

CONTRIBUTIONS TO THE HISTORY OF *HYDRASTIS CANADENSIS* (GOLDENSEAL) IN OHIO

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Goldenseal is a plant indigenous to Ohio, Indiana, Kentucky and West Virginia. Cincinnati, Ohio was so very close to the geographical center of the supply that it soon became the first commercial center for this drug. In 1793, The Transactions of the American Philosophical Society published a paper by Hugh Martin read before this society under the title "An Account of Some of the Principle Dyes Employed by the North American Indians." The author referred to the roots of *Hydrastis canadensis*, stating that it might well be called "radix flava Americana." In 1798, B. S. Barton called the attention of the medical world to the medicinal use of *Hydrastis canadensis* by the Cherokee Indians. One such use against inflammation of the eye is reported by Captain Lewis from the Lewis and Clark expedition. Lewis wrote (1815):

Having procured sufficient quantity of the roots, wash them clean and dry them in the shade, break the roots as fine as possible with the fingers, place them in a glass vessel about two-thirds full, add rain or river water until vessel is filled, shaking it frequently, and it will be fit for use in the course of six hours. The water must be decanted, that remaining with the root is to be frequently applied by wetting a piece of linen and touching the eye gently with it.

Rafinesque in his Medical flora of 1828 devoted much space to the drug. In 1833, the editor of the Thomsonian Recorder, added it to the Thomsonian Materia Medica. In the same year Wooster Beach included it in his work "The American practice of medicine." The author was the founder of the American reformed school of medicine which later merged with the eclectic school. The above mentioned book was the standard work of the new movement and was recognized all over the world. The drug *Hydrastis* did not appear in the first edition of the United States Dispensatory, also published in 1833. The second edition in 1834 gave it a slighting reference which was carried through unchanged for the next ten years. The Eclectic Dispensatory by King and Newton in 1852 made the drug conspicuous; thereafter, it was much used and it was included in the Pharmacopeia of the United States in 1860.

During this entire period and up through 1870, Goldenseal was quite abundant in Ohio. The price ranged from eight to twelve cents per pound. In 1884, John Uri Lloyd wrote:

Only a small area of the country can yield the drug in amount sufficient to repay collection at present prices, and of this section of country but a limited portion actually contributes any of it to the market. It does not necessarily follow, however, that the plant will not disappear in sections, where it now grows abundantly, but which have never yielded the drug to commerce. *Hydrastis* is so sensitive to climatic influence that even a partial destruction of the timber causes it to shrink away and one turn of the soil by the plow blots it from existence. If it were like *Podophyllum*, content to thrive in woodland pasture, the future would be brighter; as it is, each year witnesses a shrinkage in area and a loss to the world of this peculiarly interesting American plant. *Hydrastis* has nearly vanished from the rich hillsides bordering the Ohio river and is no longer found in the populous sections of our valley.

Twenty-eight years later Dr. Lloyd made an even stronger plea (1912a). "If it is proper to preserve a lingering group of bison, or to search the land over for our vanishing wild pigeon," he wrote, "why is it not proper to conserve, with the help of the strong hand of authority, America's valued flora from absolute extermination?"

As is the case with other articles of trade, prices begin to rise as shortages become acute. The price of *Hydrastis* had been from eight to twelve cents a

pound. In the next twenty years the price rose to fifty-five cents per pound; by 1904 it rose to \$1.00; and in the next year to \$1.50 per pound. In the next seven years still higher prices were obtained, up to \$4.00 per pound. The peak prices were reached in the years 1917 and 1918, when the crude drug brought 5 to 6 dollars per pound; and the price for a pound of the powdered drug ranged from \$6.50 to \$6.75.

One hardly wonders that the following protest was published in one of the first copies of the Journal of the American Pharmaceutical Association (Dohme and Englehardt, 1912):

We cannot refrain from expressing the hope that something be done to eliminate the largely used drug Golden Seal from the itching palms of the money lenders, because it can truly be said of this drug that it is in the hands of a trust and an unscrupulous one at that. To think of being compelled to pay four dollars and more a pound for a wild and freely growing plant indigineous to this country when it can easily and profitably be raised for less than one dollar a pound, only accentuates the fact that the Sherman Bill (Sherman Anti-trust Act, 1890. Authors' note) may even be made applicable to crude products of nature.

Since the drug brought such fabulous prices, much substitution and adulteration by other roots and rhizomes took place. The fame of *Hydrastis*, however, grew and it was included in the Pharmacopeias of many countries. Early in the twentieth century a survey was made by a number of physicians, none of whom belonged to the Eclectic School. All were graduates of colleges of professional standing. The survey dealt with the comparative value of many medicinal plants. The roots and rhizomes of *Hydrastis canadensis* ranked fifteenth in importance and were chosen by 36 physicians. Right above the roots and rhizomes of *Hydrastis canadensis* ranked the leaves of *Digitalis purpurea*; the dried ripe seed of *Nux vomica* took twelfth place receiving five votes. (Lloyd, 1912b).

In another survey, which included all the vegetable drugs included in the Pharmacopeia of the United States, 1900, *Hydrastis* did even better. This vegetable drug ranked second in importance receiving 5634 votes. More than ten thousand physicians had participated this time. All again were graduates of recognized colleges. The first place went to a write-in, an unofficial plant, the Night-blooming *Cereus* (*Cactus Grandiflorus*). The vegetable drugs Aconite, Gelsemium and Ipecac followed *Hydrastis* receiving 5,618, 5,540, and 5,501 votes respectively. The surprising fact was that the exclusively American drug plant, *Hydrastis canadensis* took precedence over *Aconitum napellus*. Aconite, representing the dried tuberous roots of the latter plant, was the great favorite among physicians of all schools of medicine at that time. (Lloyd, 1912b).

Hydrastis is still a favorite with many. It has been included in the latest, the tenth edition of the National Formulary which was published in 1955.

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