ELECAMPANE AS AN ANTISEPTIC.

Among the familiar roadside weeds of the Northern States, the rough-stemmed, yellow-flowered elecampane is as conspicuous as any. Though less aggressive and troublesome than thistles, burdocks, and some others in the list of European migrants, the elecampane is regarded with little favor by farmers, in spite of the well attested medical virtues of its roots. It is by habit a vegetable tramp—a weed; and with the least encouragement it has traversed every highway and by-road from Maine to the Mississippi, straggling into fields and meadows wherever suitable conditions of moisture and fertility promise for it, what all tramps go for, a plenty of easily acquired food. It was originally brought to this country as a garden or door-yard plant, partly for its gaudy flowers, partly for its utility in domestic medicine; but for many years it has been held in little esteem on either account, more through change of fashion, however, than for any fault of the plant. Indeed, it now appears that, like many another victim of popular neglect, the elecampane is worthy of restoration to public favor, and may in truth prove to be justly reckoned among the most useful of useful plants.

In a recent issue the *Lancet* mentions a series of articles which have appeared lately in a pharmaceutical paper of Barcelona, describing investigations which go to demonstrate that the chief active principle of the elecampane, *helenina* (from the systematic name of the plant, *Inula helenium*), is one of the most powerful antiseptics known, and at the same time free from the disagreeable odor of carbolic acid, which it might well replace.

It is not clear whether *helenina* (as the *Lancet* spells it) is the *helenin* of Gerhardt ($C_{21}H_{28}O_3$), obtained by extracting the active principle of elecampane with hot alcohol, in the form of needle-shaped crystals fusing at 72°, or the *helanine* of later chemists ($C_{12}H_{16}O_2$), which results from repeatedly recrystallizing the crude extract and separating from it inula-camphor ($C_{10}H_{16}O$). The latter fuses at 64°; *helanine* at 110°. As thus purified *helanine* is described by Watts as colorless, inodorous crystals, nearly insoluble in water, and easily soluble in alcohol. In the U. S. Dispensatory this compound is described as intermediate in its properties between essential oils and camphor. Inula-camphor is isomeric with camphor, and strongly resembles menthol, or peppermint-camphor, now a fashionable remedy for headache. The essential oils nearly all possess the composition $C_{10}H_{16}$, and, as Prof. Mantegazzi showed in 1870, their oxidation when exposed to light is a powerful and convenient means of producing ozone, giving them high value as disinfectants.

Thus from what is well known of helanine and its allies, it is not surprising that it should be valuable as an antiseptic. The investigations first referred to seem to have been suggested by those of Dr. Korab, who found one part of an alcoholic solution of helanine sufficient to arrest putrefaction in ten thousand parts of urine; also that a few drops of the solution immediately killed the organisms in ordinary infusions, and also in cultivations of tubercle bacillus.

The writer in the *Boletin Farmaceutico* applied an alcoholic solution of helenina to slices of veal, which, though kept at a temperature of 28° C. (82·4° Fah.), remained sweet for ten days, or until completely dry. An egg beaten up with nearly a pound of water was treated with 5 grains of helenina in six times its weight of alcohol remained unchanged for six days at a temperature of 82°. Another egg similarly beaten up with water, without the drug, rapidly decomposed, and in twenty hours emitted a strong odor of sulphide of hydrogen. When to this solution about 8 grains of helenina were added, the offensive odor quickly disappeared, and the mixture underwent no further change.

Similar experiments with urine, meat, and beaten-up eggs were made with carbolic, boracic, and salicylic acids instead of helenina; but much larger proportions of the acids were required to prevent putrefaction, and none of them was able to arrest putrefaction already begun, as the helenina had done. It was also observed that the aromatic smell of the materials from which the drug was extracted repelled all insects, even mosquitoes, from the house in which the experiments were made.

The *Lancet* adds that helenina has proved valuable in surgery as an antiseptic when carbolic acid and all other agents had failed; also that it has been given successfully in malarial fevers, and tuberculous, infantile, and catarrhal diarrhœa; and that it is expected to form an excellent substitute for carbolic acid in the Listerian system of aseptic surgery. Possibly the power of the drug to kill low organisms is what has made it useful as an internal and external remedy in tetter, psora, and other diseases of the skin, as mentioned in the Dispensatory. In this country it has been chiefly used of late in chronic diseases of the lungs. It is said to be sometimes beneficial when the chest trouble is attended with weakness of the digestive organs or with general debility. The ancients employed elecampane root very largely in medicine, and it would seem to be still more generally used in Europe than in America. If its alleged antiseptic and germicidal properties are confirmed by further tests, it is probable that the despised weed may rank the cinchona tree in sanitary and commercial importance.

