VETERINARY TOXICOLOGY

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with irritants in general, and treatment of the particular symptoms as indicated.

The detection of poisoning by analysis is very uncertain in the present state of our knowledge. The finding and identification of plant fragments offers the most certain means. When the bark of the plant is chewed there is produced after some minutes a very intense burning sensation, which lasts several hours. Extraction in the ordinary systematic routine yields an acid, which has no burning taste. It gives a smoky colour with ferric chloride, and a pink colour on prolonged warming with strong sulphuric acid. These observations are got both with the plant and with ingesta, but are scarcely characteristic. It is curious to note that after extraction of the acid, even in the cold, the toxicity, as tested on mice, so far as present observations go, disappears.

EUPHORBIACEÆ.

There are three genera of this family found in Britain, and from which poisoning may occur—namely, *Euphorbia*, or spurge, *Mercurialis*, and *Buxus*, or box.

Of exotic *Euphorbiaceæ*, *Ricinus communis*, or castor oil; *Croton tiglium*, or croton; and *Jatropha curcas*, or purging nut, are important species.

Euphorbia.

Botanical Characters.—The chief species which may give rise to poisoning is the *Euphorbia lathyris*, but no doubt most, if not all, of the *euphorbiæ* have similar effects. The *E. hibernica*, or Irish spurge, is, for instance, used as a fish poison.

E. lathyris.—A tall, stout annual or biennial, often 3 feet high, or even more; very smooth and glaucous. Stem-leaves narrow-oblong, the upper ones broader, especially at the base, often 3 or 4 inches long, and all opposite, not alternate, as in other *euphorbiæ*. Umbels of three or four long rays, once or twice forked, with large ovate-lanceolate floral leaves. Glands of the involucre crescent-shaped, the

points short and blunt; capsules large and smooth; seeds wrinkled. The plant grows wild in Sussex and Somerset, and is cultivated in cottage gardens.

Toxic Principle.—The *euphorbiæ*, of which *E. lathyris* is selected as typical, are distinguished by containing an acrid juice, and in the seeds a purgative oil. The resin *euphorbin* from the North African *E. resinifera* is a non-officinal purgative. Very little is known of the chemistry of the juices, which on the whole rather recall *ranunculus* in their action. Desiccation does not deprive the plant of its activity.

Symptoms.—Euphorbia is distinguished by its irritant action, with production of vomition, when possible, purgation, and in fatal doses superpurgation, together with nervous symptoms of vertigo, delirium, and muscular tremors.

The **Post-Mortem** appearances are those of acute gastro-enteritis.

Piss-grass.

The South African *Euphorbia genistoides*, known as piss-goed, or piss-grass, is a low shrub of about 8 inches, having close, many-branched stems, resembling a besom, and green apetalous flowers (Walsh). Like many others of this order, the stem contains an acrid juice, having powerful irritant properties.

Poisoning.—Poisoning by piss-grass mainly affects camels, oxen, and geldings, probably by reason of the narrower urinary passage. It is marked by severe urethritis. The animal appears very uneasy, and attempts to urinate are frequent and painful. The animal lies down, the bladder becoming more distended, and dies in coma, or in a violent effort at relief.

The *treatment* is difficult save in the early stages. Epsom salt and three-hourly doses of 10 grains of extract of belladonna have been recommended (Hutcheon). In the horse the catheter may be used, and for the ox amputation of the penis is a possible measure. Turpentine or any diuretic agent is to be avoided.