton (shell) following the molt. Prior to ecdysis (molting), minerals are extracted from the old shell and are concentrated into gastroliths inside the stomach. During molting, the gastroliths are dissolved by the digestive fluids, and the minerals that are released are subsequently redistributed to form the new exoskeleton. Additional minerals may also be taken up from water; however, because freshwater environments are

often low in mineral content, the process of gastrolith formation allows the crayfish to reduce the loss of minerals caused by ecdysis.

Because gastroliths are made up of minerals, they are fairly resistant to weathering or mechanical breakdown. The size of the gastroliths is correlated with the size of the crayfish; larger individuals tend to have larger gastroliths. Moreover, because the disks are formed in pairs, they can be used to estimate the number of crayfish found in the stomach contents of predators. For example, in a research program initiated by Christopher Somers of the University of Regina, he and I have been investigating the diets of Double-crested Cormorants and American White Pelicans in southern Saskatchewan. We frequently find crayfish gastroliths in the stomach contents of juveniles of these two species; in some cases, the gastroliths provide the only evidence that crayfish have been consumed. Last Mountain Lake, where the mystery photo was taken, is one of our most important study areas, and crayfish comprise a substantial proportion of the diets of these two fish-eating birds at this site. The only crayfish native to Saskatchewan is *Orconectes virilis*, the northern or virile crayfish.

-Victoria Kjoss, Qu'Appelle, SK



“In winter, the ruffed grouse grows tiny, horny fringes on its toes that function as snowshoes to spread the bird’s weight out over the snow and prevent it from sinking.”

Scott Weidensaul, *The Birder’s Miscellany*, p.12