

Hyoscyamus niger, a study

D. M. GIBSON, M.B., B.S.LOND., F.R.C.S.EDIN., F.F.HOM.

PHARMACOGNOSY

This plant is the hairy henbane, also known as hog's bean and stinking Roger. As its names imply it is a plant with a somewhat sinister reputation, which is shared by other poisonous members of the Solanaceæ—Belladonna, Stramonium and Mandragora.

It is a shrubby herb growing to the height of 2 to 4 feet. The gay funnel-shaped flowers are yellowish in colour and veined with purple; they are quite large and striking in appearance with an exceedingly dark purple centre, like the pupil of an eye.

The leaves are of two kinds. Those appearing first spread out from the crown of the root, lying flat on the ground like a rosette. These leaves are ovate, more or less sharply toothed, with acute points, and may exceed a foot in length; they are greyish-green in colour and freely covered with sticky hairs. The stem and calices of the flowers are also hairy, suggesting hostility.

These leaves die off at the approach of winter and the flower stem appears the following spring. The stem leaves occur alternately along the stem which they encircle at the base. They are pale green in colour with a broad conspicuous mid-rib and are covered on both aspects with soft glandular hairs which secrete a resinous substance that gives the fresh leaves a nasty sticky clammy feel.

The fruit is a hard capsule which opens transversely by a lid and contains numerous small seeds. The underground portion consists of a large, brownish, freely branching root, from which the flower stem pushes up in the spring. Owing to its appearance the root has been eaten in mistake for parsnip or chicory, with disastrous results.

The whole plant has a heavy, oppressive, nauseous odour. It is well described by Schenk: "Black henbane grows on rubbish dumps and wherever the ground is covered with human garbage. We have only to look at this three feet tall plant with its grey leaves and yellowish flowers veined with purple to see that it is a typical poisonous plant. Sombre, luxuriant, sticky, evil-smelling and covered with close hairs, this sinister looking herb seems to live exclusively on human refuse, on the corpses in the cemetery or the offal that lies around human dwellings. Black henbane seems to suck up and retain within it all the poisonous matter from its habitat."

Even the fruit capsule with its clamped down lid and poisonous contents exemplifies bottled-up banefulness. Nor does the age-long history of the plant belie its appearance.

Used extensively in classical times as a medicine, Pliny nevertheless has this to say of its possibilities: "For mine own part I hold it to be a dangerous medicine, and not to be used but with great heed and discretion. For this is certainly knowne, that if one take in drinke more than four leaves thereof, it will put him beside himself."

The plant is widely distributed in Central and South Europe and further east in Siberia and India. It has been found in 60 British counties. The mother tincture is prepared from the whole plant, gathered in May, June or July.

PHARMACOLOGY

The plant contains two main toxic alkaloids, the crystalline hyoscyamine and the amorphous hyoscine, also known as scopolamine. These toxic principles are not destroyed by boiling or by drying.

The main affinity of the plant is with the realm of the psyche and with certain areas of the central nervous system. The hyoscine component is credited with producing a sedative, narcotic, antispasmodic effect and the psychological disturbance is ascribed to the hyoscyamine/atropine element.

That the psyche is profoundly affected is quite evident from the numerous instances of poisoning by the plant.

Henslow tells how "The whole of the inmates of a monastery were poisoned by using the root instead of chicory. They had such hallucinations that the establishment resembled a lunatic asylum. They rang the bell for matins at midnight; and those who attended were unable to read, or read what was not in the book."

Sir Hans Sloane records the case of four children who ate some of the capsules in mistake for filbert nuts and exhibited all the symptoms of narcotic poisoning, continuing for two days and nights in a profound sleep. This was an instance of the sedative, narcotic properties of the plant. It is interesting to note in this connection that during the Middle Ages a sponge saturated with the juice of the plant was held under the nose of those about to undergo an operation.

But a very extreme form of hallucinatory madness with associated muscular ataxia is also an effect of henbane poisoning. This was exemplified in a very striking manner by a gallant experiment carried out by Schenk himself. He describes his personal experience as the result of inhaling the fumes from roasted henbane seeds thus:

"To comprehend the power of black henbane the reader must picture the following condition. The ears become deaf, the eyes almost blind; they see in a haze only the bulk of objects, whose contours are blurred. The sufferer is slowly cut off from the outside world and sinks irretrievably into himself and his own inner world.

"The room dances; the floor, the walls and the ceiling tilt slowly to the right and then back to the left. But the victim has no sense of moving himself, although obviously he is staggering about in a stationary room.

"Now image followed upon image; they were shattered fragments of the real world. I saw them within the area of my own eyes. My uninhibited hilarity quickly vanished, making way for a feeling of amazement that everything I saw appeared completely topsy-turvey.

"Although I could hardly walk, or even stand up, I was seized by a raging impulse to move. Since my feet seemed welded to the floor I could only clutch and grasp at things with my hands and tear them to pieces.

"I was flung into a flaring drunkenness, a witches' cauldron of madness. Above my head water was flowing, dark and blood-red. The sky was filled with whole herds of animals. Fluid formless creatures emerged from the darkness. I heard words but they were all wrong and nonsensical, and yet possessed for me some hidden meaning.

"My teeth were clenched and a dizzy rage took possession of me. I know

that I trembled with horror; but I also knew that I was permeated by a peculiar sense of well-being connected with the crazy sensation that my feet were growing lighter, expanding and breaking loose from my body. This sensation of bodily dissolution is typical of henbane poisoning.

