

FIGURE 1.1. A fer-de-lance (*Bothrops asper*). Anonymous (nineteenth-century). REPRODUCTION © 1979 BY DOVER PUBLICATIONS.



FIGURE 1.3. Domesticated in Mexico and Central America over 9,000 years ago, avocados were long established in local diets by the time of the Aztec feast pictured here. Anonymous (Florentine Codex, late sixteenth century).

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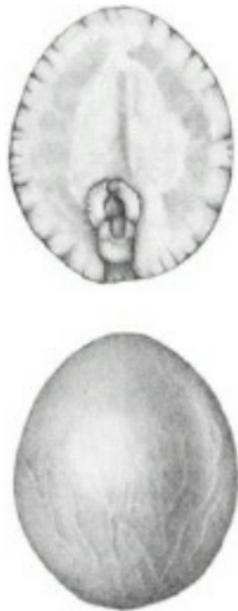


FIGURE 1.4. Avocado (*Persea americana*). Inside the paper-thin seed coat of an avocado pit, two massive seed leaves surround a tiny nub containing the root and shoot. Avocados evolved in a rainforest, where young trees need a large dose of seed energy to sprout and get established in deep shade. ILLUSTRATION © 2014 BY SUZANNE OLIVE.

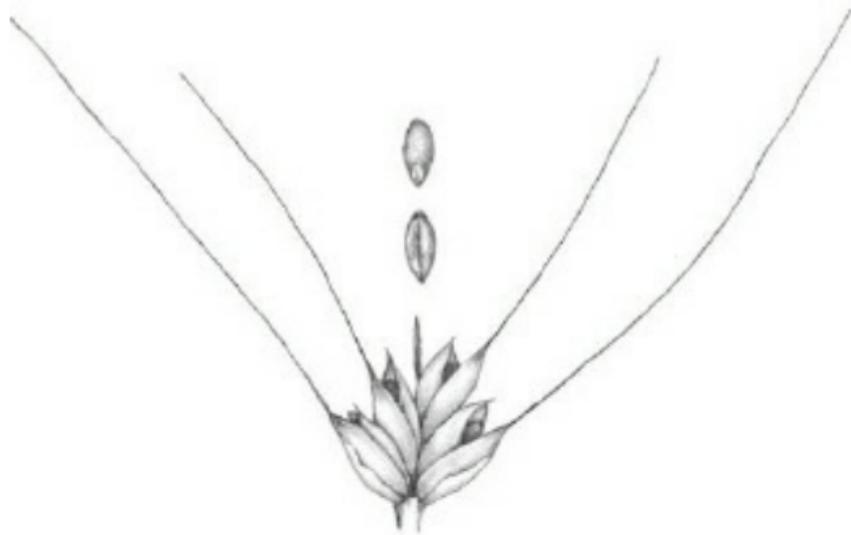


FIGURE 2.3. Wheat (*Triticum* spp.). Descended from wild grasses native to the Middle East, wheat now covers more agricultural acreage worldwide than any other crop. Like the individual grains of other edible grasses—from rice and corn to oats, millet, and sorghum—each tiny grain of wheat is actually a complete seed-like fruit called a *caryopsis*. ILLUSTRATION © 2014 BY SUZANNE OLIVE.

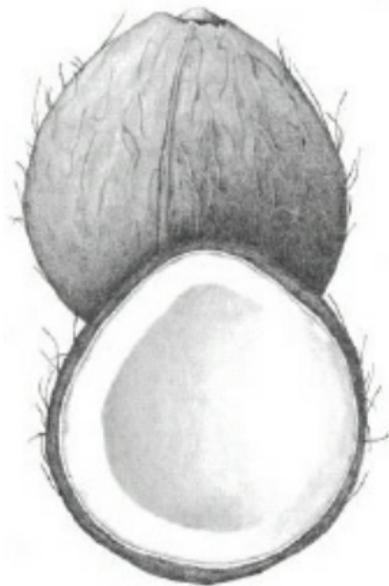


FIGURE 3.1. Coconut (*Cocos nucifera*). The seeds of the coconut palm, among the world's largest, provide everything from thirst-quenching beverages to cooking oil, skin creams, and mosquito repellent. Dispersed throughout the coastal tropics by ocean currents and people, the origin of the species remains mysterious.

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FIGURE 3.2. Darwin looks on in this cartoon parody from *Punch* magazine, December 6, 1881. Entitled “Man Is But a Worm,” it shows a spiraling progression of forms, from worm to monkey to evolution’s presumed pinnacle, a top-hatted Victorian gentleman. WIKIMEDIA COMMONS.



FIGURE 4.3. Wallace's spike moss (*Selaginella wallacei*). Like the common ancestor of all seed plants, this spike moss has taken the evolutionary leap of separating male and female spores. The males, precursors to pollen, are pictured on the upper right, emerging from their pouch like a smear of dust. The much larger female spores appear directly below. ILLUSTRATION © 2014 BY SUZANNE OLIVE.