The clever definition, "*Weed.*—A plant whose uses are not discovered," thus receives a new and striking illustration. Who can tell how many other old weeds are awaiting new uses, to justify their persistence in living?

Elecampane is a coarse-looking plant; the stem, rising to six feet, is furrowed, branching and downy above. The radical leaves are very large and rough, with serrated edges. The upper leaves are smaller, and embrace the stem. The flowers, which appear in July and August, are in heads, like sunflowers, and stand singly at the ends of the stem and branches. Their color is a golden yellow; odor aromatic. The stem is renewed every year; the root is perennial. The fresh root is very thick and branched, having whitish cylindrical ramifactions with thread-like fibers. The outside is brown; within, the root is whitish and fleshy. The agreeably aromatic odor of the root is increased by drying. The roots are dug in the fall, and are best in their second year; when older, they are apt to be woody. The dried root can be procured in almost every drug store, and might be worth trying as an agreeable and possibly efficient means of keeping apartments free from flies, mosquitoes, and other insects. The ozonizing power of the odor is likely to be valuable also in helping to destroy bad smells, even if the active principle should be less efficient than the Spanish authorities affirm in preventing putrefaction and like unsanitary processes.

It may be worth while also to encourage the growth of the plant around outhouses, ditches, and drains, instead of the now fashionable but coarser and less efficient sunflower, for the purifying of the air and the prevention of malaria.

FACTS ABOUT CHOLERA.

The original arrival of epidemic cholera upon this continent is by most authorities set down as June 3, 1832, when the ship Carricks arrived with emigrants at Grosse Isle quarantine station in the St. Lawrence. A score of years later, however, during another visitation of cholera to these shores, Dr. Westervelt, the then Health Officer of the Port of New York, acknowledged that in 1832 cholera had arrived at the port of New York in infected ships prior to its outbreak upon the St. Lawrence, but that for prudential reasons the facts had been suppressed by the Board of Health. "The sick," he said, "were cared for in the quarantine hospital, and the *well* emigrants were shipped rapidly from the city." The infection was brought from the St. Lawrence by emigrants into New York State, and met the line of infection then advancing northward from New York city. Thence it was spread here and there throughout the country.

In 1848 the cholera was brought hither by two ships, the one arriving at New York, the other at New Orleans. Both ships came from Havre, which was regarded as free from cholera, and both ships had a clean bill of health. A portion of the emigrants aboard these vessels came, however, from infected places in Hungary. Very excellent circumstantial evidence that the cholera germ may readily be carried safely for thousands of miles in the luggage of emigrants is furnished by the reports of the masters of these two vessels—the Swanton, bound for New Orleans, and the New York, bound for New York city. The first says there was no cholera aboard his ship until, an unusually hot wind having begun to blow, the emigrants overhauled their luggage for thin clothes; and the master of the second ship says that it was while the emigrants aboard were searching their dunnage for thick clothes to withstand a sudden cold blast that the first symptoms of the disease first appeared.

During the years 1851, '52, '53, and '54, cholera broke out in several parts of the country, being in every instance directly traceable to the luggage of emigrants coming from infected portions of the Old World. Toward the end of October, 1865, the steamer Atalanta arrived in the port of New York from Havre with six hundred passengers, among whom cholera was raging, and the Hermann arrived a few days later under similar circumstances. Cholera was then raging in both Marseilles and Paris, and all these passengers had come thence. A nurse on the hospital ship at quarantine visited Ward's Island, and in eleven days there were thirty-one attacks and eighteen deaths. This made the time of traveling for the cholera germ only nine months from Bombay to Ward's Island *via* water and land routes.

Dr. McClellan, in his narrative of the epidemic of 1873, says: "Three distinct outbreaks of cholera occurred at widely remote points in the United States from poison packed and transported in the effects of emigrants from Holland, Sweden, and Russia.

