

# DID NATIVE AMERICANS HAVE USE FOR ALGAE?

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Since algae are common and often found in surface waters, it would be unusual if Native Americans, who learned about the plants in their environment through general trial and error and through communication with other tribes, never made use of the omnipresent algae. Nevertheless, while there are many books (e. g., Moerman 1998) describing the use made by Native Americans of plants, there is precious little said about the use that was made of algae.

Some creeks in the Sweetgrass Hills, Montana, go underground as summer progresses, leaving small red pools in the now dry streambed. Naturally, this led pre-contact inhabitants of the area, not knowing the cause for the red colour, to think that these were sacred pools. The colour red has special meaning all around the world. For many people it is, in fact, a sacred colour (sacred red wine; sacred red earth; sacred red ochre).

Vegetative cells of the ubiquitous green alga *Haematococcus lacustris* (*H. pluvialis*) are motile with two flagella. However, when these cells are in a stationary (akinete) condition, they form bright-red crusts on the rocks. Encystment and astaxanthin (a red-orange pigment) production is induced by, among others, low nitrate and phosphate and high temperature or light. It appears that astaxanthin protects the alga from adverse environment changes, such as UV-light photo-oxidation (see Gerber and Häder 1994) and evaporation of the water pools in which it lives (Boussiba and Vonshak 1991).

Gilmore (1914) noted, "Without specification of genera or even orders it is sufficient to say that a green stain for decoration of implements made of wood was obtained from masses of the green aquatic vegetation popularly known as 'pond scum' or 'frog spit.' The green substance used by the people of the tribes for the purpose of making a green stain, obtained from sluggish streams and

ponds, doubtless consisted of colonies of *Protococcus*, *Ulothrix*, *Chaetophora*, and *Spirogyra*."

Similarly, McClintock (1910) noted that, "a green paint came from the scum, consisting of green algae such as *Spirogyra* and *Cladophora*, in sloughs in the vicinity of the Sweetgrass Hills." Later, Canon Middleton observed that green was obtained from coloured mud or from plants growing near lakes. The Blackfoot names Kinaow-oghkee-kimino-was or 'Blood Green-water Lake', and Peigani-oghkee-komino-was or 'Peigan Green-water Lake', for lakes located in or near Chin Coulee, Alberta, may have referred to algae growth in the water.

...REFERENCES available by request.

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