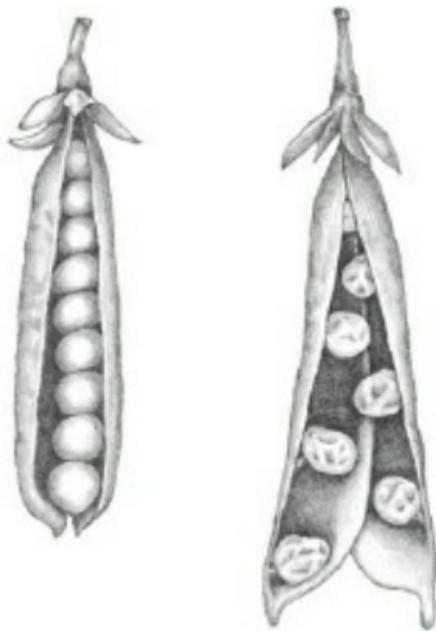


FIGURE 5.1. Common pea (*Pisum sativum*). The common pea made a perfect study species for Gregor Mendel because it shows a range of easily manipulated features, including two forms of seeds, smooth and wrinkled.

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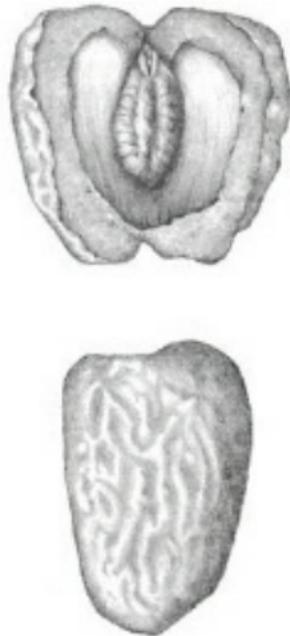


FIGURE 6.2. Date (*Phoenix dactylifera*). Cultivated since ancient times for their sweet fruits, date palms also hold the record for longevity in seeds. A date seed recovered from the ruins of Masada Fortress germinated after lying dormant for nearly 2,000 years. ILLUSTRATION © 2014 BY SUZANNE OLIVE.



FIGURE 7.3. Sorghum (*Sorghum bicolor*). A hot-country grain native to Ethiopia, sorghum is expected to become increasingly important as the world adjusts to climate change. The kernels can be ground into flour, fermented to make beer, and even puffed as an alternative to popcorn. ILLUSTRATION © 2014 BY SUZANNE OLIVE.

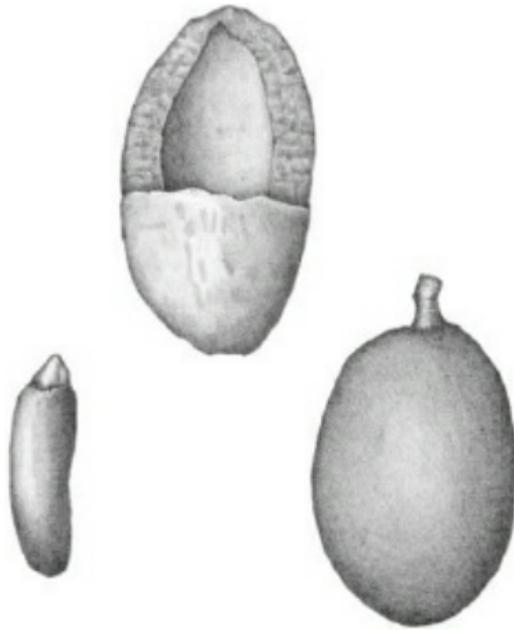


FIGURE 8.2. *Almendro* (*Dipteryx panamensis*). Seeds of the mighty *almendro* tree lie within one of the toughest shells in nature, a defense against the gnawing teeth of rodents. The shell is pictured at the top, partially cut away in cross section. An extracted seed is shown on the left, with a whole fruit on the right. ILLUSTRATION © 2014 BY SUZANNE OLIVE.