“As the delusions come to an end they are replaced by the consciousness of pain and nausea. Sight, hearing, smell and touch do not obey the will and seem to be going their own ways.”

Truly a psychosomatic pandemonium, with complete loss of rational control, both physical and psychological. With *Belladonna* there is turmoil in the circulation and a definitely belligerent type of delirium. Here there is utter tumult in the realm of thought and subjective sensation, liable as in the case of *Belladonna* to merge into somnolence and insensibility.

PHYSIOGNOMY

The physical features of the *Hyoscyamus* patient are similar in many respects to those exhibited by *Belladonna* subjects, but there are some dissimilarities.

The eyes sparkle, look red and injected, not so “staring” as is the case with *Belladonna*. The pupils are dilated and insensible.

The face tends to be pale, rather than blazing or dusky red as in *Belladonna* patients.

Muscular twitching is common, from eyes to toes, or clonic spasms may occur with coarse angular jerks which throw the body about.

There is a tendency to bump into things with wild wide-open eyes, or stagger about in a drunken manner. The hands show incessant movements, picking, clutching or performing mimetic gestures.

Speech is irrational and incoherent and may show a slant towards lewdness. Short abrupt answers are given to imaginary questions, or the sufferer may lapse into hysterical aphonia.

A persistent endeavour to throw off all covering and clothing may be a feature—probably the result of an extreme degree of hyperæsthesia coupled with loss of rational control.

Physical asthenia may be marked; the sufferer slides down in the bed with sagging lower jaw. The tongue becomes so dry that it rattles in the mouth and has the appearance of burnt leather. It is protruded and retracted with the utmost difficulty and great tremulousness.

PSYCHOLOGY

The mental disturbance associated with *Hyoscyamus* is extreme and diverse. The sufferer may be raving at one moment and at the next in a stupor—as one author puts it, “deprived of all his senses, just sits on the bed like a statue”.

Fear is prominent; fear of solitude; fear of running water; fear of being poisoned or of having been poisoned. Delusions of this type may progress to a veritable persecution complex with confirmed paranoia.

The exact form which these delusions and hallucinations take varies from one individual to another and, as with dreams, may assume protean shapes even in the same individual. One may manifest scruples of conscience and wallow in self-reproach; another may “curse and swear and make a fearful racket about quite imaginary grievances” or “make disclosures in subjects about which he would normally be silent and reserved”. Hilarity is replaced by abysmal gloom.

PHYSIOLOGY

Hyoscyamus lacks the heat of *Belladonna* and its subject is made worse by cold in any form. Warmth affords relief.

Hunger tends to be ravenous and thirst excessive.

Sleep is troubled and restless with much twitching, talking or crying out, and waking in terror. Extreme drowsiness alternates with wakefulness and sleep may depart for hours on end.

Debilitating sweats may occur during sleep and be cold and sour-smelling.

As to *modalities*, aggravation is noticed after eating, when lying down, from touch or contact; also during the menstrual period. Some relief is obtained by sitting up, by movement or walking about. Symptoms are worse at night, especially after midnight.

PATHOLOGY

Although the rages of *Hyoscyamus* may be accompanied by great strength, with many states marked debility and prostration are prominent features. Hæmorrhages also may occur, especially from the nose.

Head Region. Headache is liable to be accompanied by giddiness, tinnitus aurium and visual disturbance. There may be a complaint that "the brain seems to shake and shoggle in the skull when walking". A gnawing pain in scalp, vertex and nape is aggravated by touch and by any movement of the head. This is similar to the *Belladonna* headache which is made worse by the least jar or jolt.

Eyes. Spasms occur in the ocular muscles leading to squinting or rolling movements of the eyes. Photophobia is marked and vision is disturbed. Sparks may be seen before the eyes, objects appear very sharply outlined, assume a red colour, and small objects may look enormously enlarged.

Respiratory System. Catarrh of the larynx and trachea may be present with accumulation of mucus and hoarseness of the voice.

A dry teasing cough is aggravated by eating, drinking, talking or singing, also by lying down and at night, especially after midnight. It is better when sitting up. A paroxysmal cough which shakes the whole body is also described.

Alimentary System. The tongue is tremulous and catches on the teeth when protruded. It feels numb or as if burnt.

Paresis of muscles of deglutition may cause difficulty in swallowing and fluids may regurgitate through the nose or get into the trachea.

Nausea, vomiting, cramping or cutting pains in the abdomen are described, or the belly may be blown up like a drum. An accompaniment of these troubles is excessive tenderness of the epigastrium or the abdomen to least touch.

Constipation with total absence of call to stool may alternate with frequent urge and the passage of scanty stools. Stools may be passed while urinating. Involuntary diarrhœa may eventuate with passage of mushy, blood-streaked, foul stools of typhoid type.

Urinary System. Frequent urination with passage of only small quantities may alternate with infrequency and passage of large amounts of clear urine. Enuresis is common.

Nervous System. The *Hyoscyamus* convulsions come on with suddenness, often during sleep. They may be preceded by gnawing hunger. There are sudden starts and twitchings with angular movements, purple discolorations of the face, frothing at the mouth, wild look in the eyes with squinting, grinding of teeth and uttering of shrieking cries. The fit is accompanied by involuntary urination and is followed by sopor and snoring.

Locomotor System. Tremulousness in the limbs may cause distress. Cramps are common in the lower limbs, especially in the toes, and noticed when walking.

POSODOGY

Hyoscyamus finds its main application in maniacal states, puerperal mania, delirium tremens, coma vigil and similar conditions. It is indicated when convulsions come on with suddenness and great violence in strong vigorous subjects.