of the same genus the following results have, however, been obtained by De l'Isle: Hybridization between *Rana fusca*, *agilis*, and *viridis* in a state of nature being rendered impossible by the different periods of the year at which those species generate, tadpoles of males and females of *R. agilis* were produced *inter se* by artificial impregnation, but attempts with any two of the species failed completely. In the genus *Bufo*, however, where the species (*B. calamita* and *vulgaris*) are much more dissimilar in most respects, belonging, in fact, to different sections, the intermixture was readily effected, and produced tadpoles. These opposite results are traced to the much greater uniformity in the generative organs in toads, even of species widely removed by other characters, than in frogs (*Rana*), where these organs are a principal source of specific distinction.

The beak of the spoonbill and flamingo has been found by Herbst and Jobert to be an organ of great sensibility, owing to the presence of large nerves splitting up into minute branches, and following the osseous canals and foramina in the beak. The minute internal bony vacuities play under the slightest pressure, equilibrium is established by the elastic tissue, and the most delicate shock readily conveyed to the very sensitive nervous apparatus.

In *Botany*, we have to record the appearance of the long-expected book by Darwin on insectivorous plants. Although much has been written about such plants both in Europe and this country, the present work far surpasses any previous publication in the number and variety of the experiments and the accuracy of the results recorded. The observations are confined principally to members of the Droseraceæ and Lentibulariaceæ, the greater part of the book being devoted to an account of experiments on *Drosera rotundifolia* (common sun-dew), *Dionœa muscipula* (Venus's fly-trap), and *Utricularia neglecta*. In the first-named plant the upper surface of the somewhat concave leaf blades is covered with glandular hairs, which secrete a sticky substance at their tips, by means of which insects are caught. If an object is placed on the hairs in the centre of the leaf, an impulse is communicated to the radial hairs which causes them to bend over until their tips touch the object. If an object is placed on a hair remote from the centre, the other hairs bend over toward it. At the same time that the hairs bend, the secretion from their tips increases in quantity and becomes acid. The rapidity with which they converge over an object is found to depend on the chemical character of the object itself, nitrogenous bodies acting more powerfully than non-nitrogenous bodies. No substances affect the hairs so strongly as salts of ammonia, and the amount of phosphate of ammonia required to cause the hairs to bend is so incredibly small that, were it not for the accuracy of Darwin's record, one would be inclined to doubt the fact. By means of the secretion nitrogenous substances, as insects and pieces of meat, are softened and dissolved, whereas little or no effect is produced on non-nitrogenous substances. Although the chemical analysis of the secretion is difficult, owing to the small amount produced by any plant, judging by its power of dissolving different substances Darwin concludes that it is very closely allied to, if not identical with, the gastric juice. After dissolving digestible matter which has been caught, the hairs straighten themselves into their original position; when an indigestible body is caught, the hairs recover their position much more quickly. Whereas the hairs of Drosera are adapted for catching small insects by means of a sticky substance, the two lobes of the leaves of Dionœa are furnished with three highly sensitive hairs, which when touched cause the lobes to shut up quickly. The margins of the lobes are furnished with teeth, which interlock as the lobes come together, and imprison any insect on the leaf, unless it be very small. An acid secretion is then poured out by glands on the upper surface of the leaf, and digestion takes place as in Drosera, but the process is more difficult to observe than in the last mentioned plant, since the leaf is folded together. In both Drosera and Dionœa, although the hairs are sensitive when touched, they do not seem to be affected by falling drops of rain or by strong currents of air. The species of *Utricularia* catch their food by means of little traps on the leaves, and the insects caught slowly putrefy. Frequent reference is made throughout the book to experiments by Cauley, Mellichanho, and Mrs. Treat on American species of insectivorous plants.

The oospores of *Peronospora infestans*—potato-rot fungus—for which botanists have searched for years in vain, have at last been found in England by Mr. Worthington Smith in the leaves of the potato, where they form black spots, which at first were supposed to be caused by a species of Protomyces. This important discovery, in an agricultural point of view, settles the disputed question as to the probability of the oospores being in wheat or rye straw or in some species of clover, and the supposed liability of potatoes to rot when following a crop of grain or clover proved to be without foundation.

Under the head of *Agricultural Science*, we note some experiments by Heiden on the digestion of pease, maize, barley, and bran of rye by swine. In investigations continuing through three years, trials were made to determine the comparative effects of water and sour milk upon the amounts digested from these foods. When pease were fed with water, about the same proportions of carbohydrate were digested as when fed with milk. Of the albuminoids and fats, however, more were digested with milk than with water. In general, more of the albuminoids of all the foods were digested where they were mixed with milk than when fed with water. The rye bran was least digestible of all the foods. Heiden considers bran at best but poor food for swine.

The German agricultural journal *Der Chemische Ackersmann* gives a *résumé* of results of several extensive feeding trials with sheep in England and Germany, in which have been tested the capacities of full-blood South-Downs, full-blood merinoes, and a cross between South-Downs and merinoes for utilizing food. Reckoning the production by the increase in live weight, the South-Downs gave over twice as much return for their food as the merinoes. Representing the production from a given amount of food by the merinoes as 1, the production from the same food by the half-bloods would be 1.75, and by the South-Downs 2.17.

The necessity of loosening the soil in the cul-