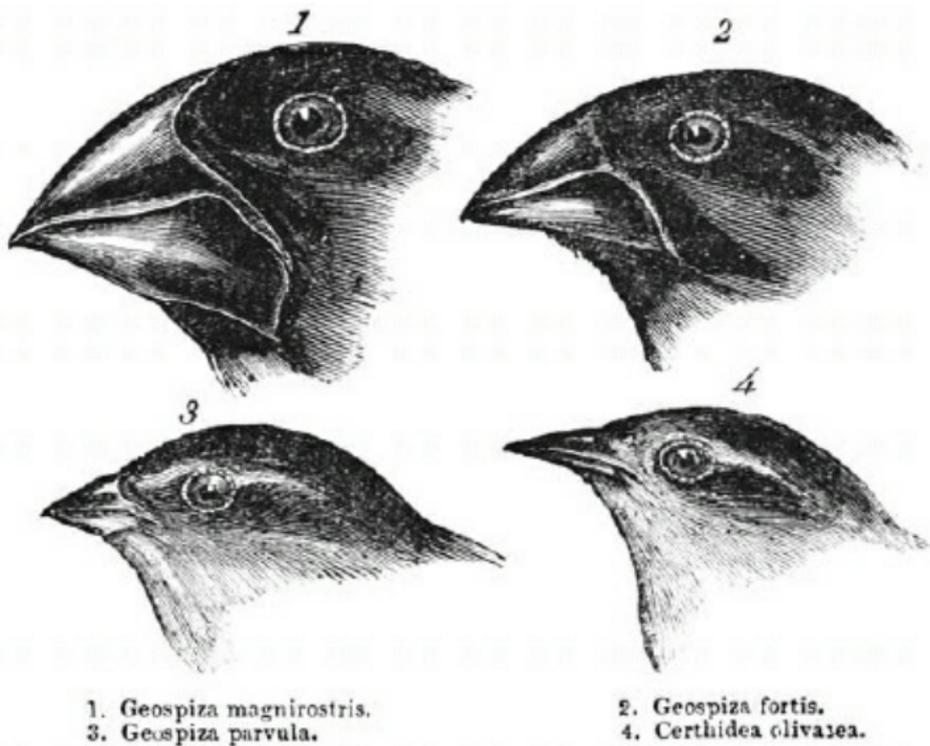


FIGURE 8.4. This classic illustration by John Gould shows some of the diversity of beak shapes in Darwin's Galapagos finches. Charles Darwin, *Journal of the Beagle* (1839). WIKIMEDIA COMMONS.

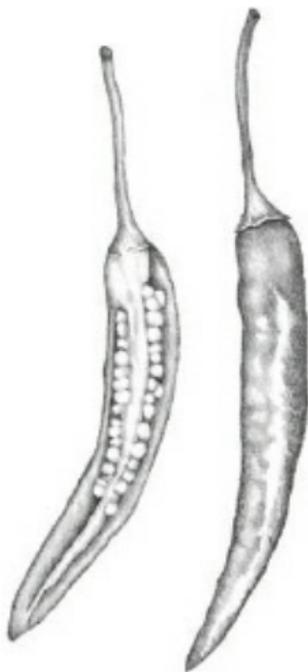


FIGURE 9.2. Chili pepper (*Capsicum* sp.). The thousands of varieties of domestic chili peppers descend from four species native to South America. In the wild, their pungency repels seed-killing fungi as well as rodents and other mammals that can't take the heat. ILLUSTRATION © 2014 BY SUZANNE OLIVE.

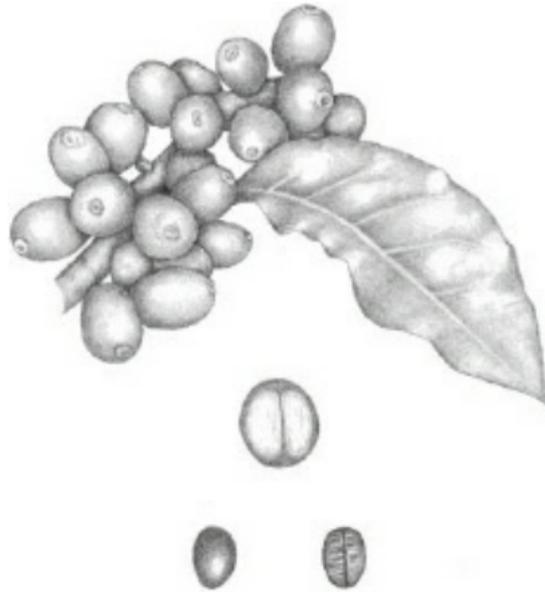


FIGURE 10.2. Coffee (*Coffea* spp.). Beloved for their stimulating caffeine and complex flavor, the seeds of these small African trees have become the world's most traded commodity. The berry-like fruits pictured at the top and in cross section each contain two seeds that swell and darken when roasted (below). ILLUSTRATION © 2014 BY SUZANNE OLIVE.

