moment of extrusion, as in the frog, the parents resorting to the water for the purpose of reproduction. The ova are laid in spring, and are arranged, not in shapeless masses, but in a string containing a double series of eggs adher­ing by their gelatinous envelopes ; the string extends to a length of three or four feet. The tadpoles are similar to those of the frog, but blacker ; their metamorphosis takes place in the same manner, the three pairs of external gills being first absorbed and replaced for a time by internal gills, which are in their turn lost, the branchial slits being closed by the coalescence of the opercular membrane with the skin. The metamorphosis is complete in autumn. The toad is carnivorous, feeding on flies and other insects and worms. It hibernates in winter, passing its period of torpidity in holes or burrows in the earth. The finding of toads in a state of hibernation has given rise to stories of their being found in the centre of trunks of trees or imbedded in solid rock. The myth of the jewel in the head (Shakespeare) is probably founded on the brightness of the eyes, in which the iris is flame-coloured.

There are two kinds of toad in Britain,—the Common Toad, which is almost black in colour, and the Natter jack Toad, which is lighter, smaller, and has a bright yellow line along the middle of the back. The length of the common toad is 3½ inches, of the natter-jack 2¾ inches. The male natter jack possesses a bladder or vocal sack beneath the throat communicating with the mouth, which acts as a resonator to its voice ; its cry is “ gluck-gluck.” The vocal sack is absent in the common toad, and only in­completely developed in the Green Toad of the Continent.

In zoological classification the toad belongs to the genus Bufo, first constituted by Laurenti in the Synopsis Reptilium, of which the fol­lowing diagnosis is given in the Brit. Mus. Cat. Batr. Sal., 1882:—

Pupil horizontal. Tongue elliptical or pyriform, entire and free behind. Vomerine and maxillary teeth none. Tympanum dis­tinct or hidden, seldom absent. Fingers free ; toes more or less webbed ; the tips simple or dilated into small disks. Outer meta­tarsals united. Omosternum generally missing ; if present cartila­ginous; sternum a cartilaginous plate, sometimes more or less ossified along the median line. Diapophyses of sacral vertebræ more or less dilated. Terminal phalanges obtuse or triangular. Distribution cosmopolitan, except Australia.

Bufo vulgaris, Laurenti, the Common Toad, is thus distinguished. Crown without bony ridges. First finger as long as or longer than the second. Parotids distinct. Tympanum smaller than the eye. Toes half webbed ; no tarsal fold ; subarticular tubercles of toes double. The species is widely distributed, occurring throughout Europe, Asia, and north-west Africa.

Bufo calamita, Laurenti, the Natter-jack Toad, shows the follow­ing differences from B. vulgaris :—toes not half webbed ; tympanum rather indistinct; a tarsal fold. It is distributed throughout Europe.

According to Boulenger there are 77 species of Bufo known, of which 35 are confined to the Old World, the rest to the American continent. No species is common to the two great continents. The only other species occurring in Europe besides the two which are found in Britain is Bufo viridis, Laurenti, which ranges through­out Europe, Asia, and North Africa.

TOBACCO consists of the leaves of several species of *Nicotiana* (nat. ord. *Solanaceæ),* variously prepared for use as a narcotic. While it is principally manufactured for smoking, a large amount is also prepared for chewing, and to a more limited extent it is taken in the form of snuff. Under one or other of these forms the use of tobacco is more widely spread than is that of any other narcotic or stimulant.

Although the fact has been controverted, there cannot be a doubt that the knowledge of tobacco and its uses came to the rest of the world from America. In Novem­ber 1492 a party sent out by Columbus from the vessels of his first expedition to explore the island of Cuba brought back information that they had seen people who carried a lighted firebrand to kindle fire, and perfumed themselves with certain herbs which they carried along with them. The habit of snuff-taking was observed and described by Ramon Pane, a Franciscan, who accompanied Columbus on his second voyage (1494-6), and the practice of tobacco-chewing was first seen by the Spaniards on the coast of South America in 1502. As the continent of America was opened up and explored, it became evident that the consumption of tobacco, especially by smoking, was a universal and immemorial usage, in many cases bound up with the most significant and solemn tribal ceremonies.

The term tobacco appears not to have been a commonly used original name for the plant, and it has come to us from a peculiar instrument used for inhaling its smoke by the inhabitants of Hispaniola (San Domingo). The instru­ment, described by Oviedo *(Historia de las Indias Occiden­tales,* Salamanca, 1535), consisted of a small hollow wooden tube shaped like a Y, the two points of which being in­serted in the nose of the smoker, the other end was held into the smoke of burning tobacco, and thus the fumes were inhaled. This apparatus the natives called “ tabaco but it must be said that the smoking pipe of the con­tinental tribes was entirely different from the imperfect tabaco of the Caribees. Benzoni, on the other hand, whose *Travels in America* (1542-56) were published in 1565, says that the Mexican name of the herb was “ tabacco.”

The tobacco plant itself was first brought to Europe in 1558 by Francisco Fernandes, a physician who had been sent by Philip II. of Spain to investigate the products of Mexico. By the French ambassador to Portugal, Jean Nicot, seeds were sent from the Peninsula to the queen, Catherine de’ Medici. The services rendered by Nicot in spreading a knowledge of the plant have been commemo­rated in the scientific name of the genus *Nicotiana.* At first the plant was supposed to possess almost miraculous healing powers, and was designated “herba panacea,” “ herba santa,” “ sana sancta Indorum ” ; “ divine tobacco ” it is called by Spenser, and “ our holy herb nicotian ” by William Lilly. While the plant came to Europe through Spain, the habit of smoking it was initiated and spread through English example. Ralph Lane, the first governor of Virginia, and Sir Francis Drake brought with them in 1586, from that first American possession of the English crown, the implements and materials of tobacco smoking, which they handed over to Sir Walter Raleigh. Lane is credited with having been the first English smoker, and through the influence and example of the illustrious Raleigh, who “ tooke a pipe of tobacco a little before he went to the scaffolde,” the habit became rooted among Elizabethan courtiers. During the 17th century the indulgence in tobacco spread with marvellous rapidity throughout all nations, and that in the face of the most resolute opposition of statesmen and priests, the “counter- blaste ” of a great monarch, penal enactments of the most severe description, the knout, excommunication, and capital punishment.

The species of Nicotianα number about fifty, but those of which the leaves are used as sources of, tobacco are few. With the excep­tion of two species, one native of New Caledonia, the other proper to Australia, they are all of American origin. They form two well-defined groups, the first of which is characterized by the possession of an elongated corolla tube, red in colour, the plants having a single unbranched stalk which attains a height of from 5 to 7 feet ; while to the second group belong such as have a swollen corolla tube of a greenish-yellow colour, and a much- branched stem reaching a height of only from 2 to 5 feet. The type of the first group is the Virginian Tobacco, N. Τabacum, while the best known representative of the second is the Green Tobacco, N. rustica. These two species, together with their numerous varieties, and with the Persian Tobacco, N. persica,—the source of the famous Tumbeki or Shíraz tobacco,—are the sole sources of commercial tobacco. N. Tabacum is the species from which the tobaccos of Cuba, the United States, and the Philippine Islands, and the Latakia of Turkey, are derived, and it is thus the source of not only the greater proportion of the tobacco of commerce but also the most highly prized and valuable of its varieties. N. rustica, originally a native of Brazil, is cultivated