"These people and the vessels in which they were carried had been perfectly healthy, and the people remained so until their goods were unpacked at Carthage, Ohio, at Crow River, Minn., and at Yankton, Dak., respectively. Within twenty-four hours after the poison particles were liberated, the first cases of the disease appeared, and the unfortunates were almost literally swept from the surface of the earth."

As to the intensity of cholera, a very excellent authority, Libert, says:

"Nothing can be more capricious than the variation in the intensity of cholera in different places and at different times, even at different times in the same places. An imported case may end in a local attack, confined to a single room or house; even a simultaneous importation of a number of cases at different points may exhaust itself in a number of local epidemics, while at other times a single case suffices to swiftly produce an epidemic or even a raging pestilence."

A careful study of previous epidemics shows that there is little danger from that which, like rags, must pass under customs inspection. It is the emigrants themselves, and especially their luggage, which should receive the most attention; and from the evidence at hand it may safely be laid down as uncontrovertible that as long as this dunnage, or even a part of it, is permitted to enter the country during the prevalence of epidemic cholera abroad, we may at any moment expect to hear of its outbreak here, if not at the port of New York, at other points whither emigrants landed here have been dispatched.

Oil in Storms at Sea.

The Hydrographic Office of the Navy Department has for several months been engaged in collecting data to determine under what circumstances the use of oil is most efficacious in diminishing the danger of breaking seas during gales of wind. When sufficient data have been collected, it is proposed to issue a pamphlet giving such directions in regard to the use of oil as common experience of seamen may determine to be best.

The following are among the most striking of the accounts recently received:

In November, 1881, the steamship Venice, from Savannah to Europe with cotton, while running before a heavy northwest gale was boarded by a tremendous sea. The captain determined to heave to, and men were stationed to pour oil down the closet chutes forward and to throw waste, soaked in oil, to windward. The vessel came round without shipping any water. As she kept falling off, it was concluded to put her again before the sea, which was done without trouble, and it was found that she kept perfectly dry as long as the oil was used. Again, in January, 1884, while crossing the Atlantic to New York, after running before a northwest gale for some time, she was laid to without difficulty or danger by using oil in the manner stated.

Captain Ritchie, of the English steamer Fern Holme, while on his last voyage from Baltimore to Shields used oil bags while running before a west-southwest gale. He hung one over each side, just forward of the bridge, and they prevented the ship from taking water on deck.

First Officer W. Maltjen, of the German steamer Colon, in December, 1884, used oil bags with remarkable effect. Two bags filled with boiled oil were hung over the bow. The oil spreading over the surface prevented the waves from breaking, and the ship rode quite easily during the continuance of the gale.

Captain Jones, of the British steamer Chicago, while rescuing the crew of the brig Fedore, used oil with best results. It was blowing a heavy gale, with very high seas. The Chicago ran to windward of the Fedore, and during a lull, oil having been poured on the water, the port lifeboat was successfully launched and started. A can of oil was taken in the boat, and by using this the seas were kept down in the immediate vicinity, though they broke in masses of foam a short distance away. As the boat approached the Fedore, the crew of that vessel poured oil on the water, which so calmed the sea that the boat got alongside and rescued the shipwrecked crew without sustaining any injury. About half a gallon of oil was used by the boat during her trip.

The brig P. M. Tenker, Captain Charles Barnard, New York to Cuba, in 1872, encountered a northeast gale when four days out. Several heavy seas came on board, doing great damage. A small bag, with holes punched in the bottom, was filled with oil and hung over the stern. The oil prevented the seas from combing, and the vessel ran for several hours with dry decks.

The Ornithorhynchus.

In the SCIENTIFIC AMERICAN of March 15, 1884, appeared illustrations and a very interesting description of this queer little animal with an unpronounceable name, prepared by Mr. L. P. Gratacap, an attache of the American Museum of Natural History in this city. Doctor H. A. Ward, collector of zoological specimens, has recently returned from Australia, where he has been in behalf of the museum, and brought back thirty of the ornithorhynchus. This strange animal is the connecting link between birds and mammals. It looks like the beaver, but instead of having hair on its back it has scales, and in place of scales on its tail it has hair. This in itself would not constitute a missing link, but after long investigation we find, says Doctor Ward, that it lays an egg like a bird, but suckles its young like a mammal. Its habits are like the beaver's, but it is an utterly heterodox creature, and entirely the most unnatural known.