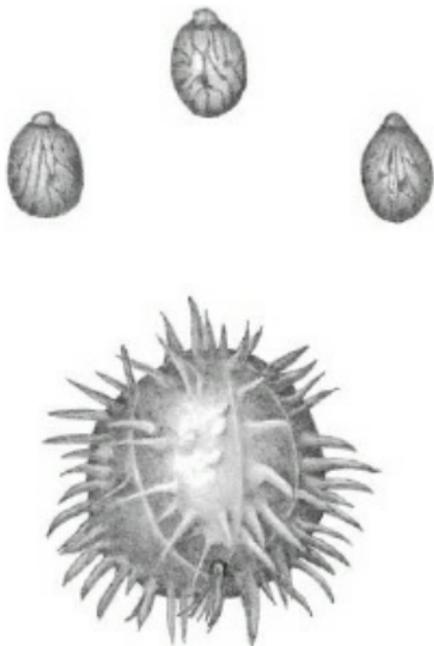


FIGURE 11.1. Castor bean (*Ricinus communis*). Beautiful enough to be sought after by jewelry makers, the mottled seeds of the castor plant contain a valuable oil as well as ricin, one of the world's deadliest poisons. The spiny, protective capsule bursts upon drying, hurling individual beans as far as thirty-five feet (eleven meters) from the mother plant. ILLUSTRATION © 2014 BY SUZANNE OLIVE.

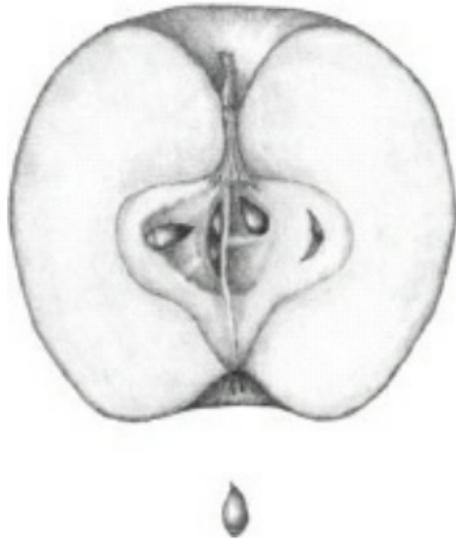


FIGURE 12.2. Apple (*Malus domestica*). An iconic symbol of temptation in everything from artwork to Bible stories to *Snow White*, apples play a role uniquely suited to fruit. In nature, fleshy fruits of all kinds evolved for the sole purpose of tempting animals into dispersing the seeds of plants. ILLUSTRATION © 2014 BY SUZANNE OLIVE.

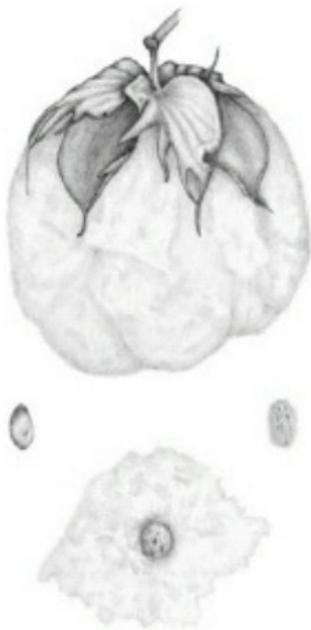


FIGURE 13.1. Cotton (*Gossypium* spp.). Lined up end to end, the fibers from a single cotton boll can stretch more than twenty miles. Woven together into yarn, they anchor an industry that shaped the history of empires, the Industrial Revolution, and the American Civil War. A full boll is pictured above, with fuzzed and shorn seeds shown below. ILLUSTRATION © 2014 BY SUZANNE OLIVE.



FIGURE 13.2. Stories from medieval traveler Sir John Mandeville and others led to the myth that cotton came from “vegetable lambs,” woolly botanical creatures harvested from the fruits of an Asian tree. Anonymous (c. seventeenth century). WIKIMEDIA COMMONS.

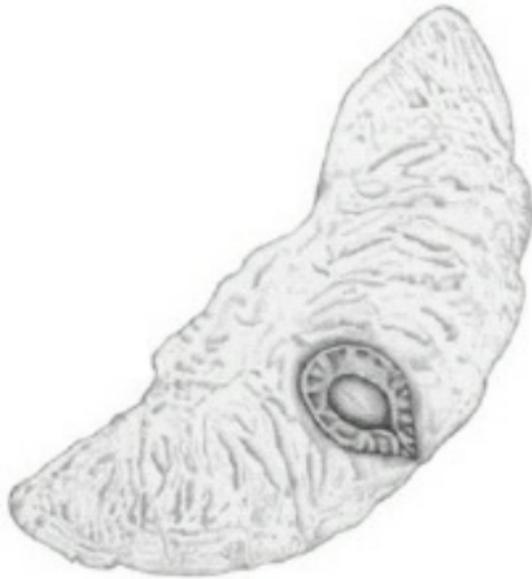


FIGURE 13.3. Javan cucumber (*Alsomitra macrocarpa*). With its edges stretched into a broad, thin wing, the seed of the Javan cucumber is one of nature's most efficient airfoils, staying aloft on the slightest breeze and gliding for trips measured not in feet, but in miles. ILLUSTRATION © 2014 BY SUZANNE OLIVE.